

El Paso Electric

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September 15, 2015

Ms. Melanie Magee  
US Environmental Protection Agency  
Region 6, Air Permitting Division  
1445 Ross Avenue (6EN)  
Dallas, TX 75202

RE: El Paso Electric Company, Montana Power Station, El Paso County, Texas  
EPA-Issued Permit PSD-TX-1290-GHG  
Supplemental Permit Rescission Request under 40 C.F.R. § 51.21(w)

Dear Ms. Magee:

At your suggestion, El Paso Electric Company (EPEC) is re-submitting this request for rescission of Prevention of Significant Deterioration (PSD) Permit for Greenhouse Gas Emissions Number PSD-TX-1290-GHG ("GHG Permit") for the Montana Power Station (MPS), which EPA issued on March 25, 2014. A functionally identical request was filed with Regional Administrator Curry on August 1, 2014, and remains pending. These requests are being made in accordance with 40 C.F.R. § 52.21(w), which requires EPA to rescind a PSD permit if it can be shown that the permit would not have been required but for emissions of GHG.

As noted in that prior, pending request, EPEC applied for GHG Permit No. PSD-TX-1290-GHG based solely on EPA's earlier determination under 40 C.F.R. § 52.21(b)(49) that MPS's anticipated GHG emissions triggered PSD permit review. *See* EPA Statement of Basis, Permit No. PSD-TX-1290-GHG (Sept. 2013), *available at* <http://www.epa.gov/earth/r6/6pd/air/pd-r/ghg/el-paso-sob.pdf> ("EPA concludes EPEC's application is subject to PSD review for the pollutant GHGs because the project would lead to an emissions increase of GHGs for a facility as described at 40 CFR § 52.21(b)(49)(v)."); *see also* Texas Commission on Environmental Quality, Order Granting Permit Nos. 102294/PSD-TX-1290, Finding of Fact No. 98 (Dec. 13, 2013) (but for GHG emissions, MPS would be minor source eligible for standard permit).


Federally enforceable limits on all regulated pollutants other than GHG are imposed by TCEQ Standard Permit No. 123471, as issued by TCEQ on October 2, 2014 (copy provided as Enclosure 1, including the four-page Maximum Allowable Emissions Rate Table). The allowable emission rate table demonstrates that the MPS's permitted emissions of NO<sub>x</sub>, CO, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, and NH<sub>3</sub> are all below their respective PSD thresholds.

Enclosure 2 includes excerpts from the EPEC's MPS Standard Permit application, which demonstrate the basis for the TCEQ-approved numerical potential-to-emit determinations for each non-GHG pollutant associated with the EPA-issued Step 2 GHG PSD permit. As specified in 40 C.F.R. § 52.21(w), this standard permit, as well as EPA's and TCEQ's prior findings, establish that the MPS did not, at the time it obtained its EPA-issued Step 2 PSD Permit, have the potential to emit any regulated pollutant above the major source thresholds applicable to it, except for GHG.

I hereby certify that the GHG PSD permit issued by EPA-Region 6 is not being used, or planned to be used, for any other regulatory or compliance and enforcement purposes, and the information contained in this rescission request submittal is factual and correct.

Thank you in advance with your assistance. Please contact Linda Barker, EPEC's Director of Environmental Health & Safety, at (915) 521-4698, or by email at [linda.barker@epelectric.com](mailto:linda.barker@epelectric.com) with any follow-up questions or concerns.

Regards,



Andy Ramirez  
Vice President of Power Generation  
El Paso Electric Company  
100 North Stanton  
El Paso, TX 79901

**ENCLOSURE 1**

**Standard Permit No. 123471 for Montana Power Station's Non-GHG Emissions**

Bryan W. Shaw, Ph.D., P.E., *Chairman*  
Toby Baker, *Commissioner*  
Zak Covar, *Commissioner*  
Richard A. Hyde, P.E., *Executive Director*



**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**  
*Protecting Texas by Reducing and Preventing Pollution*

October 2, 2014

MR ANDRES R RAMIREZ  
VICE PRESIDENT POWER GENERATION  
EL PASO ELECTRIC COMPANY  
100 N STANTON ST  
EL PASO TX 79901-1463

Re: Electric Generating Units Air Quality Standard Permit  
(Effective 5/16/2007)  
Standard Permit Registration Number: 123471  
Standard Permit Renewal Date: October 2, 2024  
El Paso Electric Company  
Montana Power Station  
El Paso, El Paso County  
Regulated Entity Number: RN106392624  
Customer Reference Number: CN600352819

Dear Mr. Ramirez:

This is in response to your Form PI-1S (Air Quality Standard Permit for Electric Generating Units) regarding the proposed construction to be located at 13511b Montana Ave, El Paso, El Paso County. We understand that this registration is for emissions associated with the Montana Power Station, including four combustion turbines and ancillary facilities.

