ND Dept. of Health Emission Inventory Summary Year: **2014**

Company:	Great River Energy	AIRS/AFS Source Code:	38-055-00017
PTO No.	T5-F82006	Annual Permit Fee Billing:	**YES**
Unit/Station	Coal Creek Station	Reviewed By:	KDH

Individual Emission Sources

EU	Source Unit		SCC	PM_{10}	$PM_{2.5}$	CPM	SO_2	NO_x	CO	VOC
1	Unit 1 Boiler	Coal	10100302	155.1	62.5	457.2	7884.6	4695.3	851.8	68.1
		#2 Oil	"				0.1	1.5	0.3	0.1
		Used/Solvent	"							
2	Unit 2 Boiler	Coal	10100302	29.6	11.9	473.5	7939.5	3284.8	882.1	70.6
		#2 Oil	"				0.1	1.8	0.4	0.1
		Used/Solvent	"							
3	Auxiliary Boiler 91		10100501				0.1	1.1	0.2	
4	Auxiliary Boiler 92		10100501				0.1	1.1	0.2	
5	Diesel engine-Generator		20100102					0.9	0.3	
6	Diesel engine - Fire pump		20100102					0.1		
7 to 47	Combined Processes		39000399	0.5						
Total Facility Emissions (Tons/yr) - Less HAPs				185.2	74.4	930.7	15824.5	7986.6	1735.3	138.9

When entering emissions into data base, add these numbers to the primary fuel (coal) numbers and do not enter these separately. This is due to the 4,000 ton cap for $ billing purposes.

Hazardous Air Pollutants (Tons)				
Pollutant/Chemical Name	EU 1	EU 2	Engines	Total
Hydrogen Chloride	0.4	0.4		0.80
Hydrogen Fluoride	37.5	38.5		76.00
Cyanide	1.2	1.2		2.40
Manganese Compounds	1.8	1.9		3.70
Mercury Compounds	0.2	0.2		0.40
Ammonia	0.1	0.1		0.20
Plant Totals	41.20	42.30	0.00	83.50

Fuel Combusted/Burned (Optional)	
Coal (Tons)	**6,935,562**
Unit 1	3,407,090
Unit 2	3,528,472
Distillate Oil (Gal)	**271,242**
Unit 1	124,165
Unit 2	147,077
Units 3 & 4	188,654
Used Oil / Solvents (Gal)	**30**
Unit 1	30
Unit 2	0
Low Sulfur Diesel (Gal)	**4,437**
Scrubber Lime (Tons)	68,690
Fly ash sold (Tons)	372,796

Gross MW	
Unit 1	4,704,456
Unit 2	4,847,951
Total	**9,552,407**

Action	Date	Initial
Scanned		
Checked		
Data Base		

FUEL BURNING EQUIPMENT USED FOR INDIRECT HEATING
ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8536 (11-10)

BIC

GENERAL

Name of Firm or Organization Great River Energy	Permit to Operate Number T5-F82006	Year of Emissions 2014	
Mailing Address 12300 Elm Creek Blvd	City Maple Grove	State MN	Zip Code 55369-4178
Facility Name Coal Creek Station	Facility Location Underwood, ND 58576	Emission Unit Number 1 – (Unit 1)	

EQUIPMENT INFORMATION

Manufacturer of Unit Combustion Engineering	Model Number Continuous Circulation RRD	Maximum Heat Input (Btu/hr) 6015 x 10^6
Boiler Type: [X] Pulverized Tangential ☐ Cyclone ☐ Spreader Stoker ☐ Pulverized Wall Fired ☐ Fluidized Bed ☐ Other	Electricity Generated (MWe)* 4,704,456	Actual Hours of Operation 7,995

*Electric utility only.

FUELS USED

		Primary Fuel	Standby Fuel	Other Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		Lignite	No. 2 Fuel Oil	Used Oil/Solvent
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		3,407,090	124,165 Gals	30 Gals
Percent Ash (Coal Only)	Maximum Minimum Average	13.00 11.95 12.57	N/A	N/A
Percent Sulfur	Maximum Minimum Average	0.73 0.65 0.69	0.010 0.010 0.010	0.010 0.010 0.010
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum Minimum Average	6,797 Btu/lb 6,593 Btu/lb 6,710Btu/lb	139,140 Btu/Gal 134,154 Btu/Gal 137,683 Btu/Gal	19,540 Btu/Lb 19,540 Btu/Lb 19,540 Btu/Lb
Percent Sodium in Coal Ash Average		1.89	N/A	N/A

TOTAL STACK EMISSIONS

(USE THE TABLE ABOVE FOR SINGLE FUEL USAGE; USE OTHER SIDE IF MULTIPLE FUELS ARE USED AND THEN SUMMARIZE THE TOTAL EMISSIONS PER YEAR ON THE FOLLOWING TABLE.)

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total			231.4
PM_{10} (Particulate < 10 microns)			155.1
$PM_{2.5}$ (Particulate < 2.5 microns)			62.5
Sulfur Dioxide			7,884.7
Nitrogen Oxides			4,696.8
Carbon Monoxide			852.1
Total Organic Compounds: Nonmethane			68.2
Mercury***			0.24
Ammonia***			0.08

**Submit SFN 19839 for Hazardous Air Pollutants if applicable.
***Title V units only.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report David Farnsworth	Title Manager, ND Generation	Email dfarnsworth@GREnergy.com
Signature David E. Farnsworth	Telephone Number 701-442-7002	Date 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

$$CPM = \frac{0.02\ lb}{MM\ btu} \times \frac{6710\ btu}{lb} \times \frac{3{,}407{,}090\ ton}{yr} = 457.2$$

STACK EMISSIONS --- PRIMARY FUEL --- FUEL TYPE: **Lignite**

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total	0.0100 lb/10^6 Btu	See Note A	231.4
PM_{10} (Particulate < 10 microns)	0.67 (Total)	See Note B	155.1
$PM_{2.5}$ (Particulate < 2.5 microns)	0.27 (Total)	See Note B	62.5
Sulfur Dioxide	0.339 lb/mmBTU	CEM Annual Average	7,884.6
Nitrogen Oxides	0.203 lb/mmBTU	CEM Annual Average	4,695.3
Carbon Monoxide	0.5 lb CO/ton Coal	AP-42 Bituminous & Sub-Bituminous Coal Combustion Table 1.1-1	851.8
Total Organic Compounds: Nonmethane	0.04 lb TOC/ton Coal	AP-42 Lignite Combustion Table 1.7-1	68.14
Mercury***	0.101 mg/kg Dry	Coal Analysis	0.24
Ammonia***	3.7 lb/10^12	Department of Energy, Emission Study	0.08

STACK EMISSIONS --- STANDBY FUEL --- FUEL TYPE: **No. 2 Fuel Oil**

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total	0.28 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
PM_{10} (Particulate < 10 microns)	0.198 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.144lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
Sulfur Dioxide	142(s) lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	0.1
Nitrogen Oxides	24 lbs/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	1.5
Carbon Monoxide	5 lbs/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	0.3
Total Organic Compounds: Nonmethane	0.76 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-3	0.05
Mercury***			N/A
Ammonia***			N/A

STACK EMISSIONS --- OTHER FUEL --- FUEL TYPE: **Used Oil/Solvent**

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total			
PM_{10} (Particulate < 10 microns)			
$PM_{2.5}$ (Particulate < 2.5 microns)			
Sulfur Dioxide	142(s) lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	0.00
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			
Mercury***			
Ammonia***			

**Submit SFN 19839 for Hazardous Air Pollutants if applicable.
***Title V units only.

Provide calculations for quantities listed above. Use additional sheets if necessary.

Note A: "Particulate Emissions Test Report for Great River Energy at Coal Creek Generating Facility," Sept, 2012.
Note B: EPA AP-42 Lignite Combustion Table 1.7-7. Ratio of PM-10/Total PM, Ratio of PM-2.5/Total PM

SEE ATTACHED WORKSHEETS FOR EMISSIONS CALCULATIONS

HAZARDOUS AIR POLLUTANT ANNUAL EMISSIONS INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 19839 (11-11)

BK

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Emission Unit Number	
Coal Creek Station	Underwood, ND 58576	1 – Unit 1 Boiler	
Amount of Material Processed (material used, etc.)			
3,407,090 Tons of Pulverized Lignite; **124,165** gals of No. 2 Fuel Oil; **30** gals of Used Oil			
Hours of Operation:	Air Pollution Control Equipment:		
7995	Electrostatic Precipitator, and a Wet Flue Gas Desulfurization Unit		

HAZARDOUS AIR POLLUTANT EMISSIONS:

CHEMICAL EMITTED TO AIR	CAS NUMBER	EMISSIONS QUANTITY	
		Emission Factor (include units)	TONS
Ammonia	7664417	3.7 lb/trillion Btu (coal fuel input)	0.08
Cyanide	57125	51 lb/trillion Btu (coal fuel input)	1.17
Hydrogen Chloride	7647010	15.4 lb/trillion Btu (coal fuel input) (from MATS Testing @ CCS Nov, 2011)	0.35
Hydrogen Fluoride	7664393	Calculated in "TRI for Power Plants"	37.50
Sulfuric Acid (aerosol)	7664939	See attached Sulfuric Acid Worksheet	9.50
Manganese compounds	7439965	Calculated in "TRI for Power Plants"	1.80
Mercury	7439976	Calculated in "TRI for Power Plants"	0.21

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature: David E. Farnsworth	Telephone Number: 701-442-7002	Date: 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

Basis for quantities listed above; provide calculations (use additional sheets if necessary):

Coal Type	HF EF, %	HF EF, % (FGD)	Se EF, %	Se EF, % (FGD)	Hg EF %	Hg EF % (FGD)
Lignite	90	6	55	12	70	55

See Attached Worksheets for Calculations.

2014 Hazardous Air Pollutants
Worksheet for Unit 1

Unit 1		Year end numbers	Monthly Maximum
Coal	Tons Burned	**3,407,090**	
	On-Line Hours	7,995	744
	Btu/lb	6,710	
	BTU's	4.5722E+13	4.33974E+12
Oil	Gallons Burned	**124,165**	
	Btu/gal	137,272	
	BTU's	1.7044E+10	1.2886E+10
Used Oil	Gallons Burned	**30**	
	Btu/gal	162,241	
	BTU's	4.8672E+06	

Coal Burning

VOC's	Pollutant	CAS #	Emission Factor lb/ton	Emission Factor lb/trillion BTU	PTO EF Rating	Calculated Emissions lbs/yr	Calculated Emissions tons/yr	Calculated Potential Max. lbs/hr
EPRI E. F. Handbook 2002	*Acetaldehyde*	75070		3.2		146	0.073	0.02
EPRI E. F. Handbook 2002	*Acetophenone*	98862		1.2		55	0.027	0.01
EPRI E. F. Handbook 2002	*Acrolein*	107028		1.9		87	0.043	0.01
DOE EMISSION STUDY @ CCS	*Ammonia*	7664417		3.7		169	0.085	0.02
EPRI E. F. Handbook 2002	*Benzene*	71432		3.9		178	0.089	0.02
EPRI E. F. Handbook 2002	*Benzyl Chloride*	100447		0.28		13	0.006	0.00
EPRI E. F. Handbook 2002	*Di(2-ethylhexyl) phthalate (DEHP)*	117817		3.6		165	0.082	0.02
AP-42 Table 1.7-11 (coal)	*Bromoform (Tribromomethane)*	75252	3.90E-05		E	133	0.066	0.02
EPRI E. F. Handbook 2002	*Carbon Disulfide*	75150		1.1		50	0.025	0.00
AP-42 Table 1.7-11 (coal)	*2-Chloroactephenone*	532274	7.00E-07		E	2	0.001	0.00
EPRI E. F. Handbook 2002	*Chlorobenzene*	108907		0.16		7	0.004	0.00
EPRI E. F. Handbook 2002	*Chloroform*	67663		0.8		37	0.018	0.00
AP-42 Table 1.7-11 (coal)	*Cumene*	98828	5.30E-06		E	18	0.009	0.00
DOE EMISSION STUDY @ CCS	*Cyanide*	57125		51		2,332	1.166	0.29
EPRI E. F. Handbook 2002	*2,4-Dinitrotoluene (DinitrotolueneB)*	121142		0.02		1	0.000	0.00
EPRI E. F. Handbook 2002	*Dimethylphtalate (Dimethyl Sulfate)*	131113		0.09		4	0.002	0.00
EPRI E. F. Handbook 2002	*Ethyl Benzene*	100414		0.8		37	0.018	0.00
EPRI E. F. Handbook 2002	*Ethyl Chloride (Chloroethane) (Ethanechloro)*	75003		0.53		24	0.012	0.00
AP-42 Table 1.7-11 (coal)	*Ethylene Dichloride (Dichloroethane)*	107062	4.00E-05		E	136	0.068	0.02
EPRI E. F. Handbook 2002	*1,2-Dibromoethane (Ethylene Dibromide)*	106934		2.6		119	0.059	0.01
EPRI E. F. Handbook 2002	*Formaldehyde*	50000		2.6		119	0.059	0.01
EPRI E. F. Handbook 2002	*Hexane*	110543		0.49		22	0.011	0.00
MATS Testing @CCS Nov, 2011	*Hydrogen Chloride*	7647010		15.4		704	0.352	0.09
Calculated in Lark-Tripp	*Hydrogen Floride*	7664393				75,000	37.500	9.38
EPRI E. F. Handbook 2002	*Isophorone*	78591		1.2		55	0.027	0.01
EPRI E. F. Handbook 2002	*Bromomethane (Methyl Bromide)*	74839		0.89		41	0.020	0.01
EPRI E. F. Handbook 2002	*Chloromethane (Methyl Chloride)*	74873		1.1		50	0.025	0.01
EPRI E. F. Handbook 2002	*Methyl Ethyl Ketone*	78933		3.1		142	0.071	0.02
AP-42 Table 1.7-11 (coal)	*Methyl Hydrazine (Hydrazinemethyl)*	60344	1.70E-04		E	579	0.290	0.07
EPRI E. F. Handbook 2002	*Methyl Methacrylate*	80626		1.1		50	0.025	0.01
AP-42 Table 1.7-11 (coal)	*Methyl Tert Butyl Ether (Methyltbutylet)*	1634044	3.50E-05		E	119	0.060	0.01
EPRI E. F. Handbook 2002	*Dichloromethane (Methylene Chloride)*	75092		3.6		165	0.082	0.02
EPRI E. F. Handbook 2002	*Phenol*	108952		3.3		151	0.075	0.02
EPRI E. F. Handbook 2002	*Propionaldehyde*	123386		1.9		87	0.043	0.01
from Sulfuric Acid worksheet	*Sulfuric Acid (aerosol)*	7664939				19,000	9.500	n/a
EPRI E. F. Handbook 2002	*Tetrachloroethylene*	127184		0.42		19	0.010	0.00
EPRI E. F. Handbook 2002	*Toluene*	108883		1.7		78	0.039	0.01
EPRI E. F. Handbook 2002	*Styrene*	100425		0.7		32	0.016	0.00
EPRI E. F. Handbook 2002	*Xylenes*	1330207		1.26		58	0.029	0.01
EPRI E. F. Handbook 2002	*Vinyl acetate*	108054		0.31		14	0.007	0.00

2014 Hazardous Air Pollutants
Worksheet for Unit 1

Metal's								
Calculated in Lark-Tripp	*Antimony compounds*	7440360	0.005295 Fraction to Air - Custom			650	0.325	0.08
Calculated in Lark-Tripp	*Arsenic compounds*	7440360	0.005295 Fraction to Air - Custom			390	0.195	0.05
Calculated in Lark-Tripp	*Beryllium compounds*	7440417	0.005295 Fraction to Air - Custom			16	0.008	0.00
Calculated in Lark-Tripp	*Cadmium compounds*	7440439	0.005295 Fraction to Air - Custom			22	0.011	0.00
Calculated in Lark-Tripp	*Chromium compounds*	7440473	0.005295 Fraction to Air - Custom			220	0.110	0.03
AP-42 Table 1.7-14 (coal)	*Chromium (VI)*		7.90E-05		D	269	0.135	0.03
Calculated in Lark-Tripp	*Cobalt compounds*	7440484	0.005295 Fraction to Air - Custom			290	0.145	0.04
Calculated in Lark-Tripp	*Lead compounds*	7439921	0.005295 Fraction to Air - Custom			217	0.109	0.03
Calculated in Lark-Tripp	*Manganese compounds*	7439965	0.005295 Fraction to Air - Custom			3,600	1.800	0.45
Calculated in Lark-Tripp	*Mercury compounds*	7439976	0.887414 Fraction to Air - Custom			420	0.210	0.05
Calculated in Lark-Tripp	*Nickel compounds*	7440020	0.005295 Fraction to Air - Custom			180	0.090	0.02
Calculated in Lark-Tripp	*Selenium compounds*	7782492	0.005295 Fraction to Air - Custom			22	0.011	0.00

Oil Burning

VOC's	Pollutant	CAS #	Emission Factor lb/1000 Gal	Emission Factor lb/trillion BTU	PTO EF Rating	Calculated Emissions lbs/yr	Calculated Emissions tons/yr	Calculated Potential Max. lbs/hr
from Sulfuric Acid worksheet	*Sulfuric Acid (aerosol)*	7664939				3	0.002	n/a
Metal's								
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Arsenic*	7440382		4		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Beryllium*	7440417		3		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Cadmium*	7440439		3		0	0.000	0.00
EPRI (Southern Company- Distillate Fuel Oil)	*Chloride*	7647010		0.025		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Chromium*	7440473		5		0	0.000	0.00
EPRI (Southern Company- Distillate Fuel Oil)	*Fluoride*	7664393		0.025		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Lead*	7439921		9		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Manganese*	7439965		14		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Mercury*	7439976		3		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Nickel*	7440020		3		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Selenium*	7782492		2		0	0.000	0.00

2014 Hazardous Air Pollutants
Worksheet for Unit 1

Totals - (VOC's)

Pollutant (VOC's)	CAS #	Emissions from	Calculated Potential Max. lbs/hr	Calculated Emissions tons/yr
Acetaldehyde	75070	coal	0.02	0.07
Acetophenone	98862	coal	0.01	0.03
Acrolein	107028	coal	0.01	0.04
Ammonia	**7664417**	**coal**	**0.02**	**0.08**
Benzene	71432	coal	0.02	0.09
Benzyl Chloride	100447	coal	0.00	0.01
Bis(2-ethylhexy)phtalate	117817	coal	0.02	0.08
Bromoform	75252	coal	0.02	0.07
Carbon Disulfide	75150	coal	0.00	0.03
2-Chloroactephenone	532274	coal	0.00	0.00
Chlorobenzene	108907	coal	0.00	0.00
Chloroform	67663	coal	0.00	0.02
Cyanide	**57125**	**coal**	**0.29**	**1.17**
2,4-Dinitrotoluene	121142	coal	0.00	0.00
Dimethylphtalate (Dimethyl Sulfate)	131113	coal	0.00	0.00
Ethyl Benzene	100414	coal	0.00	0.02
Ethyl Chloride	75003	coal	0.00	0.01
Ethylene Dichloride	107062	coal	0.02	0.07
Ethylene Dibromide	106934	coal	0.01	0.06
Formaldehyde	50000	coal	0.01	0.06
Hexane	110543	coal	0.00	0.01
Hydrogen Chloride	**7647010**	**coal**	**0.09**	**0.35**
Hydrogen Floride	**7664393**	**coal**	**9.38**	**37.50**
Isophorone	78591	coal	0.01	0.03
Methyl Bromide	74839	coal	0.01	0.02
Methyl Chloride (Chloromethane)	74873	coal	0.01	0.03
Methyl Ethyl Ketone	78933	coal	0.02	0.07
Methyl Hydrazine	60344	coal	0.07	0.29
Methyl Methacrylate	80626	coal	0.01	0.03
Methyl Tert Butyl Ether	1634044	coal	0.01	0.06
Methylene Chloride	75092	coal	0.02	0.08
Phenol	108952	coal	0.02	0.08
Propionaldehyde	123386	coal	0.01	0.04
Tetrachloroethylene	127184	coal	0.00	0.01
Toluene	108883	coal	0.01	0.04
Styrene	100425	coal	0.00	0.02
Sulfuric Acid (aerosol)	**7664939**	**coal & oil**	**18.89**	**9.50**
Xylenes	1330207	coal	0.01	0.03
Vinyl acetate	108054	coal	0.00	0.01

Totals - (Metals)

Pollutant (Metals)	CAS #	Emissions from	Calculated Potential Max. lbs/hr	Calculated Emissions tons/yr
Antimony	7440360	coal	0.08	0.33
Arsenic	7440360	coal & oil	0.05	0.20
Beryllium	7440417	coal & oil	0.00	0.01
Cadmium	7440439	coal & oil	0.00	0.01
Chloride	7647010	oil	0.00	0.00
Chromium	7440473	coal & oil	0.03	0.11
Chromium (VI)		coal	0.03	0.13
Cobalt	7440484	coal	0.04	0.15
Fluoride	7664393	oil	0.00	0.00
Lead	7439921	coal & oil	0.03	0.11
Manganese compounds	**7439965**	**coal & oil**	**0.45**	**1.80**
Mercury	**7439976**	**coal & oil**	**0.05**	**0.21**
Nickel	7440020	coal & oil	0.02	0.09
Selenium	7782492	coal & oil	0.00	0.01

FUEL BURNING EQUIPMENT USED FOR INDIRECT HEATING
ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8536 (11-10)

BK

GENERAL

Name of Firm or Organization Great River Energy	Permit to Operate Number T5-F82006	Year of Emissions 2014	
Mailing Address 12300 Elm Creek Blvd	City Maple Grove	State MN	Zip Code 55369-4178
Facility Name Coal Creek Station	Facility Location Underwood, ND 58576	Emission Unit Number 2 – (Unit 2)	

EQUIPMENT INFORMATION

Manufacturer of Unit Combustion Engineering	Model Number Continuous Circulation RRD	Maximum Heat Input (Btu/hr) 6022 x 10^6
Boiler Type: ☒ Pulverized Tangential ☐ Cyclone ☐ Spreader Stoker ☐ Pulverized Wall Fired ☐ Fluidized Bed ☐ Other	Electricity Generated (MWe)* 4,847,951	Actual Hours of Operation 8,326

*Electric utility only.

FUELS USED		Primary Fuel	Standby Fuel	Other Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		Lignite	No. 2 Fuel Oil	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		3,528,472	147,077 Gals	N/A
Percent Ash (Coal Only)	Maximum Minimum Average	13.00 11.85 12.57	N/A	N/A
Percent Sulfur	Maximum Minimum Average	0.73 0.65 0.69	0.010 0.010 0.010	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum Minimum Average	6,797 Btu/lb 6,593 Btu/lb 6,710 Btu/lb	139,140 Btu/Gal 134,154 Btu/Gal 137,379 Btu/Gal	N/A
Percent Sodium in Coal Ash Average		1.89	N/A	N/A

TOTAL STACK EMISSIONS

(USE THE TABLE ABOVE FOR SINGLE FUEL USAGE; USE OTHER SIDE IF MULTIPLE FUELS ARE USED AND THEN SUMMARIZE THE TOTAL EMISSIONS PER YEAR ON THE FOLLOWING TABLE.)

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total			44.2
PM_{10} (Particulate < 10 microns)			29.6
$PM_{2.5}$ (Particulate < 2.5 microns)			11.9
Sulfur Dioxide			7,939.6
Nitrogen Oxides			3,286.6
Carbon Monoxide			882.5
Total Organic Compounds: Nonmethane			70.6
Mercury***			0.21
Ammonia***			0.09

**Submit SFN 19839 for Hazardous Air Pollutants if applicable.
***Title V units only.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report David Farnsworth	Title Manager, ND Generation	Email dfarnsworth@GREnergy.com
Signature David E. Farnsworth	Telephone Number 701-442-7002	Date 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

$$CPM = \frac{0.02\ lb}{MM\ btu} \times \frac{6716\ btu}{lb} \times \frac{3,528,472\ tons}{yr} = 473.5$$

STACK EMISSIONS --- PRIMARY FUEL --- FUEL TYPE: **Lignite**

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total	0.0019 lb/10^6 Btu	See Note A	44.2
PM_{10} (Particulate < 10 microns)	0.67 (Total)	See Note B	29.6
$PM_{2.5}$ (Particulate < 2.5 microns)	0.27 (Total)	See Note B	11.9
Sulfur Dioxide	0.340 lb/mmBTU	CEM Annual Average	7,939.5
Nitrogen Oxides	0.143 lb/mmBTU	CEM Annual Average	3,284.8
Carbon Monoxide	0.5 lb CO/ton Coal	AP-42 Bituminous & Sub-Bituminous Coal Combustion Table 1.1-1	882.1
Total Organic Compounds: Nonmethane	0.04 lb TOC/ton Coal	AP-42 Lignite Combustion Table 1.7-1	70.57
Mercury***	0.101 mg/kg Dry	Coal Analysis	0.21
Ammonia***	3.7 lb/10^12	Department of Energy, Emission Study	0.09

STACK EMISSIONS --- STANDBY FUEL --- FUEL TYPE: **No. 2 Fuel Oil**

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total	0.28 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.01
PM_{10} (Particulate < 10 microns)	0.198 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.144lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
Sulfur Dioxide	142(s) lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	0.1
Nitrogen Oxides	24 lbs/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	1.8
Carbon Monoxide	5 lbs/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	0.4
Total Organic Compounds: Nonmethane	0.76 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-3	0.06
Mercury***			N/A
Ammonia***			N/A

STACK EMISSIONS --- OTHER FUEL --- FUEL TYPE: **N/A**

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total			
PM_{10} (Particulate < 10 microns)			
$PM_{2.5}$ (Particulate < 2.5 microns)			
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			
Mercury***			
Ammonia***			

**Submit SFN 19839 for Hazardous Air Pollutants if applicable.
***Title V units only.

Provide calculations for quantities listed above. Use additional sheets if necessary.

Note A: "Particulate Emissions Test Report for Great River Energy at Coal Creek Generating Facility," Sept, 2012.
Note B: EPA AP-42 Lignite Combustion Table 1.7-7. Ratio of PM-10/Total PM, Ratio of PM-2.5/Total PM

SEE ATTACHED WORKSHEETS FOR EMISSIONS CALCULATIONS

BK

HAZARDOUS AIR POLLUTANT ANNUAL EMISSIONS INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 19839 (11-11)

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Emission Unit Number	
Coal Creek Station	Underwood, ND 58576	2 – Unit 2 Boiler	
Amount of Material Processed (material used, etc.)			
3,528,472 Tons of Pulverized Lignite; **147,077** gals of No. 2 Fuel Oil			
Hours of Operation:	Air Pollution Control Equipment:		
7738	Electrostatic Precipitator, and a Wet Flue Gas Desulfurization Unit		

HAZARDOUS AIR POLLUTANT EMISSIONS:

CHEMICAL EMITTED TO AIR	CAS NUMBER	EMISSIONS QUANTITY	
		Emission Factor (include units)	TONS
Ammonia	7664417	3.7 lb/trillion Btu (coal fuel input)	0.09
Cyanide	57125	51 lb/trillion Btu (coal fuel input)	1.21
Hydrogen Chloride	7647010	15.4 lb/trillion Btu (coal fuel input) (from MATS Testing @ CCS Nov, 2011)	0.36
Hydrogen Fluoride	7664393	Calculated in "TRI for Power Plants"	38.50
Sulfuric Acid (aerosol)	7664939	See attached Sulfuric Acid Worksheet	10.00
Manganese compounds	7439965	Calculated in "TRI for Power Plants"	1.85
Mercury	7439976	Calculated in "TRI for Power Plants"	0.22

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature David E. Farnsworth	Telephone Number 701-442-7002	Date 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

Basis for quantities listed above; provide calculations (use additional sheets if necessary):

Coal Type	HF EF, %	HF EF, % (FGD)	Se EF, %	Se EF, % (FGD)	Hg EF %	Hg EF % (FGD)
Lignite	90	6	55	12	70	55

See Attached Worksheets for Calculations.

2014 Hazardous Air Pollutants
Worksheet for Unit 2

Unit 2		Year end numbers	Monthly Maximum
Coal	Tons Burned	**3,528,472**	
	On-Line Hours	8,326	744
	Btu/lb	6,710	
	BTU's	4.7351E+13	4.3362E+12
Oil	Gallons Burned	**147,077**	
	Btu/gal	137,272	
	BTU's	2.0189E+10	1.2998E+08