After evaluation of the information you submitted, the Texas Commission on Environmental Quality (TCEQ) has determined that your proposed emissions are authorized by this standard permit pursuant to Title 30 Texas Administrative Code § 116.602 (30 TAC § 116.602) if constructed and operated as represented in your registration. This standard permit was issued under the Texas Clean Air Act (TCAA) § 382.011, which authorizes the commission to control the quality of the state's air; TCAA § 381.023, which authorizes the commission to issue orders necessary to carry out the policy and purposes of the TCAA; and § 382.05195, which authorizes the commission to issue standard permits. Authorized emissions are listed on the attached table.

You are reminded that 30 TAC § 116.615 requires that any construction or change authorized by this standard permit be administratively incorporated into the affected facilities' permit(s) at the next amendment or renewal.

You are also reminded that these facilities must be in compliance with all rules and regulations of the TCEQ and of the U.S. Environmental Protection Agency at all times.

If you need further information or have any questions, please contact Mr. Sean O'Brien at (512) 239-1137 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Mr. Andres R Ramirez  
Page 2  
October 2, 2014

Re: Standard Permit Registration Number 123471

This action is taken under authority delegated by the Executive Director of the TCEQ.

Sincerely,

A handwritten signature in black ink that reads "Kate Stinchcomb". The signature is written in a cursive, slightly slanted style.

Kate Stinchcomb, Manager  
Combustion / Coatings New Source Review Permits Section  
Air Permits Division  
Texas Commission on Environmental Quality

cc: Air Quality Manager, Environmental Services Department, City of El Paso, El Paso  
Air Section Manager, Region 6 - El Paso

Project Number: 217912

Standard Permit Maximum Emission Rates Table  
Permit Number 123471

The facilities and emissions included in this table have been represented and reviewed as the maximum emissions authorized by this standard permit registration.

Emission Point No.	Source Name	Pollutant	Authorized Emissions	
			Lbs./Yr.	DP
GT-1	Combustion Turbine 1	NO <sub>x</sub> -NG	14.00	62.25
		NO <sub>x</sub> (MSS) -NG	21.37	
		NO <sub>x</sub> -FO	14.00	
		NO <sub>x</sub> (MSS) -FO	27.81	
		CO -NG	11.48	
		CO (MSS) -NG	31.08	
		CO -FO	11.60	
		CO (MSS) -FO	29.53	
		PM -NG	6.00	
		PM -FO	25.00	
		PM <sub>10</sub> -NG	6.00	
		PM <sub>10</sub> -FO	25.00	
		PM <sub>2.5</sub> -NG	6.00	
		PM <sub>2.5</sub> -FO	25.00	
		VOC -NG	2.19	
		VOC -FO	3.65	
		SO <sub>2</sub> -NG	0.60	
SO <sub>2</sub> -FO	1.26			
H <sub>2</sub> SO <sub>4</sub> -NG	0.05			
H <sub>2</sub> SO <sub>4</sub> -FO	0.10			
NH <sub>3</sub> -NG	6.70			
NH <sub>3</sub> -FO	6.80			

Emission Point No.	Source Name	Pollutant	Amount lb/yr	Emissions t/yr
GT-2	Combustion Turbine 2	NO <sub>x</sub> -NG	14.00	62.25
		NO <sub>x</sub> (MSS) -NG	21.37	
		NO <sub>x</sub> -FO	14.00	
		NO <sub>x</sub> (MSS) -FO	27.81	
		CO-NG	11.48	
		CO (MSS) -NG	31.08	
		CO-FO	11.60	
		CO (MSS) -FO	29.53	
		PM-NG	6.00	
		PM-FO	25.00	
		PM <sub>10</sub> -NG	6.00	
		PM <sub>10</sub> -FO	25.00	
		PM <sub>2.5</sub> -NG	6.00	
		PM <sub>2.5</sub> -FO	25.00	
		VOC-NG	2.19	
		VOC-FO	3.65	
		SO <sub>2</sub> -NG	0.60	
		SO <sub>2</sub> -FO	1.26	
		H <sub>2</sub> SO <sub>4</sub> -NG	0.05	
		H <sub>2</sub> SO <sub>4</sub> -FO	0.10	
NH <sub>3</sub> -NG	6.70			
NH <sub>3</sub> -FO	6.80			