Coal Burning

VOC's	Pollutant	CAS #	Emission Factor lb/ton	Emission Factor lb/trillion BTU	PTO EF Rating	Calculated Emissions lbs/yr	Calculated Emissions tons/yr	Calculated Potential Max. lbs/hr
EPRI E. F. Handbook 2002	*Acetaldehyde*	75070		3.2		152	0.076	0.02
EPRI E. F. Handbook 2002	*Acetophenone*	98862		1.2		57	0.028	0.01
EPRI E. F. Handbook 2002	*Acrolein*	107028		1.9		90	0.045	0.01
DOE EMISSION STUDY @ CCS	*Ammonia*	7664417		3.7		175	0.088	0.02
EPRI E. F. Handbook 2002	*Benzene*	71432		3.9		185	0.092	0.02
EPRI E. F. Handbook 2002	*Benzyl Chloride*	100447		0.28		13	0.007	0.00
EPRI E. F. Handbook 2002	*Di(2-ethylhexyl) phthalate (DEHP)*	117817		3.6		170	0.085	0.02
AP-42 Table 1.7-11 (coal)	*Bromoform (Tribromomethane)*	75252	3.90E-05		E	138	0.069	0.02
EPRI E. F. Handbook 2002	*Carbon Disulfide*	75150		1.1		52	0.026	0.01
AP-42 Table 1.7-11 (coal)	*2-Chloroactephenone*	532274	7.00E-07		E	2	0.001	0.00
EPRI E. F. Handbook 2002	*Chlorobenzene*	108907		0.16		8	0.004	0.00
EPRI E. F. Handbook 2002	*Chloroform*	67663		0.8		38	0.019	0.00
AP-42 Table 1.7-11 (coal)	*Cumene*	98828	5.30E-06		E	19	0.009	0.00
DOE EMISSION STUDY @ CCS	*Cyanide*	57125		51		2,415	1.207	0.29
EPRI E. F. Handbook 2002	*2,4-Dinitrotoluene (DinitrotolueneB)*	121142		0.02		1	0.000	0.00
EPRI E. F. Handbook 2002	*Dimethylphtalate (Dimethyl Sulfate)*	131113		0.09		4	0.002	0.00
EPRI E. F. Handbook 2002	*Ethyl Benzene*	100414		0.8		38	0.019	0.00
EPRI E. F. Handbook 2002	*Ethyl Chloride (Chloroethane) (Ethanechloro)*	75003		0.53		25	0.013	0.00
AP-42 Table 1.7-11 (coal)	*Ethylene Dichloride (Dichloroethane)*	107062	4.00E-05		E	141	0.071	0.02
EPRI E. F. Handbook 2002	*1,2-Dibromoethane (Ethylene Dibromide)*	106934		2.6		123	0.062	0.01
EPRI E. F. Handbook 2002	*Formaldehyde*	50000		2.6		123	0.062	0.01
EPRI E. F. Handbook 2002	*Hexane*	110543		0.49		23	0.012	0.00
MATS Testing @CCS Nov, 2011	*Hydrogen Chloride*	7647010		15.4		729	0.365	0.09
Calculated in Lark-Tripp	*Hydrogen Fluoride*	7664393				77,000	38.500	9.25
EPRI E. F. Handbook 2002	*Isophorone*	78591		1.2		57	0.028	0.01
EPRI E. F. Handbook 2002	*Bromomethane (Methyl Bromide)*	74839		0.89		42	0.021	0.01
EPRI E. F. Handbook 2002	*Chloromethane (Methyl Chloride)*	74873		1.1		52	0.026	0.01
EPRI E. F. Handbook 2002	*Methyl Ethyl Ketone*	78933		3.1		147	0.073	0.02
AP-42 Table 1.7-11 (coal)	*Methyl Hydrazine (Hydrazinemethyl)*	60344	1.70E-04		E	600	0.300	0.07
EPRI E. F. Handbook 2002	*Methyl Methacrylate*	80626		1.1		52	0.026	0.01
AP-42 Table 1.7-11 (coal)	*Methyl Tert Butyl Ether (Methyltbutylet)*	1634044	3.50E-05		E	123	0.062	0.01
EPRI E. F. Handbook 2002	*Dichloromethane (Methylene Chloride)*	75092		3.6		170	0.085	0.02
EPRI E. F. Handbook 2002	*Phenol*	108952		3.3		156	0.078	0.02
EPRI E. F. Handbook 2002	*Propionaldehyde*	123386		1.9		90	0.045	0.01
from Sulfuric Acid worksheet	*Sulfuric Acid (aerosol)*	7664939				20,000	10.000	n/a
EPRI E. F. Handbook 2002	*Tetrachloroethylene (Perchloroethylene)*	127184		0.42		20	0.010	0.00
EPRI E. F. Handbook 2002	*Toluene*	108883		1.7		80	0.040	0.01
EPRI E. F. Handbook 2002	*Styrene*	100425		0.7		33	0.017	0.00
EPRI E. F. Handbook 2002	*Xylenes*	1330207		1.26		60	0.030	0.01
EPRI E. F. Handbook 2002	*Vinyl acetate*	108054		0.31		15	0.007	0.00

2014 Hazardous Air Pollutants
Worksheet for Unit 2

Metal's								
Calculated in Lark-Tripp	*Antimony compounds*	7440360	0.005295 Fraction to Air - Custom			680	0.340	0.08
Calculated in Lark-Tripp	*Arsenic compounds*	7440360	0.005295 Fraction to Air - Custom			410	0.205	0.05
Calculated in Lark-Tripp	*Beryllium compounds*	7440417	0.005295 Fraction to Air - Custom			17	0.009	0.00
Calculated in Lark-Tripp	*Cadmium compounds*	7440439	0.005295 Fraction to Air - Custom			23	0.012	0.00
Calculated in Lark-Tripp	*Chromium compounds*	7440473	0.005295 Fraction to Air - Custom			230	0.115	0.03
AP-42 Table 1.7-14 (coal)	*Chromium (VI)*		7.90E-05		D		0.000	0.00
Calculated in Lark-Tripp	*Cobalt compounds*	7440484	0.005295 Fraction to Air - Custom			300	0.150	0.04
Calculated in Lark-Tripp	*Lead compounds*	7439921	0.005295 Fraction to Air - Custom			225	0.113	0.03
Calculated in Lark-Tripp	*Manganese compounds*	7439965	0.005295 Fraction to Air - Custom			3,700	1.850	0.44
Calculated in Lark-Tripp	*Mercury compounds*	7439976	0.887414 Fraction to Air - Custom			435	0.217	0.05
Calculated in Lark-Tripp	*Nickel compounds*	7440020	0.005295 Fraction to Air - Custom			190	0.095	0.02
Calculated in Lark-Tripp	*Selenium compounds*	7782492	0.005295 Fraction to Air - Custom			23	0.012	0.00

Oil Burning

VOC's	Pollutant	CAS #	Emission Factor lb/1000 Gal	Emission Factor lb/trillion BTU	PTO EF Rating	Calculated Emissions lbs/yr	Calculated Emissions tons/yr	Calculated Potential Max. lbs/hr
from Sulfuric Acid worksheet	*Sulfuric Acid (aerosol)*	7664939				4	0.002	n/a
Metal's								
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Arsenic*	7440382		4		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Beryllium*	7440417		3		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Cadmium*	7440439		3		0	0.000	0.00
EPRI (Southern Company- Distillate Fuel Oil)	*Chloride*	7647010		0.025		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Chromium*	7440473		5		0	0.000	0.00
EPRI (Southern Company- Distillate Fuel Oil)	*Fluoride*	7664393		0.025		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Lead*	7439921		9		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Manganese*	7439965		14		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Mercury*	7439976		3		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Nickel*	7440020		3		0	0.000	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Selenium*	7782492		2		0	0.000	0.00

2014 Hazardous Air Pollutants
Worksheet for Unit 2

Totals - (VOC's)

Pollutant (VOC's)	CAS #	Emissions from	Calculated Potential Max. lbs/hr	Calculated Emissions tons/yr
Acetaldehyde	75070	coal	0.02	0.08
Acetophenone	98862	coal	0.01	0.03
Acrolein	107028	coal	0.01	0.04
Ammonia	**7664417**	**coal**	**0.02**	**0.09**
Benzene	71432	coal	0.02	0.09
Benzyl Chloride	100447	coal	0.00	0.01
Bis(2-ethylhexy)phtalate	117817	coal	0.02	0.09
Bromoform	75252	coal	0.02	0.07
Carbon Disulfide	75150	coal	0.01	0.03
2-Chloroactephenone	532274	coal	0.00	0.00
Chlorobenzene	108907	coal	0.00	0.00
Chloroform	67663	coal	0.00	0.02
Cyanide	**57125**	**coal**	**0.29**	**1.21**
2,4-Dinitrotoluene	121142	coal	0.00	0.00
Dimethylphtalate (Dimethyl Sulfate)	131113	coal	0.00	0.00
Ethyl Benzene	100414	coal	0.00	0.02
Ethyl Chloride	75003	coal	0.00	0.01
Ethylene Dichloride	107062	coal	0.02	0.07
Ethylene Dibromide	106934	coal	0.01	0.06
Formaldehyde	50000	coal	0.01	0.06
Hexane	110543	coal	0.00	0.01
Hydrogen Chloride	**7647010**	**coal**	**0.09**	**0.36**
Hydrogen Fluoride	**7664393**	**coal**	**9.25**	**38.50**
Isophorone	78591	coal	0.01	0.03
Methyl Bromide	74839	coal	0.01	0.02
Methyl Chloride (Chloromethane)	74873	coal	0.01	0.03
Methyl Ethyl Ketone	78933	coal	0.02	0.07
Methyl Hydrazine	60344	coal	0.07	0.30
Methyl Methacrylate	80626	coal	0.01	0.03
Methyl Tert Butyl Ether	1634044	coal	0.01	0.06
Methylene Chloride	75092	coal	0.02	0.09
Phenol	108952	coal	0.02	0.08
Propionaldehyde	123386	coal	0.01	0.04
Tetrachloroethylene	127184	coal	0.00	0.01
Toluene	108883	coal	0.01	0.04
Styrene	100425	coal	0.00	0.02
Sulfuric Acid (aerosol)	**7664939**	**coal & oil**	**18.86**	**10.00**
Xylenes	1330207	coal	0.01	0.03
Vinyl acetate	108054	coal	0.00	0.01

Totals - (Metals)

Pollutant (Metals)	CAS #	Emissions from	Calculated Potential Max. lbs/hr	Calculated Emissions tons/yr
Antimony	7440360	coal	0.08	0.34
Arsenic	7440360	coal & oil	0.05	0.21
Beryllium	7440417	coal & oil	0.00	0.01
Cadmium	7440439	coal & oil	0.00	0.01
Chloride	7647010	oil	0.00	0.00
Chromium	7440473	coal & oil	0.03	0.12
Chromium (VI)		coal	0.00	0.00
Cobalt	7440484	coal	0.04	0.15
Fluoride	7664393	oil	0.00	0.00
Lead	7439921	coal & oil	0.03	0.11
Manganese compounds	**7439965**	**coal & oil**	**0.44**	**1.85**
Mercury	**7439976**	**coal & oil**	**0.05**	**0.22**
Nickel	7440020	coal & oil	0.02	0.10
Selenium	7782492	coal & oil	0.00	0.01

2014 Annual Emissions Inventory
Coal Creek Station

Plant Data information sheet

% Sulfur in #2 Fuel Oil	0.0100
% Sulfur in Waste Oil/Solvent	0.010
Unit I Annual Emission Rate	0.339
Unit II Annual Emission Rate	0.340
Total Tons of Coal Burned in Unit I	3,407,090
Total Tons of Coal Burned in Unit II	3,528,472
Hours On-Line for Unit I	7,995
Hours On-Line for Unit II	8,326
Number of Gals. of No. 2 Fuel Oil Burned in Unit I	124,165
Number of Gals. of No. 2 Fuel Oil Burned in Unit II	147,077
Number of Gallons of Waste Oil/Solvent Unit I	30
Total On-Line Hours for Auxiliary Boiler 91	179
Total On-Line Hours for Auxiliary Boiler 92	198
Tons of Fly Ash Removed from 91& 92 silo	226893.0
Tons of Fly Ash Sold by Rail (Scrubber silo)	0
Tons of Fly Ash Sold by Rail (Rail silo)	159683
Tons of Fly Ash Sold by Truck (Truck Airslide)	213113
Emergency Generator Hours Operated	29.6
Fire Pump 92 Hours Operated	11.9
Unit 1 Average Annual Stack Flow (scfh)	88,009,472.7
Unit 2 Average Annual Stack Flow (scfh)	86,536,745.9

Generation Data			Lime			
	Unit I	Unit I	UNIT I	UNIT II	Pretreatment	
	Gross Megawatts	Gross Megawatts	Tons	Tons	Tons of Sodium Hypochlorite	Sodium Hypochlorite in lbs
January	442,232	443,303	3163	3374	2.46	4926
February	397,099	396,439	2675	2974	2.65	5303
March	439,865	423,533	4359	4255	3.39	6773
April	254,970	422,777	1534	2974	3.49	6973
May	155,812	306,589	1020	1953	3.58	7152
June	407,229	382,158	2190	1886	4.17	8337
July	443,393	418,719	4216	3871	5.97	11936
August	444,609	379,223	2196	2002	5.49	10974
September	427,009	385,380	2154	1904	5.92	11836
October	424,031	443,442	3489	3645	9.29	18572
November	426,507	402,690	2663	2465	2.30	4593
December	441,700	443,698	4110	3618	2.06	4129
Total	4,704,456	4,847,951	33769	34921	50.8	101504

Total tons Scrubber Lime 68,690

* Lime data found P:\Acctng\Lime

2014 Annual Emissions Inventory
Coal Creek Station

Emissions Data

	Unit I					Unit 2				
	SO2 lb/mmBTU	Tons of SO2	NO_x lb/mmBTU	Tons of NOX	CEMS Heat Input mmBTU/hr	SO2 lb/mmBTU	Tons of SO2	NO_x lb/mmBTU	Tons of NOX	CEMS Heat Input mmBTU/hr
January	0.343	758.9	0.178	393.4	4,423,341	0.336	725.0	0.140	301.7	4,316,774
February	0.348	691.9	0.200	397.3	3,980,944	0.336	653.2	0.147	285.6	3,885,659
March	0.348	761.3	0.192	419.8	4,372,974	0.345	694.5	0.137	273.5	4,011,183
April	0.346	436.7	0.176	221.1	2,524,383	0.340	688.9	0.135	272.6	4,055,929
May	0.303	262.5	0.188	154.4	1,538,949	0.333	504.0	0.141	208.3	2,960,222
June	0.339	679.1	0.219	437.9	3,988,078	0.340	625.2	0.138	248.9	3,652,601
July	0.340	735.6	0.208	450.7	4,321,929	0.344	691.7	0.137	271.7	3,990,885
August	0.335	733.4	0.211	460.0	4,368,277	0.344	617.0	0.144	255.6	3,569,106
September	0.329	690.1	0.202	423.6	4,189,204	0.328	600.2	0.153	266.6	3,594,905
October	0.337	696.8	0.212	434.9	4,103,532	0.341	717.3	0.143	298.3	4,210,651
November	0.341	706.6	0.196	406.4	4,140,298	0.338	676.4	0.142	269.9	3,986,787
December	0.338	731.9	0.230	497.3	4,334,405	0.347	746.2	0.157	334.0	4,295,362
Total / Avg.	0.337	7884.8	0.201	4696.8	46,286,314	0.339	7939.6	0.144	3286.7	46,530,064
EDR / DAS	0.339	7884.7	0.203	4696.8	46,286,312	0.340	7939.6	0.143	3286.6	46,530,063

Total tons SO2 Emissions	15824.3

2014 Air Emissions Inventory
Coal Creek Station

Unit I SO2 Data

1. AP-42: Lbs of SO2/Unit Burned = (AP-42 Factor) X (S)
   (S) = % Sulfur

			(S)			
*AP-42 factor for Coal (NDDH)	34.3	X	0.694	=	23.80	Lbs SO2/Ton Coal Burned
AP-42 factor for No. 2 Fuel Oil	142	X	0.01	=	1.42	Lbs SO2/1000 gal No. 2 Fuel Oil Burned
AP-42 factor for Used Oil/Solvent	142	X	0.01	=	1.42	Lbs SO2/1000 gal Used Oil/Solvent Burned

2. CEMs Emission Rate:	**0.339**	Lbs SO2/mBtu
Coal Burned:	3,407,090	Tons
Coal Heat Content:	6,710	Btu/lb coal
Hours of Operation:	7,995.0	Hrs.
No. 2 Fuel Oil Burned:	124,165	Gallons
Waste Oil/Solvent Burned:	30	Gallons

Calculations:

1. Yearly Total of SO2 Tons Emitted:

Yearly Total from Plant Data Sheet; CEMS 4th Quarter EDR Data

7,884.7 = Total Tons of SO2 Emitted Per Year

2. SO2 Emissions (Tons) for Coal:

Yearly Total - SO2 Emissions for Standby Fuel - SO2 Emissions for Waste Oil/Solvent

7,884.6 = Tons of SO2 Emitted Per Year from Coal

3. SO2 Emissions (Lbs/Hr):

(Tons of SO2 Emitted/Yr X 2000 Lbs/Ton) / Hours of Operation

1,972.4 = Lbs of SO2 Emitted Per Hour from Coal

4. SO2 Emissions for Standby Fuel (Tons/Yr):

{Gallons Burned x 142(S) lbs SO2/1000 Gallons}/2000 lbs/Ton

0.09 = Tons of SO2 Emitted Per Year from Fuel Oil

5. SO2 Emissions for Waste Oil/Solvent (Tons/Yr):

{Gallons Burned x 142(S) lbs SO2/1000 Gallons}/2000 lbs/Ton

0.00 = Tons of SO2 Emitted Per Year from Waste Oil/Solvent

6. Total SO2 in Coal (Tons): AP-42

(Tons Coal X Lbs SO2/Ton) / 2000 Lbs/Ton

40,543 = Tons of SO2

SO2 Emissions Uncontrolled (Lbs/mmBTU):

(Tons of SO2 X 2000 Lbs/Ton)/[(Tons of Coal) X (2000 Lbs/Ton) X (Avg. Btu/Lb)]

1.77 = Lbs SO2/MBtu

SO2 Removal Efficiency (Percent): [System]

(SO2 Uncontrolled - SO2 Annual Average)/(SO2 Uncontrolled) X 100

80.88 = SO2 Removal Efficiency (%)

*ND Department of Health has determined the SO2 factor to use for Lignite should be 34.3
AP-42 SO2 factor for No. 2 Fuel Oil from Table 1.3-1
AP-42 SO2 factor for Used Oil/Solvent, utilized No. 2 fuel oil factor from Table 1.3-1

2014 Air Emissions Inventory
Coal Creek Station

Unit 2 SO2 Data

1. AP-42: Lbs of SO2/Unit Burned = (AP-42 Factor) X (S)
   (S) = % Sulfur

			(S)			
*AP-42 factor for Coal (NDDH)	34.3	X	0.694	=	23.80	Lbs SO2/Ton Coal Burned
AP-42 factor for No. 2 Fuel Oil	142	X	0.010	=	1.42	Lbs SO2/1000 gal No. 2 Fuel Oil Burned

2. CEMs Emission Rate:	**0.340**	Lbs SO2/mBtu
Coal Burned:	3,528,472	Tons
Coal Heat Content:	6,710	Btu/lb coal
Hours of Operation:	8,326.0	Hrs.
No. 2 Fuel Oil Burned:	147,077	Gallons

Calculations:

1. Yearly Total of SO2 Tons Emitted:

Yearly Total from Plant Data Sheet; CEMS 4th Quarter EDR Data

7,939.6 = Total Tons of SO2 Emitted Per Year

2. SO2 Emissions (Tons) for Coal:

Yearly Total - SO2 Emissions for Standby Fuel

7,939.5 = Tons of SO2 Emitted Per Year from Coal

3. SO2 Emissions (Lbs/Hr):

(Tons of SO2 Emitted/Yr X 2000 Lbs/Ton) / Hours of Operation

1,907.2 = Lbs of SO2 Emitted Per Hour from Coal

4. SO2 Emissions for Standby Fuel (Tons/Yr):

{Gallons Burned x 142(S) lbs SO2/1000 Gallons}/2000 lbs/Ton

0.10 = Tons of SO2 Emitted Per Year from Fuel Oil

5. Total SO2 in Coal (Tons): AP-42

(Tons Coal X Lbs SO2/Ton) / 2000 Lbs/Ton

41,987 = Tons of SO2

SO2 Emissions Uncontrolled (Lbs/mmBTU):

(Tons of SO2 X 2000 Lbs/Ton)/[(Tons of Coal) X (2000 Lbs/Ton) X (Avg. Btu/Lb)]

1.77 = Lbs SO2/MBtu

SO2 Removal Efficiency (Percent): [System]

(SO2 Uncontrolled - SO2 Annual Average)/(SO2 Uncontrolled) X 100

80.83 = SO2 Removal Efficiency (%)

*ND Department of Health has determined the SO2 factor to use for Lignite should be 34.3

AP-42 SO2 factor for No. 2 Fuel Oil from Table 1.3-1

2014 Air Emissions Inventory
Coal Creek Station

Unit I & Unit II NOx & CO Data:

	Unit 1	Unit 2	
1. CEMs NOx Emission Rate lb NOx/mmbtu	0.203	0.143	lb NOx/mmbtu
CEMs NOx Emissions	4696.8	3286.6	Tons of NOX
AP-42 Factor for NOx Burning Oil	24	24	Lbs of NOx Per 1000 Gal. Oil
AP-42 Factor for CO Burning Coal	0.5	0.5	Lbs of CO Per Ton of Coal Burned
AP-42 Factor for CO Emissions Burning Oil	5	5	Lbs of CO Per 1000 Gal. Oil
Coal Burned:	3,407,090	3,528,472	Tons
Oil Burned:	124,165	147,077	Gal.
Hours of Operation:	7,995.0	8,326.0	Hours
Coal Heat Content:	6,710	6,710	Btu/lb coal

2. NOx Emission Rate = 100% of Total NOx Generated
   CO Emission Rate = 100% of Total CO Generated

Calculations:

Unit 1 - NOx Emissions

Tons NOx generated from CEM
Tons NOx generated from Oil= (Gal. Oil) X (24 Lbs NOx/1000 Gal.)} / 2000 Lbs/Ton
Tons NOx generated from Coal + Total NOX - NOX from Oil

4,696.8 = Tons of NOx Emitted / Year

4,695.3 = Tons (coal) **1.5 = Tons (oil)**

(Tons NOx/Yr) X (2000 Lbs NOx/Ton) / (Hours of Operation)
1,174.6 = Lbs of NOx Emitted / Hour of Operation

Unit 1 - CO Emissions

{(0.5 Lbs CO / Ton Coal) X (Tons Coal) + (Gal Oil) X (5 Lbs / 1000 Gal)}/ 2000 Lbs/Ton

852.1 = Tons of CO Emitted / Year

851.8 = Tons (coal) **0.3 = Tons (oil)**

(Tons CO/Yr) X (2000 Lbs CO/Ton) / (Hours of Operation)
213.2 = Lbs of CO Emitted / Hour of Operation

Unit 2 - NOx Emissions

Tons NOx generated from CEM
Tons NOx generated from Oil= (Gal. Oil) X (24 Lbs NOx/1000 Gal.)} / 2000 Lbs/Ton
Tons NOx generated from Coal + Total NOX - NOX from Oil

3,286.6 = Tons of NOx Emitted / Year

3,284.8 = Tons (coal) **1.76 = Tons (oil)**

(Tons NOx/Yr) X (2000 Lbs NOx/Ton) / (Hours of Operation)
789.5 = Lbs of NOx Emitted / Hour

Unit 2 - CO Emissions

{(0.5 Lbs CO / Ton Coal) X (Tons Coal) + (Gal Oil) X (5 Lbs / 1000 Gal)}/ 2000 Lbs/Ton

882.5 = Tons of CO Emitted / Year

882.1 = Tons (coal) **0.37 = Tons (oil)**

(Tons CO/Yr) X (2000 Lbs CO/Ton) / (Hours of Operation)
212.0 = Lbs of CO Emitted / Hour of Operation

AP-42 NOX factor for No. 2 Fuel Oil from Table 1.3-1
AP-42 CO factor Coal from Table 1.1-3
AP-42 CO factor for No. 2 Fuel Oil from Table 1.3-1

2014 Air Emissions Inventory
Coal Creek Station

Unit I & Unit II TOC Data:

	Unit 1	Unit 2	
1. AP-42 Value for TOC Burning Coal:	0.04	0.04	Lbs/Ton Coal
AP-42 Value for TOC Burning Oil:	0.76	0.76	Lbs/1000 Gal Oil
Coal Burned:	3,407,090	3,528,472	Tons
Oil Burned:	124,165	147,077	Gal.
Hours of Operation:	7,995.0	8,326.0	Hours

2. TOC Emission Rate = 100% of Total TOC Generated

AP-42 Calculations for TOC:

Unit 1

1. (0.04 lb TOC/Ton Coal) x Ton of Coal

136,284 = lb TOC emitted from coal combustion

68.14 = Tons (coal)

2. (0.76 lb TOC/1000 gal oil) x Gallons of Oil burned

94.37 = lb TOC emitted from oil combustion

0.05 = Tons (oil)

3. Total lb TOC emitted / hours of operation

17.1 = lb/hr of TOC

4. lb TOC emitted/ 2000 lb/ton

68.2 = Ton of TOC/ Year

Unit 2

1. (0.04 lb TOC/Ton Coal) x Ton of Coal

141,139 = lb TOC emitted from coal combustion

70.57 = Tons (coal)

2. (0.76 lb TOC/1000 gal oil) x Gallons of Oil burned

111.78 = lb TOC emitted from oil combustion

0.06 = Tons (oil)

3. Total lb TOC emitted / hours of operation

17.0 = lb/hr of TOC

4. lb TOC emitted/ 2000 lb/ton

70.6 = Ton of TOC/ Year

AP-42 TOC factor for coal from Table 1.1-19
AP-42 NMTOC factor for No. 4 Fuel Oil from Table 1.3-3

2014 Air Emissions Inventory
Coal Creek Station

Unit 1 - Particulate Emissions: Filterable

Coal Feed	3,407,090	Tons
Coal Ash	12.57	%
Heat Content	6710	Btu/lb coal
Oil Usage	124,165	Gallons
Oil Average Sulfur	0.010	%
CEMS Heat Input for year	4.62863E+13	Btu (from Plant Data)

Calculations:

CEMS Heat Input for year	4.62863E+07	lb/10^6 Btu (from Plant Data)
Coal Emissions Rate (PM test)	0.0100	lb/10^6 Btu (from 2010 Testing)
PM10 Coal Emission Rate - Ratio of Total	0.67	From AP-42 Table 1.7-7 Cummulative Mass %
PM2.5 Coal Emission Rate - Ratio of Total	0.27	From AP-42 Table 1.7-7 Cummulative Mass %

Oil Emission Rate (Total)	0.07	lb/1000 gal	(8.3A)
PM10 Emission Rate -Oil*	0.050	lb/1000 gal	(5.9A)
PM2.5 Emission Rate -Oil*	0.036	lb/1000 gal	(4.3A)

Source - Total Particulate	lbs	tons
Coal (PM Test Rate times Coal Heat Input)	462,863.1	**231.43**
Oil**	8.7	**0.00**
Total	462,871.8	231.4

Source - PM10	lbs	tons
Coal	310,118.3	**155.06**
Oil**	6.2	**0.00**
Total	310,124.4	155.06

Source - PM2.5	lbs	tons
Coal	124,973.0	**62.49**
Oil**	4.5	**0.00**
Total	124,977.5	62.49

NOTE: (*) Value is adopted from EPA AP-42 Document for residual oil Table 1.3-4. Used value for No. 4 Fuel Oil

Oil Emission Rate (Total) value is calculated using: 8.3 x (0.84 x S) , where S = % sulfur in oil.

(**) Precipitator was used only during coal combustion.

Oil particulate emissions is 100% of the produced particulates.

Oil Emission Rate (PM10) is calculated using: 5.9 x (0.84 x S) , where S = % sulfur in oil.

Oil Emission Rate (PM2.5) is calculated using: 4.3 x (0.84 x S) , where S = % sulfur in oil.

2014 Air Emissions Inventory
Coal Creek Station

Unit 2 - Particulate Emissions: Filterable

Coal Feed	3,528,472	Tons
Coal Ash	12.57	%
Heat Content	6,709.78	Btu/lb coal
Oil Usage	147,077	Gallons
Oil Average Sulfur	0.010	%
CEMS Heat Input for year	4.65301E+13	Btu (from Plant Data)

Calculations:

CEMS Heat Input for year	4.65301E+07	lb/10^6 Btu (from Plant Data)
Coal Emissions Rate (PM test)	0.0019	lb/10^6 Btu (used same value as for Blue Flint Ethanol Reporting)
PM10 Coal Emission Rate - Ratio of Total	0.67	From AP-42 Table 1.7-7 Cummulative Mass %
PM2.5 Coal Emission Rate - Ratio of Total	0.27	From AP-42 Table 1.7-7 Cummulative Mass %

Oil Emission Rate (Total)	0.07	lb/1000 gal	(8.3A)
PM10 Emission Rate -Oil*	0.050	lb/1000 gal	(5.9A)
PM2.5 Emission Rate -Oil*	0.036	lb/1000 gal	(4.3A)

Source - Total Particulate	lbs	tons
Coal (PM Test Rate times Coal Heat Input)	88,407.1	**44.20**
Oil**	10.3	**0.01**
Total	88,417.4	44.2

Source - PM10	lbs	tons
Coal	59,232.8	**29.62**
Oil**	7.3	**0.00**
Total	59,240.1	29.62

Source - PM2.5	lbs	tons
Coal	23,869.9	**11.93**
Oil**	5.3	**0.00**
Total	23,875.2	11.94

NOTE: (*) Value is adopted from EPA AP-42 Document for residual oil Table 1.3-4. Used value for No. 4 Fuel Oil

Oil Emission Rate (Total) value is calculated using: 8.3 x (0.84 x S) , where S = % sulfur in oil.

(**) Precipitator was used only during coal combustion.

Oil particulate emissions is 100% of the produced particulates.

Oil Emission Rate (PM10) is calculated using: 5.9 x (0.84 x S) , where S = % sulfur in oil.

Oil Emission Rate (PM2.5) is calculated using: 4.3 x (0.84 x S) , where S = % sulfur in oil.

2014 Hazardous Air Pollutants Worksheet for Sulfuric Acid

Air Emissions

Calculation of Sulfuric Acid Emission:

Coal Combustion

UNIT	TOTAL H_2SO_4 Manufactured (LB/YR) **E1**	TOTAL H_2SO_4 RELEASED **E1'**	MOLECULAR WEIGHT & UNITS CONVERSION CONSTANT **K**	FUEL IMPACT FACTOR **F1**	TECHNOLOGY IMPACT FACTOR (PCD) **F2**	% Scrubbed or Not Scrubbed **E3**	SO_2 EMISSIONS Tons/yr **E2**	Molecular Weight Conversion **K1**	Sulfur Conversion **K2**	Tons of Coal **C1**	Sulfur Content **S1**
Unit 1 (Scrubbed)	128,000.00	**13,000.00**	3,063	0.001900	0.10368	21,980.06	26,004.26	0.02	0.55	3,407,090	0.6939
Unit 1 (Bypassing)	23,000.00	**6,000.00**	3,063	0.001900	0.2592	4,024.20	26,004.26	0.02	0.55	3,407,090	0.6939
Unit 2 (Scrubbed)	135,000.00	**14,000.00**	3,063	0.001900	0.10368	23,230.59	26,930.69	0.02	0.55	3,528,472	0.6939
Unit 2 (Bypassing)	22,000.00	**6,000.00**	3,063	0.001900	0.2592	3,700.11	26,930.69	0.02	0.55	3,528,472	0.6939

E1= E1=K*F1*E3 = TOTAL SULFURIC ACID MANUFACTURED

EI'= E1'=K*F1*F2*E3 = TOTAL SULFURIC ACID RELEASED

E2= E2=K1*K2*C1*S1

SO_2 MASS BURN RATE, TONS/YR

Unit 1 and 2 uses the equation ("if any FGD equipment is used, the calculation of SO2 mass rate from coal burn mass rate must be used" p.5)

E3= E2*% Flue Gas Bypassed (or % Flue Gas Scrubbed)

K1= MOLECULAR WEIGHT & UNITS CONVERSION CONSTANT

C1= COAL BURN, TONS/YR

S1= COAL SULFUR, WEIGHTED AVERAGE,%.