EMISSION POINT NO.		SOURCE NAME		EMISSION FACTOR (LBS/HR)		EMISSION RATE (LBS/HR)	
GT-3	Combustion Turbine 3	NO <sub>x</sub> -NG		14.00			
		NO <sub>x</sub> (MSS) -NG		21.37	22.7		62.25
		NO <sub>x</sub> -FO		14.00			
		NO <sub>x</sub> (MSS) -FO		27.81			
		CO -NG		11.48			
		CO (MSS) -NG		31.08			
		CO -FO		11.60			
		CO (MSS) -FO		29.53			
		PM -NG		6.00			28.22
		PM -FO		25.00			
		PM <sub>10</sub> -NG		6.00			
		PM <sub>10</sub> -FO		25.00			28.22
		PM <sub>2.5</sub> -NG		6.00			
		PM <sub>2.5</sub> -FO		25.00			28.2
		VOC -NG		2.19			
		VOC -FO		3.65			9.74
		SO <sub>2</sub> -NG		0.60			
		SO <sub>2</sub> -FO		1.26			2.70
		H <sub>2</sub> SO <sub>4</sub> -NG		0.05			
		H <sub>2</sub> SO <sub>4</sub> -FO		0.10			0.22
NH <sub>3</sub> -NG		6.70					
NH <sub>3</sub> -FO		6.80			29.35		



Emmission Point No.	Source Name	Compound	Units	Rate/Concentration	PPM
FWP-1	Firewater Pump Engine	NO <sub>x</sub>		2.04	0.05
		CO		0.48	0.01
		VOC		0.05	<0.01
		PM		0.08	<0.01
		PM <sub>10</sub>		0.08	<0.01
		PM <sub>2.5</sub>		0.08	<0.01
		SO <sub>2</sub>		0.67	0.02
NH <sub>3</sub> -FUG	Ammonia Fugitives**		0.15	0.66	
DIESEL	Diesel Storage Tank	VOC		0.02	<0.01

- VOC - volatile organic compounds
- NO<sub>x</sub> - total oxides of nitrogen
- CO - carbon monoxide
- PM - total particulate matter, suspended in the atmosphere, including PM<sub>10</sub> and PM<sub>2.5</sub>, as represented
- PM<sub>10</sub> - total particulate matter equal to or less than 10 microns in diameter, including PM<sub>2.5</sub> as represented
- PM<sub>2.5</sub> - particulate matter equal to or less than 2.5 microns in diameter
- SO<sub>2</sub> - sulfur dioxide
- H<sub>2</sub>SO<sub>4</sub> - sulfuric acid mist
- NH<sub>3</sub> - ammonia

\* NG after a pollutant means those are the authorized emissions when firing natural gas. FO after a pollutant means those are the authorized emissions when firing diesel or No. 2 fuel oil.

\*\* Fugitive emissions are an estimate only and should not be considered as a maximum allowable.

Date: October 2, 2014

**ENCLOSURE 2**

**Excerpts from Montana Power Station Standard Permit Application  
(Basis for TCEQ Approved Numerical Potential to Emit for Non-GHG pollutants)**

# 1. EXECUTIVE SUMMARY

## 1.1. PROJECT BACKGROUND AND PERMITTING CONSIDERATIONS

The Montana Power Station is a greenfield electric generating station under development on a 260-acre tract of land situated in East El Paso County, Texas, outside of the City of El Paso. It consists of four GE LMS100 turbines operating in simple cycle, along with associated support facilities. The units at the Montana Power Station will be constructed sequentially over a four year time period. EPEC commenced construction on June 2, 2014 under the current TCEQ and EPA permit authorization and expects to commence operations for the first unit at the Montana Power Station in January 2015.

The Montana Power Station consists of simple cycle combustion turbines with no steam involved in the electrical power produced by this plant. Therefore, the project is not considered a Prevention of Significant Deterioration (PSD) listed source and the major source threshold is 250 tons per year (tpy). Maximum potential emissions of all criteria pollutants from the Montana Power Station are less than the PSD major source threshold of 250 tpy. However, the maximum potential GHG emissions from the Montana Power Station are greater than the PSD major source threshold of 100,000 tpy that was in place at the time that EPEC sought to permit the project in 2012. Because the project triggered PSD review for GHG, (1) EPEC was required to obtain a GHG-only PSD permit from EPA, (2) EPEC could not register under the otherwise available TCEQ-issued standard permit for electric generating units, and (3) also then triggered PSD review for other pollutants emitted below major source threshold but above applicable "significant emission rates," including carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), and particulate matter (PM). Therefore, EPEC applied for and obtained separate PSD permits from EPA (for GHG) and from TCEQ (for all other PSD-regulated pollutants), with the TCEQ permit (Nos. 102294 and PSD-TX-1290) issued by the Commission on January 21, 2014 and the GHG PSD permit (PSD-TX-1290-GHG) issued by U.S. EPA Region 6 on March 25, 2014. In issuing the TCEQ permit, the Commission found that "[b]ut for the emergence of EPA-driven permitting requirements for greenhouse gases, the Montana Power Station project would not have triggered PSD review, and would have satisfied the requirements for a standard permit." Commission Docket No. 2012-2608-AIR, Order of December 10, 2013, Finding of Fact No. 133.