K2= SULFUR CONVERSION TO SO_2, IMPLICIT FROM EPA AP-42,
0.55 to 0.85 for lignite, based on the Na content (p.6).
Assume: 0.55

F2= TECHNOLOGY IMPACT FACTOR FOR CONTROL DEVICES (factors from EPRI 2010 Lark-Tripp program)
Unit 1 and 2 (Scrubbed) = cold-side ESP (0.72) *air heater (0.36) * wet scrubber (0.4) = 0.10368
Unit 1 and 2 (Bypassing) = cold-side ESP (0.72) *air heater (0.36) = 0.2592
Auxiliary Boilers = Baghouse Filter System (0.1)

F1= FUEL IMPACT FACTOR from Lark-Tripp; Subbituminous, PRB, PC, dry bottom (0.0019)

From "An Updated Method for Estimating Total Sulfuric Acid Emissions from Stationary Power Plants," Larry S. Monroe, Southern Co, May 2001

2014 Hazardous Air Pollutants Worksheet for Sulfuric Acid

Fuel Combustion:

Method: uncontrolled sulfuric acid emission factor.

Unit	H_2SO_4 (lbs/year)	Factor	S (%)	F (gallons)
Unit 1	**3.0**	0.00245	0.0100	124,195
Unit 2	**3.6**	0.00245	0.0100	147,077
Auxiliary Boiler 91	**2.3**	0.00245	0.0100	94,255
Auxiliary Boiler 92	**2.3**	0.00245	0.0100	94,399
Emergency Generator	**0.1**	0.00245	0.0100	4,144
Fire Pump	**0.0**	0.00245	0.0100	293

0.00245 uncontrolled sulfuric acid emission factor
S fuel oil sulfur content, weighted average %
F Fuel for Unit 1 and Unit 2 is fuel oil No. 2 and includes the waste oil burned only in Unit 1
Fuel for Auxiliary Boiler 91, Emergency Generator and Fire Pump is fuel oil No. 2

Source:
Guidance for Reporting Sulfuric Acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size), EPA-745-R-97-007

Summary of Sulfuric Acid Release, (Rounded results):

Source	Sulfuric Acid (lbs/year)		Total (lbs/yr)	Manufactured H_2SO_4	Removal Efficiency	Hours On Line	Max. Lb/Hr
	Coal	Fuel Oil					
Unit 1	19,000	3.0	**19003.0**	151,003.0	87.4%	7995.0	**18.89**
Unit 2	20,000	3.6	**20003.6**	157,003.6	87.3%	8326.0	**18.86**
Auxiliary Boiler 91	0	2.3	**2.3**	2.3	0.0%	179.0	**0.01**
Auxiliary Boiler 92	0	2.3	**2.3**	2.3	0.0%	198.0	**0.00**
Emergency Generator	0	0.1	**0.1**	0.1	0.0%	29.6	**0.00**
Fire Pump	0	0.0	**0.0**	0.0	0.0%	11.9	**0.00**
		Total =	**39,011**	308,011.4	87.3%		
			Total Removed =	269,000.0			

FUEL BURNING EQUIPMENT USED FOR INDIRECT HEATING
ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8536 (11-10)

GENERAL

Name of Firm or Organization Great River Energy	Permit to Operate Number T5-F82006	Year of Emissions 2014	
Mailing Address 12300 Elm Creek Blvd	City Maple Grove	State MN	Zip Code 55369-4178
Facility Name Coal Creek Station	Facility Location Underwood, ND 58576	Emission Unit Number 3– (Auxiliary Boiler 91)	

EQUIPMENT INFORMATION

Manufacturer of Unit Combustion Engineering	Model Number 130,000 Lb/Hr	Maximum Heat Input (Btu/hr) 172 x 10^6
Boiler Type: ☐Pulverized Tangential ☐ Cyclone ☒ Spreader Stoker ☐Pulverized Wall Fired ☐Fluidized Bed ☐Other	Electricity Generated (MWe)* N/A	Actual Hours of Operation 179.0

*Electric utility only.

FUELS USED	Primary Fuel	Standby Fuel	Other Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)	NO. 2 Fuel Oil	N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)	94,255 Gals	N/A	N/A
Percent Ash (Coal Only) Maximum Minimum Average	N/A	N/A	N/A
Percent Sulfur Maximum Minimum Average	0.0100	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.) Maximum Minimum Average	137,272 Btu/Gal	N/A	N/A
Percent Sodium in Coal Ash Average	N/A	N/A	N/A

TOTAL STACK EMISSIONS

(USE THE TABLE ABOVE FOR SINGLE FUEL USAGE; USE OTHER SIDE IF MULTIPLE FUELS ARE USED AND THEN SUMMARIZE THE TOTAL EMISSIONS PER YEAR ON THE FOLLOWING TABLE.)

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total	0.28 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
PM_{10} (Particulate < 10 microns)	0.198 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.144 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
Sulfur Dioxide	142(s) lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	0.1
Nitrogen Oxides	24 lbs/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	1.1
Carbon Monoxide	5 lbs/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	0.2
Total Organic Compounds: Nonmethane	0.76 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-3	0.01
Mercury***			N/A
Ammonia***			N/A

**Submit SFN 19839 for Hazardous Air Pollutants if applicable.
***Title V units only.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report David Farnsworth	Title Manager, ND Generation	Email dfarnsworth@GREnergy.com
Signature David E. Farnsworth	Telephone Number 701-442-7002	Date 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

Provide calculations for quantities listed above. Use additional sheets if necessary.

SEE ATTACHED WORKSHEETS FOR EMISSIONS CALCULATIONS

HAZARDOUS AIR POLLUTANT ANNUAL EMISSIONS INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 19839 (11-11)

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Emission Unit Number	
Coal Creek Station	Underwood, ND 58576	3 – Aux Boiler 91	

Amount of ~~Material Processed~~ (material used, etc.)
~~137,255~~ 94,255 gals of No. 2 Fuel Oil @ 137,272 BTU/gal @ 0.01% Sulfur

Hours of Operation:	Air Pollution Control Equipment:
179.0	N/A

HAZARDOUS AIR POLLUTANT EMISSIONS:

CHEMICAL EMITTED TO AIR	CAS NUMBER	EMISSIONS QUANTITY	
		Emission Factor (include units)	TONS
Arsenic	7440382	4 lb/trillion Btu (fuel input)	0.00
Beryllium	7440417	3 lb/trillion Btu (fuel input)	0.00
Cadmium	7440439	3 lb/trillion Btu (fuel input)	0.00
Chloride	7647010	0.025 lb/trillion Btu (fuel input)	0.00
Chromium	7440473	5 lb/trillion Btu (fuel input)	0.00
Fluoride	7664393	0.025 lb/trillion Btu (fuel input)	0.00
Lead	7439921	9 lb/trillion Btu (fuel input)	0.00
Manganese	7439965	14 lb/trillion Btu (fuel input)	0.00
Mercury	7439976	3 lb/trillion Btu (fuel input)	0.00
Nickel	7440020	3 lb/trillion Btu (fuel input)	0.00
Selenium	7782492	2 lb/trillion Btu (fuel input)	0.00

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature: David E. Farnsworth	Telephone Number: 701-442-7002	Date: 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

Basis for quantities listed above; provide calculations (use additional sheets if necessary):

See Attached Worksheets for Calculations.

2014 Hazardous Air Pollutants
Worksheet for AUX Boiler 91

Auxiliary Boiler 91, No. 2 Fuel Oil Burning

Hours of Operation	179
Total Gallons	**94,255**
No. 2 Fuel Oil Sulfur %	0.01
No. 2 Fuel Oil Btu/gal	137,272
Total Heat Input in BTU's	12,938,537,689
Maximum Heat Input (mmBTU)	172

Oil Burning

VOC's	Pollutant	CAS #	Emission Factor lb/1000 Gal	Emission Factor lb/trillion BTU	PTO EF Rating	Calculated Emissions lbs/yr	Potential Max. lbs/hr
calculated on Sulfuric Acid worksheet	*Sulfuric Acid (aerosol)*					0.00	0.00
Metal's							
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Arsenic*	7440382		4		0.05175	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Beryllium*	7440417		3		0.03882	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Cadmium*	7440439		3		0.03882	0.00
EPRI (Southern Company- Distillate Fuel Oil)	*Chloride*	7647010		0.025		0.00032	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Chromium*	7440473		5		0.06728	0.00
EPRI (Southern Company- Distillate Fuel Oil)	*Fluoride*	7664393		0.025		0.00032	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Lead*	7439921		9		0.11645	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Manganese*	7439965		14		0.18114	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Mercury*	7439976		3		0.03882	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Nickel*	7440020		3		0.03882	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Selenium*	7782492		2		0.02717	0.00

2014 Air Emissions Inventory
Coal Creek Station

Aux Boiler 91

Hours On-Line	179	Hrs
No. 2 Fuel Oil Usage	94,255	Gallons
No. 2 Fuel Oil Sulfur	0.01	%
No. 2 Fuel Oil GCV	137,272	Btu/gal

Aux Boiler 91 - **SO2 Emissions** for Fuel Oil (Tons/Yr):

AP-42 Table 1-3-1 for No. 2 oil fired (142 * Sulfur) — 1.42 lbs/1000 Gals

{Gallons Burned x 142(S) lbs SO2/1000 Gallons}/2000 lbs/Ton — **0.067** **= Tons of SO2 Emitted Per Year from Fuel Oil**

Aux Boiler 91 - **NOX Emissions** for Fuel Oil (Tons/Yr):

AP-42 Table 1-3-1 for No. 2 oil fired — 24 lbs/1000 Gals

{Gallons Burned x 24 lbs NOX/1000 Gallons}/2000 lbs/Ton — **1.13** **= Tons of NOX Emitted Per Year from Fuel Oil**

Aux Boiler 91 - **CO Emissions** for Fuel Oil (Tons/Yr):

AP-42 Table 1-3-1 for No. 2 oil fired — 5 lbs/1000 Gals

{Gallons Burned x 5 lbs CO/1000 Gallons}/2000 lbs/Ton — **0.24** **= Tons of NOX Emitted Per Year from Fuel Oil**

Aux Boiler 91 - **TOC Emissions** for Fuel Oil (Tons/Yr):

AP-42 Table 1-3-3 for distillate fuel oil — 0.252 lbs/1000 Gals

{Gallons Burned x 0.252 lbs TOC/1000 Gallons}/2000 lbs/Ton — **0.01** **= Tons of TOC Emitted Per Year from Fuel Oil**

Aux Boiler 91 - Particulate Emissions - Uncontrolled

AP-42 Table 1-3-4 (No. 4 Fuel Oil) Uncontrolled
Calculations:

*Oil Emission Rate (Total) from Table AP-42 Table 1-3-4 (8.3A)	0.070	lb/1000 gal
*Oil Emission Rate (PM10) from Table AP-42 Table 1-3-4 (5.9A)	0.050	lb/1000 gal
*Oil Emission Rate (PM2.5) from Table AP-42 Table 1-3-4 (4.3A)	0.036	lb/1000 gal

Source - Total Particulate	lbs	lbs/hr	tons
Oil	6.6	0.0	0.00
Total	6.6	0.0	**0.00**

Source - PM10**	lbs	lbs/hr	tons
Oil	4.7	0.0	0.00
Total	4.7	0.0	**0.00**

Source - PM10**	lbs	lbs/hr	tons
Oil	3.4	0.0	0.00
Total	3.4	0.0	**0.00**

NOTE: (*) Value is adopted from EPA AP-42 Document for residual oil Table 1.3-4. Used value for No. 4 Fuel Oil
*Oil Emission Rate (Total) value is calculated using: 8.3 x (**0.84** x S) , where S = % sulfur in oil.*
(**) Baghouse is used only during coal combustion.
Oil particulate emissions is 100% of the produced particulates.
Oil Emission Rate (PM10) is calculated using: 5.9 x (0.84 x S) , where S = % sulfur in oil.
Oil Emission Rate (PM2.5) is calculated using: 4.3 x (0.84 x S) , where S = % sulfur in oil.

FUEL BURNING EQUIPMENT USED FOR INDIRECT HEATING
ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8536 (11-10)

GENERAL

Name of Firm or Organization Great River Energy	Permit to Operate Number T5-F82006	Year of Emissions 2014	
Mailing Address 12300 Elm Creek Blvd	City Maple Grove	State MN	Zip Code 55369-4178
Facility Name Coal Creek Station	Facility Location Underwood, ND 58576	Emission Unit Number 4– (Auxiliary Boiler 92)	

EQUIPMENT INFORMATION

Manufacturer of Unit Combustion Engineering	Model Number 130,000 Lb/Hr	Maximum Heat Input (Btu/hr) 172 x 10^6
Boiler Type: ☐Pulverized Tangential ☐ Cyclone ☒ Spreader Stoker ☐Pulverized Wall Fired ☐Fluidized Bed ☐Other	Electricity Generated (MWe)* N/A	Actual Hours of Operation 198.0

*Electric utility only.

FUELS USED	Primary Fuel	Standby Fuel	Other Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)	NO. 2 Fuel Oil	N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)	94,399 Gals	N/A	N/A
Percent Ash (Coal Only) Maximum Minimum Average	N/A	N/A	N/A
Percent Sulfur Maximum Minimum Average	0.0100	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.) Maximum Minimum Average	137,272 Btu/Gal	N/A	N/A
Percent Sodium in Coal Ash Average	N/A	N/A	N/A

TOTAL STACK EMISSIONS

(USE THE TABLE ABOVE FOR SINGLE FUEL USAGE; USE OTHER SIDE IF MULTIPLE FUELS ARE USED AND THEN SUMMARIZE THE TOTAL EMISSIONS PER YEAR ON THE FOLLOWING TABLE.)

Air Contaminant **	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total	0.28 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
PM_{10} (Particulate < 10 microns)	0.198 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.144 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-4	0.00
Sulfur Dioxide	142(s) lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	0.1
Nitrogen Oxides	24 lbs/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	1.1
Carbon Monoxide	5 lbs/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-1	0.2
Total Organic Compounds: Nonmethane	0.76 lb/1000 Gal	AP-42 Fuel Oil Combustion Table 1.3-3	0.01
Mercury***			N/A
Ammonia***			N/A

**Submit SFN 19839 for Hazardous Air Pollutants if applicable.
***Title V units only.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report David Farnsworth	Title Manager, ND Generation	Email dfarnsworth@GREnergy.com
Signature David E. Farnsworth	Telephone Number 701-442-7002	Date 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

Provide calculations for quantities listed above. Use additional sheets if necessary.