On June 23, 2014, the U.S. Supreme Court issued its opinion in *Utility Air Regulatory Group v. EPA*, No. 12-1146, reversing a lower court opinion upholding EPA's GHG permitting rules. That opinion holds that PSD permitting requirements under the Clean Air Act are not triggered by GHG emissions. Because it was solely the emissions of GHG that triggered PSD permitting of the Montana Power Station, the construction of the Montana Power Station does not trigger PSD permitting, such that it is eligible for authorization under a standard permit. The remaining sections of this registration establish the project's satisfaction of each of the requirements of the Air Quality Standard Permit for Electric Generating Units, as issued by TCEQ in May 2007. EPEC will submit a request to void TCEQ Permit Numbers 102294 and PSDTX1290 after issuance of the Standard Permit for the Montana Power Station.

The location of the Montana Power Station is in El Paso County, outside the boundaries of the City of El Paso, which is currently an attainment or unclassified area for all criteria pollutants and is proposed to be attainment

for the current 8-hr ozone standard.<sup>1,2</sup> A portion of the City of El Paso is attainment (maintenance) for carbon monoxide (CO) and the City of El Paso is nonattainment for particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>).<sup>3</sup> Based on the location of the site, which is outside the City of El Paso, the Montana Power Station is not subject to nonattainment new source review (NNSR).

As documented in Appendix A, the potential emissions of CO, NO<sub>x</sub>, sulfur dioxide (SO<sub>2</sub>), volatile organic compounds (VOC), PM, PM with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>), and PM with an aerodynamic diameter of 2.5 microns or less (PM<sub>2.5</sub>) are below PSD major source thresholds (i.e. 250 tpy for Simple Cycle Combustion Turbines [SCCTs]). Therefore, the Montana Power Station is not a major source for PSD review.

## 1.2. PROJECT DESCRIPTION

The Montana Power Station is designed to have a total power generation output capacity of approximately 400 megawatts (MW). EPEC is installing four General Electric (GE) LMS100s combustion turbines to meet the 400 MW output demand. These are the highest-efficiency turbines for the intended service. Selective catalytic reduction (SCR) will be employed to control emissions of NO<sub>x</sub>. In addition, EPEC will use a GE supplied carbon monoxide reduction (COR) system to reduce emissions of CO and VOC from the LMS100s.

Each simple cycle, gas-fired turbine-LMS100 EGU has a power generation output capacity of approximately 100 MW during the winter and 89.9 MW during extreme summer temperatures.

The Montana Power Station will include the following emissions sources:

- > Four (4) Natural Gas-fired Combustion Turbines including planned maintenance, start-up, and shutdown (MSS) activities, with diesel as a backup fuel during emergency situations such as natural gas curtailment
- > Two (2) Cooling Towers
- > One (1) Diesel Firewater Pump Engine
- > One (1) 300 gallon Diesel Storage Tank
- > Fugitive emissions from piping components

Aqueous ammonia will be stored in pressurized tanks and the unloading operations are equipped with a vapor return line. Therefore, the ammonia storage tanks and unloading operations are not considered as potential emission sources.

A detailed process description is included in Section 5 of this Standard Permit registration.

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<sup>1</sup> Per 40 CFR §81.344 (Effective June 15, 2004), available at: <http://www.gpo.gov/fdsys/pkg/CFR-2010-title40-vol17/pdf/CFR-2010-title40-vol17-sec81-344.pdf>

<sup>2</sup> Texas Commission of Environmental Quality, El Paso: Current Attainment Status webpage: <http://www.tceq.texas.gov/airquality/sip/elp/elp-status>, accessed August, 2014.

<sup>3</sup> Ibid.

### 1.3. PERMIT REGISTRATION

This Standard Permit registration is prepared in accordance with 30 TAC Chapter 116, Subchapter F, Standard Permits. This registration includes a TCEQ Form PI-1S, TCEQ Table 1(a), emissions calculations, process description and flow diagram, and supporting documentation.

## 6. EMISSIONS DATA

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This section summarizes the emission calculation methodologies for the emission sources at the Montana Power Station. Detailed emission calculation spreadsheets, including example calculations, are included in Appendix A. These emission estimates reflect emission limits that satisfy the EGU Standard Permit requirements. More specifically, short-term NO<sub>x</sub> emissions from the combustion turbines will meet 0.14 lbs/MWh and annual emissions for each criteria pollutant will be less than 250 tpy on a facility-wide basis.

The following emission units are included in the emission calculations provided in Appendix A:

- > Four Combustion Turbines (EPNs: GT-1, GT-2, GT-3, and GT-4);
- > Two 4-cell Cooling Towers (EPNs: CT-1 and CT-2)
- > One Firewater Pump Engine (EPN: FWP-1);
- > One diesel storage tank (EPN: DIESEL);
- > Fugitive emissions from piping components (EPN: FUG-NH3); and
- > Startup and shutdown emissions from combustion turbines (EPNs: GT-1, GT-2, GT-3, and GT-4).

Aqueous ammonia (19%) will be stored in pressurized tanks and the unloading operations are equipped with a vapor return line. Therefore, the ammonia storage tanks and unloading operations are not considered as potential emission sources.

### 6.1. COMBUSTION TURBINES

#### 6.1.1. Normal Operations

Emissions from the combustion turbines (EPNs: GT-1, GT-2, GT-3, and GT-4) are the result of the combustion of pipeline quality natural gas (and diesel during emergency and testing operations) and ammonia slip from the SCR system. The combustion turbines will be fitted with a water injection system and a SCR/COR system. NO<sub>x</sub> emission will be controlled by the water injection and SCR system. Emissions of CO and VOC will be controlled by a COR. The design of the LMS100 has the highest efficiency for this class of gas turbines for combustion and therefore the lowest emission rates per MWh.

Per Standard Permit condition (4)(E)(i), the NO<sub>x</sub> emission limit for the combustion turbines is 0.14 lb/MWh. Therefore, maximum hourly emissions of NO<sub>x</sub> are calculated based on 0.14 lb/MWh combined with the combustion turbine capacity of 100 MW. Hourly emission rates for all other pollutants are based on the vendor guaranteed emission rates and design emission factors for products of combustion during normal operations. Maximum hourly emissions from various operating loads and ambient temperature conditions are used to represent the hourly emission rates.

HAP emissions are calculated based on emission factors from the U.S. EPA's AP-42 Chapter 3, Section 3.1 *Stationary Gas Turbines*.<sup>5</sup> Since the combustion turbines will be equipped with oxidation catalysts (a.k.a COR),

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<sup>5</sup> AP-42, Chapter 3, Section 1, Table 3.1-3 (Emission Factors for Hazardous Air Pollutants from Natural Gas-Fired Stationary Gas Turbines, April 2000).

controlled emission factors for acetaldehyde, acrolein, benzene, and formaldehyde during natural gas combustion are obtained from U.S. EPA's *Emission Factor Documentation for AP-42 Section 3.1 Stationary Gas Turbines*.<sup>6</sup> Emission factors for diesel combustion are obtained from U.S. EPA's *Emission Factor Documentation for AP-42 Section 3.1 Stationary Gas Turbines*.

See Appendix A for detailed emission calculations for the combustion turbines. The detailed performance data, including emission rates at various operating conditions is provided in Appendix B (Natural Gas Combustion) and Appendix C (Diesel Fuel Combustion).

### 6.1.2. Combustion Turbines - MSS Emissions

Each combustion turbine is expected to have up to as many as approximately 832 startup events and 832 shutdown events per year when firing natural gas. In addition, EPEC estimates up to 32 startup events and 32 shutdown events per year when firing diesel (during testing and emergency operations). Please note the number of startup and shutdown events is for estimation purposes only and not intended to be an operational limit. EPEC will demonstrate compliance with the hourly and annual emission limits in the Standard Permit by tracking actual operating data. Due to the units' fast start capability, the GE LMS100s can achieve 100% of the load capacity within 10 minutes after the first fire. During this 10 minute period, the combustors do not operate at their maximum efficiency resulting in increased emission rates for CO and NO<sub>x</sub> due to lower fuel input and exhaust flow. In addition, the control devices do not operate at their maximum control efficiency during this time due primarily to lower exhaust temperatures. Per the vendor guaranteed conditions, the GE LMS100s are brought up to a stable, steady-state load point at or above 50% load. The vendor provided information for natural gas combustion is as follows,