SEE ATTACHED WORKSHEETS FOR EMISSIONS CALCULATIONS

HAZARDOUS AIR POLLUTANT ANNUAL EMISSIONS INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 19839 (11-11)

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Emission Unit Number	
Coal Creek Station	Underwood, ND 58576	4 – Aux Boiler 92	
Amount of Material Processed (material used, etc.)			
94,399 gals of No. 2 Fuel Oil @ 137,272 BTU/gal @ 0.01% Sulfur			
Hours of Operation:	Air Pollution Control Equipment:		
198.0	N/A		

HAZARDOUS AIR POLLUTANT EMISSIONS:

CHEMICAL EMITTED TO AIR	CAS NUMBER	EMISSIONS QUANTITY	
		Emission Factor (include units)	TONS
Arsenic	7440382	4 lb/trillion Btu (fuel input)	0.00
Beryllium	7440417	3 lb/trillion Btu (fuel input)	0.00
Cadmium	7440439	3 lb/trillion Btu (fuel input)	0.00
Chloride	7647010	0.025 lb/trillion Btu (fuel input)	0.00
Chromium	7440473	5 lb/trillion Btu (fuel input)	0.00
Fluoride	7664393	0.025 lb/trillion Btu (fuel input)	0.00
Lead	7439921	9 lb/trillion Btu (fuel input)	0.00
Manganese	7439965	14 lb/trillion Btu (fuel input)	0.00
Mercury	7439976	3 lb/trillion Btu (fuel input)	0.00
Nickel	7440020	3 lb/trillion Btu (fuel input)	0.00
Selenium	7782492	2 lb/trillion Btu (fuel input)	0.00

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature: David E. Farnsworth	Telephone Number: 701-442-7002	Date: 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

Basis for quantities listed above; provide calculations (use additional sheets if necessary):

See Attached Worksheets for Calculations.

2014 Hazardous Air Pollutants
Worksheet for Aux. Boiler 92

Auxiliary Boiler 92, No. 2 Fuel Oil Burning

Hours of Operation	198
Total Gallons	**94,399**
No. 2 Fuel Oil Sulfur %	0.01
No. 2 Fuel Oil Btu/gal	137,272
Total Heat Input in BTU's	12,958,304,804
Maximum Heat Input (mmBTU)	172

Oil Burning

VOC's	Pollutant	CAS #	Emission Factor lb/1000 Gal	Emission Factor lb/trillion BTU	PTO EF Rating	Calculated Emissions lbs/yr	Potential Max. lbs/hr
calculated on Sulfuric Acid worksheet	*Sulfuric Acid (aerosol)*					0.00	0.00
Metal's							
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Arsenic*	7440382		4		0.05183	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Beryllium*	7440417		3		0.03887	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Cadmium*	7440439		3		0.03887	0.00
EPRI (Southern Company- Distillate Fuel Oil)	*Chloride*	7647010		0.025		0.00032	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Chromium*	7440473		5		0.06738	0.00
EPRI (Southern Company- Distillate Fuel Oil)	*Fluoride*	7664393		0.025		0.00032	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Lead*	7439921		9		0.11662	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Manganese*	7439965		14		0.18142	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Mercury*	7439976		3		0.03887	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Nickel*	7440020		3		0.03887	0.00
AP-42 Table 1.3-10 (Distillate Fuel Oil)	*Selenium*	7782492		2		0.02721	0.00

2014 Air Emissions Inventory
Coal Creek Station

Aux Boiler 92

Hours On-Line	198	Hrs
No. 2 Fuel Oil Usage	94,399	Gallons
No. 2 Fuel Oil Sulfur	0.01	%
No. 2 Fuel Oil GCV	137,272	Btu/gal

Aux Boiler 92 - **SO2 Emissions** for Fuel Oil (Tons/Yr):

AP-42 Table 1-3-1 for No. 2 oil fired (142 * Sulfur) 1.42 lbs/1000 Gals

{Gallons Burned x 142(S) lbs SO2/1000 Gallons}/2000 lbs/Ton **0.067 = Tons of SO2 Emitted Per Year from Fuel Oil**

Aux Boiler 92 - **NOX Emissions** for Fuel Oil (Tons/Yr):

AP-42 Table 1-3-1 for No. 2 oil fired 24 lbs/1000 Gals

{Gallons Burned x 24 lbs NOX/1000 Gallons}/2000 lbs/Ton **1.13 = Tons of NOX Emitted Per Year from Fuel Oil**

Aux Boiler 92 - **CO Emissions** for Fuel Oil (Tons/Yr):

AP-42 Table 1-3-1 for No. 2 oil fired 5 lbs/1000 Gals

{Gallons Burned x 5 lbs CO/1000 Gallons}/2000 lbs/Ton **0.24 = Tons of NOX Emitted Per Year from Fuel Oil**

Aux Boiler 92 - **TOC Emissions** for Fuel Oil (Tons/Yr):

AP-42 Table 1-3-3 for distillate fuel oil 0.252 lbs/1000 Gals

{Gallons Burned x 0.252 lbs TOC/1000 Gallons}/2000 lbs/Ton **0.01 = Tons of TOC Emitted Per Year from Fuel Oil**

Aux Boiler 92 - Particulate Emissions - Uncontrolled

AP-42 Table 1-3-4 (No. 4 Fuel Oil) Uncontrolled
Calculations:

*Oil Emission Rate (Total) from Table AP-42 Table 1-3-4 (8.3A)	0.070	lb/1000 gal
*Oil Emission Rate (PM10) from Table AP-42 Table 1-3-4 (5.9A)	0.050	lb/1000 gal
*Oil Emission Rate (PM2.5) from Table AP-42 Table 1-3-4 (4.3A)	0.036	lb/1000 gal

Source - Total Particulate	lbs	lbs/hr	tons
Oil	6.6	0.0	0.00
Total	6.6	0.0	**0.00**

Source - PM10**	lbs	lbs/hr	tons
Oil	4.7	0.0	0.00
Total	4.7	0.0	**0.00**

Source - PM2.5**	lbs	lbs/hr	tons
Oil	3.4	0.0	0.00
Total	3.4	0.0	**0.00**

NOTE: (*) Value is adopted from EPA AP-42 Document for residual oil Table 1.3-4. Used value for No. 4 Fuel Oil
*Oil Emission Rate (Total) value is calculated using: 8.3 x (**0.84** x S) , where S = % sulfur in oil.*
(**) Baghouse is used only during coal combustion.
Oil particulate emissions is 100% of the produced particulates.
Oil Emission Rate (PM10) is calculated using: 5.9 x (0.84 x S) , where S = % sulfur in oil.
Oil Emission Rate (PM2.5) is calculated using: 4.3 x (0.84 x S) , where S = % sulfur in oil.

COMPRESSOR/INDUSTRIAL ENGINES
ANNUAL EMISSIONS INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 11829 (11-10)

GENERAL

Name of Film or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Emission Unit Number	
Coal Creek Station	Underwood, ND 58576	5 -Emergency Generator	

EQUIPMENT INFORMATION

☐ Stationary Gas Turbine ☐ Reciprocating Engine ☐ 2-Stroke Lean Burn ☐ Dual Fuel Engine ☐ Spark Ignition

☒ Stationary Large Bore Diesel ☐ 4-Stroke Lean Burn ☐ 4-Stroke Rich Burn ☐ Other, Specify_____ ☐ Compression Ignition

Manufacturer of Unit	Model Number	Actual Hours of Operation
Alco Engines	251G18S	29.6
Maximum Rating	Design Capacity	
3500 BHP at 900 RPM	BHP at RPM	

FUELS USED

Natural Gas (if applicable)	Thousand Cu. Ft.	Btu/Cu. Ft.	Percent H_2S
Diesel (if applicable)	Gallons **4,144**	Btu/Gal **139,311**	Percent Sulfur – Average **0.0015**
LP Gas (if applicable)	Gallons	Btu/Gal	
Other (Specify)	Specify	Btu/Unit	

COMPRESSOR STATION FLARE STACK EMISSIONS

Quantity Flared Thousand Cu. Ft./Yr	Average H_2S Content	SO_2 Emissions Tons/Yr

TOTAL STACK EMISSIONS (USE THIS TABLE FOR SINGLE FUEL USAGE. USE OTHER SIDE IF MULTIPLE FUELS ARE USED AND SUMMARIZE THE TOTAL TONS ON THIS TABLE.)

Air Contaminant	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total	0.0697 lb/mmBTU	AP-42 Table 3.4-2	0.02
PM_{10} (Particulate < 10 microns)	0.0573 lb/mmBTU	AP-42 Table 3.4-2	0.02
$PM_{2.5}$ (Particulate < 2.5 microns)	0.0479 lb/mmBTU	AP-42 Table 3.4-2	0.01
Sulfur Dioxide		Mass Balance = (Gals)*(lbs/Gal)*(%Sulfur)*(2)	0.04
Nitrogen Oxides	3.2 lb/mmBTU	AP-42 Table 3.4-1	0.92
Carbon Monoxide	0.85 lb/mmBTU	AP-42 Table 3.4-1	0.25
Total Organic Compounds: Nonmethane	0.09 lb/mmBTU	AP-42 Table 3.4-1	0.03
Hazardous Air Pollutants	You must also submit SFN 19839 for Hazardous Air Pollutants (include formaldehyde and total hazardous air pollutant emissions.)		

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature David E. Farnsworth	Telephone Number 701-442-7002	Date 03/03/2015

HAZARDOUS AIR POLLUTANT ANNUAL EMISSIONS INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 19839 (11-11)

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Emission Unit Number	
Coal Creek Station	Underwood, ND 58576	5 – Emerg. Generator	

Amount of Material Processed (material used, etc.)
4,144 gals of No. 2 Fuel Oil @ 139,311 BTU/gal @ 0.0015% Sulfur

Hours of Operation:	Air Pollution Control Equipment:
29.6	N/A

HAZARDOUS AIR POLLUTANT EMISSIONS:

CHEMICAL EMITTED TO AIR	CAS NUMBER	EMISSIONS QUANTITY	
		Emission Factor (include units)	TONS
Benzene	71-43-2	7.76E-04 lb/MMBtu (fuel input)	0.00
Toluene	108-88-3	2.81E-04 lb/MMBtu (fuel input)	0.00
Xylenes	1330-20-7	1.93E-04 lb/MMBtu (fuel input)	0.00
Propylene	115071	2.79E-03 lb/MMBtu (fuel input)	0.00
Formaldehyde	50000	7.89E-05 lb/MMBtu (fuel input)	0.00
Acetaldehyde	75070	2.52E-05 lb/MMBtu (fuel input)	0.00
Acrolein	107028	7.88E-06 lb/MMBtu (fuel input)	0.00

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature: David E. Farnsworth	Telephone Number: 701-442-7002	Date: 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188
SFN 19839 (11-11) Page 2

Basis for quantities listed above; provide calculations (use additional sheets if necessary):

See Attached Worksheets for Calculations.

COMPRESSOR/INDUSTRIAL ENGINES
ANNUAL EMISSIONS INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 11829 (11-10)

GENERAL

Name of Film or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Emission Unit Number	
Coal Creek Station	Underwood, ND 58576	6 –Fie Pump 92 (Diesel)	

EQUIPMENT INFORMATION

☐ Stationary Gas Turbine ☐ Reciprocating Engine ☐ 2-Stroke Lean Burn ☐ Dual Fuel Engine ☐ Spark Ignition

☒ Stationary Large Bore Diesel ☐ 4-Stroke Lean Burn ☐ 4-Stroke Rich Burn ☐ Other, Specify_____ ☐ Compression Ignition

Manufacturer of Unit	Model Number	Actual Hours of Operation
Cummins	CFP9E-F60	11.9
Maximum Rating	Design Capacity	
399 BHP at 1900 RPM	376 BHP at 1760 RPM	

FUELS USED

Natural Gas (if applicable)	Thousand Cu. Ft.	Btu/Cu. Ft.	Percent H_2S
Diesel (if applicable)	Gallons **293**	Btu/Gal **139,311**	Percent Sulfur – Average **0.0015**
LP Gas (if applicable)	Gallons	Btu/Gal	
Other (Specify)	Specify	Btu/Unit	

COMPRESSOR STATION FLARE STACK EMISSIONS

Quantity Flared Thousand Cu. Ft./Yr	Average H_2S Content	SO_2 Emissions Tons/Yr

TOTAL STACK EMISSIONS (USE THIS TABLE FOR SINGLE FUEL USAGE. USE OTHER SIDE IF MULTIPLE FUELS ARE USED AND SUMMARIZE THE TOTAL TONS ON THIS TABLE.)

Air Contaminant	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate – Total	0.0697 lb/mmBTU	AP-42 Table 3.4-2	0.00
PM_{10} (Particulate < 10 microns)	0.0573 lb/mmBTU	AP-42 Table 3.4-2	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.0479 lb/mmBTU	AP-42 Table 3.4-2	0.00
Sulfur Dioxide	0.29 lb/mmBTU/%S	AP-42 Table 3.3-1	0.01
Nitrogen Oxides	3.2 lb/mmBTU	AP-42 Table 3.3-1	0.09
Carbon Monoxide	0.85 lb/mmBTU	AP-42 Table 3.3-1	0.02
Total Organic Compounds: Nonmethane	0.09 lb/mmBTU	AP-42 Table 3.3-1	0.01
Hazardous Air Pollutants	You must also submit SFN 19839 for Hazardous Air Pollutants (include formaldehyde and total hazardous air pollutant emissions.)		

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature: David E. Farnsworth	Telephone Number 701-442-7002	Date 03/03/2015

Provide calculations for quantities listed above. Use additional sheets if necessary.

See Attached Worksheets for Calculations.

Return completed form to:

North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

HAZARDOUS AIR POLLUTANT ANNUAL EMISSIONS INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 19839 (11-11)

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Emission Unit Number	
Coal Creek Station	Underwood, ND 58576	6 – Fire Pump	
Amount of Material Processed (material used, etc.)			
293 gals of No. 2 Fuel Oil @ 139,311 BTU/ gal @ 0.0015% Sulfur			
Hours of Operation:	Air Pollution Control Equipment:		
27.4	N/A		

HAZARDOUS AIR POLLUTANT EMISSIONS:

CHEMICAL EMITTED TO AIR	CAS NUMBER	EMISSIONS QUANTITY	
		Emission Factor (include units)	TONS
Benzene	71-43-2	7.76E-04 lb/MMBtu (fuel input)	0.00
Toluene	108-88-3	2.81E-04 lb/MMBtu (fuel input)	0.00
Xylenes	1330-20-7	1.93E-04 lb/MMBtu (fuel input)	0.00
Propylene	115071	2.79E-03 lb/MMBtu (fuel input)	0.00
1.3-Butradiene	106-99-0	3.91E-05 lb/MMBtu (fuel input)	0.00
Formaldehyde	50000	7.89E-05 lb/MMBtu (fuel input)	0.00
Acetaldehyde	75070	2.52E-05 lb/MMBtu (fuel input)	0.00
Acrolein	107028	7.88E-06 lb/MMBtu (fuel input)	0.00

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature: David E. Farnsworth	Telephone Number: 701-442-7002	Date: 03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188
SFN 19839 (11-11) Page 2

Basis for quantities listed above; provide calculations (use additional sheets if necessary):

See Attached Worksheets for Calculations.