*The CO Catalyst is a contact catalyst, and begins operating on some level once it reaches 500°F, and typically reaches full CO performance above 700 °F. At time T-10 (10 minutes after SU), the turbine has reached its operating temperature thereby achieving compliance with the CO and VOC guaranteed controlled values.*

*For the NO<sub>x</sub> Catalyst, the catalyst itself is a homogeneous monolith of clay, and must be heated to at least 500-540 °F before achieving a level for the injection of ammonia into the vaporizer. Once this occurs, the ammonia piping and AIG must be "packed" before flow initiates, and then ammonia flow is "Trimmed" to achieve the NO<sub>x</sub> compliance numbers. During the first ten (10) minutes (T-0 to T-10 minute timeline shown on the GE curve), there is effectively zero NO<sub>x</sub> emissions reduction from the SCR. The expected aggregate NO<sub>x</sub> emissions reduction during the next twelve minutes (T-10 to T-22) is 50% with normal operation of the control device and achieving the guaranteed NO<sub>x</sub> controlled value after 22 minutes.*

During the shutdown or idle mode, the control device is again not as effective. The vendor provided information for the variation in emission rates during SUSD operations is included in Appendix D.

Therefore, maximum hourly emissions are calculated assuming the worst-case scenario in which the combustion turbine will have one startup event and one shutdown event. Emissions of PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>,

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<sup>6</sup> AP-42, Emission Factor Documentation for AP-42 Section 3.1 Stationary Gas Turbines, Table 3.4-1 Summary of Emission Factors for Natural Gas-Fired Turbines, April 2000).

H<sub>2</sub>SO<sub>4</sub>, and NH<sub>3</sub> are assumed to be no more than the emissions from normal operations. In addition, since the VOC emissions during T0-T10 and during shutdown (T50-T60 for natural gas and T51-T60 for diesel combustion) are lower than the emissions during normal operations, the worst-case emissions (i.e., normal operations) are assumed for MSS events.

Actual annual MSS emissions of CO and NO<sub>x</sub> will be monitored by CEMs. Emissions of PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, and NH<sub>3</sub> are assumed to be no more than the emissions from normal operations. This is a conservative assumption, as these emissions are generally proportional to firing rate (which will be lower during SUSD operations). Therefore, annual emissions for PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, and NH<sub>3</sub> are calculated based on total hours of operation regardless of operating mode (i.e., normal or SUSD).

See detailed emission calculations in Appendix A. EPEC will demonstrate compliance with the proposed annual emission limits for NO<sub>x</sub> and CO using CEMS data. For all other pollutants, EPEC will use the fuel flow information, hours of operation, and vendor provided emission rates to demonstrate compliance with proposed annual emissions. The total annual emissions will be maintained below the applicable major source PSD thresholds.

## 6.2. COOLING TOWERS

Emissions from the cooling towers (EPNs: CT-1 and CT-2) consist of PM, PM<sub>10</sub>, and PM<sub>2.5</sub>. The cooling tower will be equipped with a drift eliminator to control PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions. The drift eliminator has a drift rate of 0.0005%. Hourly PM emissions are based on the recirculating water flow rate (gpm), the liquid drift total dissolved solids (TDS) concentration (mg/L), and the maximum drift rate (%). The PM<sub>10</sub> and PM<sub>2.5</sub> emissions are estimated using a method outlined in *Calculating Realistic PM<sub>10</sub> Emissions from Cooling Towers* (2000) by Joel Reisman and Gordon Frisbie.<sup>7</sup> Appendix A of this registration provides emissions calculations for the cooling towers.

## 6.3. FIREWATER PUMP ENGINE

One 327-hp diesel fire pump (EPN: FWP-1) will be installed at the facility for the firewater system, used in case of emergency situations. The diesel firewater pump engine will be limited to less than one hour per week for routine testing, maintenance, and inspection purposes only, with annual hours of operation limited to 52 hrs/yr.

Emissions from the firewater pump engine result from the combustion of ultra-low sulfur diesel (a limit of 15 parts per million [ppm]). Hourly emission rates of NO<sub>x</sub>, CO, PM, and VOC are based on the maximum design capacity (bhp) and emission rates provided by the equipment manufacturer. The manufacturer provided emissions data and the equipment design specifications are provided in Appendix E.