2014 Compressor/Industrial Engines
Coal Creek Station

Emission Unit ID	Emission Unit Description
5	**Emergency Generator**

No. 2 Fuel Oil Heating Value	**139,311**	btu/gal
No. 2 Sulfur Content	**0.0015**	%
No. 2 Fuel Weight	**7.200**	lbs/gal
EEG, hrs of Operation	**29.6**	hrs
EEG, Gals used per hr	140	gal/hr
EEG, Total gallons used	**4,144**	gals
EEG, Maximum Heat Input	24.5	mmBTU

AP-42 Table	Pollutant	Emission Factor lb/mmBTU	Emission Factor Rating	Actual Emissions lbs/yr	Emissions Tons/year	Maximum Hourly (lbs/hr)	Potential Emissions (lbs/yr)
Table 3.4-2	PM-Total	0.0697	E	40.2	0.02	1.7	50.5
Table 3.4-2	PM-10	0.0573	E	33.1	0.02	1.4	41.6
Table 3.4-2	PM-2.5	0.0479	E	27.7	0.01	1.2	34.7
Mass Balance	SO2			89.5	0.04	3.8	112.4
Table 3.4-1	NOx	3.2	B	1847.4	0.92	78.4	2320.6
Table 3.4-1	CO	0.85	C	490.7	0.25	20.8	616.4
Table 3.4-1	TOC	0.09	C	52.0	0.03	2.2	65.3
Table 3.4-1	CO2	165	B	95255.5	47.63	4042.5	119658.0

Emission Unit ID	Emission Unit Description
6	**Diesel Fire Pump**

No. 2 Fuel Oil Heating Value	**139,311**	btu/gal
No. 2 Sulfur Content	**0.0015**	%
DFP, hrs of Operation	**11.9**	hrs
DFP, Gals used per hr	24.6	gal/hr
DFP, Total gallons used	**293**	gals
DFP, Maximum Heat Input	1.4	mmBTU

AP-42 Table	Pollutant	Emission Factor lb/mmBTU	Emission Factor Rating	Actual Emissions lbs/yr	Emissions Tons/year	Maximum Hourly (lbs/hr)	Potential Emissions (lbs/yr)
Table 3.4-2	PM-Total	0.0697	E	2.8	0.00	0.1	1.2
Table 3.4-2	PM-10	0.0573	D	2.3	0.00	0.1	1.0
Table 3.4-2	PM-2.5	0.0479	D	2.0	0.00	0.1	0.8
Table 3.3-1	SOx	0.29	D	11.8	0.01	0.4	4.8
Table 3.3-1	NOx	4.41	D	179.8	0.09	6.2	73.5
Table 3.3-1	CO	0.95	D	38.7	0.02	1.3	15.8
Table 3.3-1	TOC	0.35	D	14.3	0.01	0.5	5.8
Table 3.3-1	CO2	164	B	6688.2	3.34	229.6	2732.2
Table 3.3-1	Aldehydes	0.07	D	2.9	0.00	0.1	1.2

2014 Hazardous Air Pollutants
Worksheet for EU5 EU6

Emission Unit ID
5

Emission Unit Description
Emergency Generator

No. 2 Fuel Oil Heating Value	139,311	btu/gal
No. 2 Sulfur Content	0.0015	%
EEG, hrs of Operation	**29.6**	hrs
EEG, Gals used per hr	140	gal/hr
EEG, Total gallons used	**4,144**	gals
EEG, Maximum Heat Input	24.5	mmBTU

Do not use quantity from CCS MSDS Inventory

AP-42 Table	Pollutant	CAS #	Emission Factor	Emission Factor Rating	Actual Emissions lbs/yr	Emissions Tons/year	Maximum Hourly (lbs/hr)	Potential Emissions (lbs/yr)
Table 3.4-3 (Large Stationary Diesel Engines)	Benzene	71-43-2	7.76E-04	E	0.4480	0.00	0.0	0.6
Table 3.4-3 (Large Stationary Diesel Engines)	Toluene	108-88-3	2.81E-04	E	0.1622	0.00	0.0	0.2
Table 3.4-3 (Large Stationary Diesel Engines)	Xylenes	1330-20-7	1.93E-04	E	0.1114	0.00	0.0	0.1
Table 3.4-3 (Large Stationary Diesel Engines)	Propylene	115071	2.79E-03	E	1.6107	0.00	0.1	2.0
Table 3.4-3 (Large Stationary Diesel Engines)	Formaldehyde	50000	7.89E-05	E	0.0455	0.00	0.0	0.1
Table 3.4-3 (Large Stationary Diesel Engines)	Acetaldehyde	75070	2.52E-05	E	0.0145	0.00	0.0	0.0
Table 3.4-3 (Large Stationary Diesel Engines)	Acrolein	107028	7.88E-06	E	0.0045	0.00	0.0	0.0

Emission Unit ID
6

Emission Unit Description
Diesel Fire Pump

No. 2 Fuel Oil Heating Value	139,311	btu/gal
No. 2 Sulfur Content	0.0015	%
DFP, hrs of Operation	**11.9**	hrs
DFP, Gals used per hr	24.6	gal/hr
DFP, Total gallons used	**293**	gals
DFP, Maximum Heat Input	1.4	mmBTU

AP-42 Table	Pollutant	CAS #	Emission Factor	Emission Factor Rating	Actual Emissions lbs/yr	Emissions Tons/year	Maximum Hourly (lbs/hr)	Potential Emissions (lbs/yr)
Table 3.3-2 (Stationary Diesel Engines)	Benzene	71432	7.76E-04	E	0.0	0.0000	0.0	0.0
Table 3.3-2 (Stationary Diesel Engines)	Toluene	108883	2.81E-04	E	0.0	0.0000	0.0	0.0
Table 3.3-2 (Stationary Diesel Engines)	Xylenes	1330207	1.93E-04	E	0.0	0.0000	0.0	0.0
Table 3.3-2 (Stationary Diesel Engines)	Propylene	115071	2.79E-03	E	0.1	0.0001	0.0	0.0
Table 3.3-2 (Stationary Diesel Engines)	1.3-Butradiene	106990	3.91E-05	E	0.0	0.0000	0.0	0.0
Table 3.3-2 (Stationary Diesel Engines)	Formaldehyde	50000	7.89E-05	E	0.0	0.0000	0.0	0.0
Table 3.3-2 (Stationary Diesel Engines)	Acetaldehyde	75070	2.52E-05	E	0.0	0.0000	0.0	0.0
Table 3.3-2 (Stationary Diesel Engines)	Acrolein	107028	7.88E-06	E	0.0	0.0000	0.0	0.0

Emission Factors derived from EPA AP-42 Factors for Large Stationary Diesel and all Stationary Duel Fuel Engines, 1998.

MANUFACTURING OR PROCESSING EQUIPMENT
ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	3,274	
Source Unit Description		**Emission Unit Number**	
Lignite Transfer House (Lignite Dust Collector FS25-91)		7	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	7,858,270 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.07
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

* Submit SFN 19839 for Hazardous Air Pollutants if applicable.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature	**Telephone Number**	**Date**
David E. Farnsworth	701-442-7002	03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188

MANUFACTURING OR PROCESSING EQUIPMENT
ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	0.0	
Source Unit Description		**Emission Unit Number**	
Lignite Emergency Reclaim System (Lignite Dust Collector FS25-92)		8	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	0.0 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.00
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Actual Hours of Operation	
Coal Creek Station	Underwood, ND 58576	3,274	
Source Unit Description		Emission Unit Number	
Lignite Yard Silos (Lignite Dust Collector FS25-93)		9	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	3,929,135 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.03
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.02
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	3,274	
Source Unit Description		**Emission Unit Number**	
Lignite Yard Silos (Lignite Dust Collector FS25-94)		10	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	3,929,135 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.03
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.02
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

* Submit SFN 19839 for Hazardous Air Pollutants if applicable.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	6,549	
Source Unit Description		**Emission Unit Number**	
Lignite Crusher Building (Lignite Dust Collector FS25-95)		11	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	7,858,270 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.07
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

* Submit SFN 19839 for Hazardous Air Pollutants if applicable.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature David E. Farnsworth	**Telephone Number**	**Date**
	701-442-7002	03/03/2015

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	6,549	
Source Unit Description		**Emission Unit Number**	
Generation Building Coal Hopper (Lignite Dust Collector FS25-96)		12	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	7,858,270 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.07
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

* Submit SFN 19839 for Hazardous Air Pollutants if applicable.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Actual Hours of Operation	
Coal Creek Station	Underwood, ND 58576	3,274	
Source Unit Description		Emission Unit Number	
Base of Falkirk Mining Co. Mine Silo (Lignite Dust Collector FS25-97)		13	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	7,858,270 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.07
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

* Submit SFN 19839 for Hazardous Air Pollutants if applicable.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature: David E. Farnsworth	Telephone Number: 701-442-7002	Date: 03/03/2015

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	5,678	
Source Unit Description		**Emission Unit Number**	
Generation Building Coal Hopper (Lignite Dust Collector FS25-11)		14	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	1,703,545 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.01
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

* Submit SFN 19839 for Hazardous Air Pollutants if applicable.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature	**Telephone Number**	**Date**
David E. Farnsworth	701-442-7002	03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188
SFN 8537 (11-10)

MANUFACTURING OR PROCESSING EQUIPMENT ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	5,678	
Source Unit Description		**Emission Unit Number**	
Generation Building Coal Hopper (Lignite Dust Collector FS25-12)		15	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	1,703,545 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.01
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	5,581	
Source Unit Description		**Emission Unit Number**	
Generation Building Coal Hopper (Lignite Dust Collector FS25-21)		16	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	1,764,236 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.02
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.01
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	5,881	
Source Unit Description		**Emission Unit Number**	
Generation Building Coal Hopper (Lignite Dust Collector FS25-22)		17	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	1,764,236 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.02
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.01
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	8,427	
Source Unit Description		**Emission Unit Number**	
Fly Ash Silo 91Bagfilters, (Truck Air Slide) (Flyash Dust Collector 911, 912, 913)		20	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Fly Ash	252,817 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.14
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.07
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.01
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	3,970	
Source Unit Description		**Emission Unit Number**	
Fly Ash Silo 92 Bagfilter (Flyash Dust Collector 921, 922, 923)		21	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Fly Ash	119,111 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.07
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	2,735	
Source Unit Description		**Emission Unit Number**	
Fly Ash Railroad Marketing Silo 93, (Flyash Dust Collector 931 & 932)		25	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Fly Ash	164,106 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.09
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.04
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.01
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Actual Hours of Operation	
Coal Creek Station	Underwood, ND 58576	2,188	
Source Unit Description		Emission Unit Number	
Fly Ash Storage Dome, (Flyash Dust Collector 941, 942, 943, 944)		26	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Fly Ash	131,285 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.07
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.01
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	1,805	
Source Unit Description		**Emission Unit Number**	
Coal Dryer 26 (Lignite Dust Collector FS32-26)		27	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	108,327 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.06
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	8,731	
Source Unit Description		**Emission Unit Number**	
Coal Crusher Building (Lignite Dust Collector FS30-97)		28	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	7,858,270 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.07
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	7,375	
Source Unit Description		**Emission Unit Number**	
Coal Dryer Transfer Tower (Lignite Dust Collector FS30-98)		29	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	6,637,729 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.06
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature David E. Farnsworth	**Telephone Number**	**Date**
	701-442-7002	03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188
SFN 8537 (11-10)

MANUFACTURING OR PROCESSING EQUIPMENT ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	8,731	
Source Unit Description		**Emission Unit Number**	
Auxiliary Boiler Area (Lignite Dust Collector FS30-99)		30	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	7,858,270 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.07
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.03
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

* Submit SFN 19839 for Hazardous Air Pollutants if applicable.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

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Signature	**Telephone Number**	**Date**
David E. Farnsworth	701-442-7002	03/03/2015

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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	6,566	
Source Unit Description		**Emission Unit Number**	
Coal Dryer 11 (Lignite Dust Collector FS30-11)		31	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	853,728 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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DIVISION OF AIR QUALITY
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GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	6,711	
Source Unit Description		**Emission Unit Number**	
Coal Dryer 12 (Lignite Dust Collector FS30-12)		32	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	882,552 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
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GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	5,337	
Source Unit Description		**Emission Unit Number**	
Coal Dryer 13 (Lignite Dust Collector FS30-13)		33	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	663,759 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Actual Hours of Operation	
Coal Creek Station	Underwood, ND 58576	7,425	
Source Unit Description		Emission Unit Number	
Coal Dryer 14 (Lignite Dust Collector FS30-14)		34	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	996,192 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	7,075	
Source Unit Description		**Emission Unit Number**	
Coal Dryer 21 (Lignite Dust Collector FS30-21)		35	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	948,174 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Actual Hours of Operation	
Coal Creek Station	Underwood, ND 58576	7,801	
Source Unit Description		Emission Unit Number	
Coal Dryer 22 (Lignite Dust Collector FS30-22)		36	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	1,063,362 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Actual Hours of Operation	
Coal Creek Station	Underwood, ND 58576	7,694	
Source Unit Description		Emission Unit Number	
Coal Dryer 23 (Lignite Dust Collector FS30-23)		37	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	1,048,271 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	7,038	
Source Unit Description		**Emission Unit Number**	
Coal Dryer 24 (Lignite Dust Collector FS30-24)		38	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	961,562 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.01
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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GENERAL

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Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	6,771	
Source Unit Description		**Emission Unit Number**	
Dryer Reject Air Jig (Lignite Dust Collector FS30-25)		39a and 39b	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	561,975 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.00
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	985	
Source Unit Description		**Emission Unit Number**	
Lignite Rail Loading Silo (Vent Fan FS32-91)		40	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	98,516 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.00
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

* Submit SFN 19839 for Hazardous Air Pollutants if applicable.

I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

Print Name of Person Submitting Report	Title	Email
David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature	**Telephone Number**	**Date**
David E. Farnsworth	701-442-7002	03/03/2015

Return completed form to:
North Dakota Department of Health
Division of Air Quality
918 E Divide, 2nd Floor
Bismarck, ND 58501-1947
Telephone: (701)328-5188
SFN 8537 (11-10)

MANUFACTURING OR PROCESSING EQUIPMENT ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	985	
Source Unit Description		**Emission Unit Number**	
Lignite Dust Collector 98 (Lignite Dust Collector FS25-98)		41	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	98,516 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.00
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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MANUFACTURING OR PROCESSING EQUIPMENT
ANNUAL EMISSION INVENTORY REPORT

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	985	
Source Unit Description		**Emission Unit Number**	
Lignite Rail Loading Surge Hopper 91 (Vent Fan FS32-92)		42	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	98,516 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.00
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	**City**	**State**	**Zip Code**
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	**Facility Location**	**Actual Hours of Operation**	
Coal Creek Station	Underwood, ND 58576	985	
Source Unit Description		**Emission Unit Number**	
Lignite Dust Collector 99 (Lignite Dust Collector FS25-99)		43	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	98,516 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.00
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

* Submit SFN 19839 for Hazardous Air Pollutants if applicable.

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DIVISION OF AIR QUALITY
SFN 8537 (11-10)

GENERAL

Name of Firm or Organization	Permit to Operate Number	Year of Emissions	
Great River Energy	T5-F82006	2014	
Mailing Address	City	State	Zip Code
12300 Elm Creek Blvd	Maple Grove	MN	55369-4718
Facility Name	Facility Location	Actual Hours of Operation	
Coal Creek Station	Underwood, ND 58576	0.0	
Source Unit Description		Emission Unit Number	
Fluidized Bed Pilot Dryer (Lignite Dust Collector FS31-91)		45	

RAW MATERIAL INFORMATION

Raw Materials Introduced into Process	Quantity (Specify Units)
Lignite Coal	0.0 Tons

FUELS USED

		Primary Fuel	Auxiliary Fuel
Type (ex. lignite, natural gas, LPG No. 2 fuel oil, No. 6 fuel oil. etc.)		N/A	N/A
Quantity of Fuel per Year (Specify Units: ex. ton, gal, cu.ft., etc.)		N/A	N/A
Percent Sulfur	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A
Btu per Unit (Specify lb, ton, gal, etc.)	Maximum	N/A	N/A
	Minimum	N/A	N/A
	Average	N/A	N/A

STACK EMISSIONS

Air Contaminant *	Emission Factor (Include Units)	Emission Factor Source (Include Test Date if Applicable)	Tons
Particulate - Total	0.74 lb/ton	See Reference 1 at the end of section.	0.00
PM_{10} (Particulate < 10 microns)	0.35 lb/ton	See Reference 1 at the end of section.	0.00
$PM_{2.5}$ (Particulate < 2.5 microns)	0.053 lb/ton	See Reference 1 at the end of section.	0.00
Sulfur Dioxide			
Nitrogen Oxides			
Carbon Monoxide			
Total Organic Compounds: Nonmethane			

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I declare under the penalties of perjury that this report has been examined by me and to the best of my knowledge is a true, correct and complete report.