Potential SO<sub>2</sub> and HAP emissions are calculated based on emission factors from the U.S. EPA's AP-42 Chapter 3, Section 3.3 *Gasoline and Diesel Industrial Engines*.<sup>8</sup> Annual emission rates are based on the proposed maximum

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<sup>7</sup> Reisman, J. and Frisbie, G. (2002), Calculating realistic PM<sub>10</sub> emissions from cooling towers. *Environmental Progress*, 21: 127-130. doi: 10.1002/ep.670210216

<sup>8</sup> AP-42, Chapter 3, Section 3, Table 3.3-1 (Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines, October 1996) and Table 3.3-2 (Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines, October 1996).



hours of operation of 52 hrs/yr for purposes of maintenance and testing. See Appendix A for detailed emission calculations.

#### **6.4. FUGITIVE EMISSIONS FROM PIPING COMPONENTS**

Fugitive emissions of NH<sub>3</sub> result from equipment leaks from components in ammonia service (EPN: FUG-NH3). The NH<sub>3</sub> emissions are calculated using the methodology described in the TCEQ document entitled *Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives*, October 2000. The fugitive emissions from components in ammonia service are calculated using SOCFI without ethylene emission factors. See Appendix A for detailed emission calculations.

#### **6.5. DIESEL STORAGE TANK**

A 300-gallon diesel storage tank (EPN: DIESEL) will be used to store diesel for the firewater pump engine. Working and breathing losses from the diesel storage tank are estimated using the U.S. EPA TANKS 4.09d software, tank characteristics, and expected throughput. Hourly tank emissions are estimated based on the maximum monthly emissions from the TANKS output. Annual tank emissions are taken directly from the TANKS output. The TANKS output report is included in Appendix A.



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

**Table 1(a) Emission Point Summary**

Date:	September 2014	Permit No.:	TBD	Regulated Entity No.:	RN106392624
Area Name:	Montana Power Station			Customer Reference No.:	CN600352819

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

AIR CONTAMINANT DATA					
1. Emission Point	2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	(A) - Pound Per Hour	(B) - TPD	(C) - IPY
(A) - EPN	(B) - FIN	(C) - NAME			
GT-1		Combustion Turbine 1			
		CO (Normal Operations - Natural Gas)	11.48		
		CO (MSS Operations - Natural Gas)	31.08		62.25
		CO (Normal Operations - Diesel)	11.60		
		CO (MSS Operations - Diesel)	29.53		
		NO <sub>x</sub> (Normal Operations - Natural Gas)	14.00		
		NO <sub>x</sub> (MSS Operations - Natural Gas)	21.37		62.25
		NO <sub>x</sub> (Normal Operations - Diesel)	14.00		
		NO <sub>x</sub> (MSS Operations - Diesel)	27.81		
		PM/PM <sub>10</sub> /PM <sub>2.5</sub> (Natural Gas)	6.00		
		PM/PM <sub>10</sub> /PM <sub>2.5</sub> (Diesel)	25.00		28.22
		SO <sub>2</sub> (Natural Gas)	0.60		
		SO <sub>2</sub> (Diesel)	1.26		2.70
		VOC (Natural Gas)	2.19		
		VOC (Diesel)	3.65		9.74
		H <sub>2</sub> SO <sub>4</sub> (Natural Gas)	0.05		
		H <sub>2</sub> SO <sub>4</sub> (Diesel)	0.10		0.22
		NH <sub>3</sub> (Natural Gas)	6.70		
		NH <sub>3</sub> (Diesel)	6.80		29.35



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date:	September 2014	Permit No.	TBD	Regulated Entity No.	RN106392624
Area Name:	Montana Power Station			Customer Reference No.	CN600352819

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

AIR CONTAMINANT DATA					
1. Emission Point		2. Component or Air Contaminant Name		3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) NAME		(A) Pound Per Hour	(B) TPY
GT-2		Combustion Turbine 2	CO (Normal Operations - Natural Gas)	11.48	
			CO (MSS Operations - Natural Gas)	31.08	62.25
			CO (Normal Operations - Diesel)	11.60	
			CO (MSS Operations - Diesel)	29.53	
			NO <sub>x</sub> (Normal Operations - Natural Gas)	14.00	
			NO <sub>x</sub> (MSS Operations - Natural Gas)	21.37	62.25
			NO <sub>x</sub> (Normal Operations - Diesel)	14.00	
			NO <sub>x</sub> (MSS Operations - Diesel)	27.81	
			PM/PM <sub>10</sub> /PM <sub>2.5</sub> (Natural Gas)	6.00	28.22
			PM/PM <sub>10</sub> /PM <sub>2.5</sub> (Diesel)	25.00	
			SO <sub>2</sub> (Natural Gas)	0.60	2.70
			SO <sub>2</sub> (Diesel)	1.26	
			VOC (Natural Gas)	2.19	9.74
			VOC (Diesel)	3.65	
			H <sub>2</sub> SO <sub>4</sub> (Natural Gas)	0.05	0.22
			H <sub>2</sub> SO <sub>4</sub> (Diesel)	0.10	
			NH <sub>3</sub> (Natural Gas)	6.70	29.35
			NH <sub>3</sub> (Diesel)	6.80	



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date:	September 2014	Permit No.:	TBD	Regulator File No.:	RN106392624
Facility Name:	Montana Power Station			Customer Reference No.:	CN600352819

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

AIR POLLUTANT DATA					
1- Emission Point	2- Component or Air Contaminant Name	3- Air Contaminant Emission Rate			
(A) EPN	(B) FIN	(C) NAME	(A) Pound Per Hour	(B) TPY	
GT-3	GT-3	Combustion Turbine 3	CO (Normal Operations - Natural Gas)	11.48	62.25
			CO (MSS Operations - Natural Gas)	31.08	
			CO (Normal Operations - Diesel)	11.60	
			CO (MSS Operations - Diesel)	29.53	
			NO <sub>x</sub> (Normal Operations - Natural Gas)	14.00	
			NO <sub>x</sub> (MSS Operations - Natural Gas)	21.37	
			NO <sub>x</sub> (Normal Operations - Diesel)	14.00	
			NO <sub>x</sub> (MSS Operations - Diesel)	27.81	
			PM/PM <sub>10</sub> /PM <sub>2.5</sub> (Natural Gas)	6.00	
			PM/PM <sub>10</sub> /PM <sub>2.5</sub> (Diesel)	25.00	
			SO <sub>2</sub> (Natural Gas)	0.60	
			SO <sub>2</sub> (Diesel)	1.26	
			VOC (Natural Gas)	2.19	
			VOC (Diesel)	3.65	
			H <sub>2</sub> SO <sub>4</sub> (Natural Gas)	0.05	
			H <sub>2</sub> SO <sub>4</sub> (Diesel)	0.10	
			NH <sub>3</sub> (Natural Gas)	6.70	
			NH <sub>3</sub> (Diesel)	6.80	



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date:	September 2014	Permit No.:	TBD	Regulate Identity No.:	RN106392624
Area Name:	Montana Power Station			Customer Reference No.:	CN600352819

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

AIR CONTAMINANT DATA					
1. Emission Point	2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate			
(A) EPN	(B) FIN	(C) NAME	(A) Pound Per Hour	(B) EPN	
GT-4		Combustion Turbine 4		11.48	
				31.08	62.25
				11.60	
				29.53	
				14.00	
				21.37	62.25
				14.00	
				27.81	
				6.00	28.22
				25.00	
				0.60	2.70
				1.26	
				2.19	9.74
				3.65	
				0.05	0.22
				0.10	
				6.70	
				6.80	29.35



**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

**Table 1(a) Emission Point Summary**

Date:	September 2014	Permit No.:	TBD	Regulated Emission No.:	RN106392624
Area Name:	Montana Power Station			Customer Reference No.:	CN600352819

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

AIR CONTAMINANT DATA					
1. Emission Point		2. Component or Air Contaminant Name		3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) NAME		(A) Pound Per Hour	(B) TPD
CT-1		Cooling Tower 1 (4 cells)	PM	0.31	1.36
			PM <sub>10</sub>	0.10	0.44
			PM <sub>2.5</sub>	<0.01	<0.01
CT-2		Cooling Tower 2 (4 cells)	PM	0.31	1.36
			PM <sub>10</sub>	0.10	0.44
			PM <sub>2.5</sub>	<0.01	<0.01
FWP-1		Firewater Pump Engine	CO	0.48	0.01
			NO <sub>x</sub>	2.04	0.05
			PM/PM <sub>10</sub> /PM <sub>2.5</sub>	0.08	<0.01
			SO <sub>2</sub>	0.67	0.02
			VOC	0.05	<0.01
			NH <sub>3</sub>	0.15	0.66
NH3-FUG DIESEL		Ammonia Fugitives Diesel Storage Tank	NH <sub>3</sub>	0.15	0.66
			VOC	0.02	<0.01

EPN = Emission Point Number

FIN = Facility Identification Number

NOTE: The emissions PM/PM<sub>10</sub>/PM<sub>2.5</sub>, SO<sub>2</sub>, VOC, NH<sub>3</sub>, and H<sub>2</sub>SO<sub>4</sub> from the combustion turbines are the same for both normal operations and startup/shutdown