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David Farnsworth	Manager, ND Generation	dfarnsworth@GREnergy.com
Signature: David E. Farnsworth	Telephone Number: 701-442-7002	Date: 03/03/2015

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Basis for quantities listed above; provide calculations (use additional sheets as necessary):

See Attached Worksheets for Calculations.

Reference 1: "Fugitive Emissions from Integrated Iron and Steel Plants", Bohn, Cusceno, Cowherd. Midwest Research Institute, Kansas City, MO. EPA Contract No. 60012-78-050, 1978.

Annual Emission (AE) Calculation:

Calculation Type: AP-42 Emission Factor for drop point fugitives

Actual Annual Emissions (AE):
AE = Annual Throughput x Emission Factor x 0.0032 x (Mean Wind Speed/5)^1.3 / (Surface Moisture Content/2)^1.4 x (1 - Control Efficiency / 100)

Example of Annual Emission (AE) calculation:
AE = 7235613 tons x 0.74 lb/ton x 0.0032 x (10.16 MPH/5)^1.3 / (4.8 percent/2)^1.4 x (1 - 99% / 100)
AE = 126.4335 pounds/year

Hourly Emission (HE) Calculation:
Maximum Hourly/Potential Annual Emission (HE/PE):
HE = Hourly Throughput x Emission Factor x 0.0032 x (Mean Wind Speed/5)^1.3 / (Surface Moisture Content/2)^1.4 x (1 - Control Efficiency / 100)

Example of Hourly Emission (HE) Calculation:
HE = 2500 tons x 0.74 lb/ton x 0.0032 x (10.16 MPH/5)^1.3 / (4.8 percent/2)^1.4 x (1 - 99% / 100)
HE = 4.3684E-02 pounds/hour

The particle size multiplier in the equation, k, varies with aerodynamic particle size range, as follows:
Aerodynamic Particle Size Multiplier (k) For Equation 1

< 30 :m	< 15 :m	< 10 :m	< 5 :m	< 2.5 :m
0.74	0.48	0.35	0.20	0.053[a]

[a] Multiplier for < 2.5 :m taken from Reference 14.

2014 Manufacturing or Processing Equipment
Coal Creek Station

Emission Unit Identification	Emission Point	Emission Unit Description	Pollutant	Through-put	Through-put Units	Typical Hourly Through-put	Typical Hourly Through-put Units	Emission Factor	Emission Factor Units	Operating Hours	Control Efficiency	Actual Emissions (tons/yr)	Actual Hourly Emissions (lbs/hr)	Maximum hourly (lbs/hr)	Potential Annual (lbs/yr)
7	7	Lignite Transfer House (FS25-91)	TSP	7858270	tons	2400	tons	0.74	lb/ton	3274	99%	0.07	0.042	0.042	367.4
			PM10	7858270	tons	2400	tons	0.35	lb/ton	3274	99%	0.03	0.020	0.020	173.8
			PM2.5	7858270	tons	2400	tons	0.053	lb/ton	3274	99%	0.00	0.003	0.003	26.3
8	8	Lignite Emergency Reclaim (FS25-92)	TSP	0	tons	2400	tons	0.74	lb/ton	0	90%	0.00	0.000	0.419	3673.7
			PM10	0	tons	2400	tons	0.35	lb/ton	0	90%	0.00	0.000	0.198	1737.6
			PM2.5	0	tons	2400	tons	0.053	lb/ton	0	90%	0.00	0.000	0.030	263.1
9	9	Lignite Yard Storage Silos (FS25-93)	TSP	3929135	tons	1200	tons	0.74	lb/ton	3274	99%	0.03	0.021	0.021	183.7
			PM10	3929135	tons	1200	tons	0.35	lb/ton	3274	99%	0.02	0.010	0.010	86.9
			PM2.5	3929135	tons	1200	tons	0.053	lb/ton	3274	99%	0.00	0.002	0.002	13.2
10	10	Lignite Yard Storage Silos (FS25-94)	TSP	3929135	tons	1200	tons	0.74	lb/ton	3274	99%	0.03	0.021	0.021	183.7
			PM10	3929135	tons	1200	tons	0.35	lb/ton	3274	99%	0.02	0.010	0.010	86.9
			PM2.5	3929135	tons	1200	tons	0.053	lb/ton	3274	99%	0.00	0.002	0.002	13.2
11	11	Crusher Building (FS25-95)	TSP	7858270	tons	1200	tons	0.74	lb/ton	6549	99%	0.07	0.021	0.021	183.7
			PM10	7858270	tons	1200	tons	0.35	lb/ton	6549	99%	0.03	0.010	0.010	86.9
			PM2.5	7858270	tons	1200	tons	0.053	lb/ton	6549	99%	0.00	0.002	0.002	13.2
12	12	Generation Building Coal Hopper (FS25-96)	TSP	7858270	tons	1200	tons	0.74	lb/ton	6549	99%	0.07	0.021	0.021	183.7
			PM10	7858270	tons	1200	tons	0.35	lb/ton	6549	99%	0.03	0.010	0.010	86.9
			PM2.5	7858270	tons	1200	tons	0.053	lb/ton	6549	99%	0.00	0.002	0.002	13.2
13	13	Base of Falkirk Mining Co. Mine Silo (FS25-97)	TSP	7858270	tons	2400	tons	0.74	lb/ton	3274	99%	0.07	0.042	0.042	367.4
			PM10	7858270	tons	2400	tons	0.35	lb/ton	3274	99%	0.03	0.020	0.020	173.8
			PM2.5	7858270	tons	2400	tons	0.053	lb/ton	3274	99%	0.00	0.003	0.003	26.3
14	14	Generation Building Coal Hopper (FS25-11)	TSP	1703545	tons	300	tons	0.74	lb/ton	5678	99%	0.01	0.005	0.005	45.9
			PM10	1703545	tons	300	tons	0.35	lb/ton	5678	99%	0.01	0.002	0.002	21.7
			PM2.5	1703545	tons	300	tons	0.053	lb/ton	5678	99%	0.00	0.000	0.000	3.3
15	15	Generation Building Coal Hopper (FS25-12)	TSP	1703545	tons	300	tons	0.74	lb/ton	5678	99%	0.01	0.005	0.005	45.9
			PM10	1703545	tons	300	tons	0.35	lb/ton	5678	99%	0.01	0.002	0.002	21.7
			PM2.5	1703545	tons	300	tons	0.053	lb/ton	5678	99%	0.00	0.000	0.000	3.3
16	16	Generation Building Coal Hopper (FS25-21)	TSP	1764236	tons	300	tons	0.74	lb/ton	5881	99%	0.02	0.005	0.005	45.9
			PM10	1764236	tons	300	tons	0.35	lb/ton	5881	99%	0.01	0.002	0.002	21.7
			PM2.5	1764236	tons	300	tons	0.053	lb/ton	5881	99%	0.00	0.000	0.000	3.3
17	17	Generation Building Coal Hopper (FS25-22)	TSP	1764236	tons	300	tons	0.74	lb/ton	5881	99%	0.02	0.005	0.005	45.9
			PM10	1764236	tons	300	tons	0.35	lb/ton	5881	99%	0.01	0.002	0.002	21.7
			PM2.5	1764236	tons	300	tons	0.053	lb/ton	5881	99%	0.00	0.000	0.000	3.3
20	20a, 20b, 20c	Fly Ash Silo 91 (911,912,913)	TSP	252817	tons	60	tons	0.74	lb/ton	8427	99%	0.14	0.033	0.066	575.0
			PM10	252817	tons	60	tons	0.35	lb/ton	8427	99%	0.07	0.016	0.031	272.0
			PM2.5	252817	tons	60	tons	0.053	lb/ton	8427	99%	0.01	0.002	0.005	41.2
21	21a, 21b, 21c	Fly Ash Silo 92 (921,922,923)	TSP	119111	tons	60	tons	0.74	lb/ton	3970	99%	0.07	0.033	0.066	575.0
			PM10	119111	tons	60	tons	0.35	lb/ton	3970	99%	0.03	0.016	0.031	272.0
			PM2.5	119111	tons	60	tons	0.053	lb/ton	3970	99%	0.00	0.002	0.005	41.2
25	25a & 25b	Fly Ash Railroad Marketing Silo (931,932)	TSP	164106	tons	60	tons	0.74	lb/ton	2735	99%	0.09	0.066	0.066	575.0
			PM10	164106	tons	60	tons	0.35	lb/ton	2735	99%	0.04	0.031	0.031	272.0
			PM2.5	164106	tons	60	tons	0.053	lb/ton	2735	99%	0.01	0.005	0.005	41.2
26	26a thru 26e	Fly Ash Dome Silo (941,942,943,944)	TSP	131285	tons	60	tons	0.74	lb/ton	2188	99%	0.07	0.066	0.066	575.0
			PM10	131285	tons	60	tons	0.35	lb/ton	2188	99%	0.03	0.031	0.031	272.0
			PM2.5	131285	tons	60	tons	0.053	lb/ton	2188	99%	0.01	0.005	0.005	41.2
27	27	Coal Dryer 26 (FS32-26)	TSP	108,327	tons	60	tons	0.74	lb/ton	1805	99%	0.06	0.000	0.066	575.0
			PM10	108327	tons	60	tons	0.35	lb/ton	1805	99%	0.03	0.000	0.031	272.0
			PM2.5	108327	tons	60	tons	0.053	lb/ton	1805	99%	0.00	0.000	0.005	41.2

2014 Manufacturing or Processing Equipment
Coal Creek Station

Emission Unit Identification	Emission Point	Emission Unit Description	Pollutant	Through-put	Through-put Units	Typical Hourly Through-put	Typical Hourly Through-put Units	Emission Factor	Emission Factor Units	Operating Hours	Control Efficiency	Actual Emissions (tons/yr)	Actual Hourly Emissions (lbs/hr)	Maximum hourly (lbs/hr)	Potential Annual (lbs/yr)
28	36	Coal Dryer Crusher Building (Lignite Dust Collector FS30-97)	TSP	7,858,270	tons	900	tons	0.74	lb/ton	8731	99%	0.07	0.016	0.016	137.8
			PM10	7,858,270	tons	900	tons	0.35	lb/ton	8731	99%	0.03	0.007	0.007	65.2
			PM2.5	7,858,270	tons	900	tons	0.053	lb/ton	8731	99%	0.00	0.001	0.001	9.9
29	37	Coal Dryer Transfer Tower (Lignite Dust Collector FS30-98)	TSP	6,637,729	tons	900	tons	0.74	lb/ton	7375	99%	0.06	0.000	0.016	137.8
			PM10	6,637,729	tons	900	tons	0.35	lb/ton	7375	99%	0.03	0.000	0.007	65.2
			PM2.5	6,637,729	tons	900	tons	0.053	lb/ton	7375	99%	0.00	0.000	0.001	9.9
30	38	Auxiliary Boiler Area (Lignite Dust Collector FS30-99)	TSP	7,858,270	tons	900	tons	0.74	lb/ton	8731	99%	0.07	0.016	0.016	137.8
			PM10	7,858,270	tons	900	tons	0.35	lb/ton	8731	99%	0.03	0.007	0.007	65.2
			PM2.5	7,858,270	tons	900	tons	0.053	lb/ton	8731	99%	0.00	0.001	0.001	9.9
31	39	Coal Dryer 11 (Lignite Dust Collector FS30-11)	TSP	853,728	tons	138	tons	0.74	lb/ton	6,566	99%	0.01	0.002	0.002	21.1
			PM10	853,728	tons	138	tons	0.35	lb/ton	6566	99%	0.00	0.001	0.001	10.0
			PM2.5	853,728	tons	138	tons	0.053	lb/ton	6566	99%	0.00	0.000	0.000	1.5
32	39	Coal Dryer 12 (Lignite Dust Collector FS30-12)	TSP	882,552	tons	138	tons	0.74	lb/ton	6,711	99%	0.01	0.002	0.002	21.1
			PM10	882,552	tons	138	tons	0.35	lb/ton	6711	99%	0.00	0.001	0.001	10.0
			PM2.5	882,552	tons	138	tons	0.053	lb/ton	6711	99%	0.00	0.000	0.000	1.5
33	40	Coal Dryer 13 (Lignite Dust Collector FS30-13)	TSP	663,759	tons	138	tons	0.74	lb/ton	5,337	99%	0.01	0.002	0.002	21.1
			PM10	663,759	tons	138	tons	0.35	lb/ton	5337	99%	0.00	0.001	0.001	10.0
			PM2.5	663,759	tons	138	tons	0.053	lb/ton	5337	99%	0.00	0.000	0.000	1.5
34	40	Coal Dryer 14 (Lignite Dust Collector FS30-14)	TSP	996,192	tons	138	tons	0.74	lb/ton	7,425	99%	0.01	0.002	0.002	21.1
			PM10	996,192	tons	138	tons	0.35	lb/ton	7425	99%	0.00	0.001	0.001	10.0
			PM2.5	996,192	tons	138	tons	0.053	lb/ton	7425	99%	0.00	0.000	0.000	1.5
35	41	Coal Dryer 21 (Lignite Dust Collector FS30-21)	TSP	948,174	tons	138	tons	0.74	lb/ton	7,075	99%	0.01	0.002	0.002	21.1
			PM10	948,174	tons	138	tons	0.35	lb/ton	7075	99%	0.00	0.001	0.001	10.0
			PM2.5	948,174	tons	138	tons	0.053	lb/ton	7075	99%	0.00	0.000	0.000	1.5
36	41	Coal Dryer 22 (Lignite Dust Collector FS30-22)	TSP	1,063,362	tons	138	tons	0.74	lb/ton	7,801	99%	0.01	0.002	0.002	21.1
			PM10	1,063,362	tons	138	tons	0.35	lb/ton	7801	99%	0.00	0.001	0.001	10.0
			PM2.5	1,063,362	tons	138	tons	0.053	lb/ton	7801	99%	0.00	0.000	0.000	1.5
37	42	Coal Dryer 23 (Lignite Dust Collector FS30-23)	TSP	1,048,271	tons	138	tons	0.74	lb/ton	7,694	99%	0.01	0.002	0.002	21.1
			PM10	1,048,271	tons	138	tons	0.35	lb/ton	7694	99%	0.00	0.001	0.001	10.0
			PM2.5	1,048,271	tons	138	tons	0.053	lb/ton	7694	99%	0.00	0.000	0.000	1.5
38	42	Coal Dryer 24 (Lignite Dust Collector FS30-24)	TSP	961,562	tons	138	tons	0.74	lb/ton	7,038	99%	0.01	0.002	0.002	21.1
			PM10	961,562	tons	138	tons	0.35	lb/ton	7038	99%	0.00	0.001	0.001	10.0
			PM2.5	961,562	tons	138	tons	0.053	lb/ton	7038	99%	0.00	0.000	0.000	1.5
39a & 39b	43	Dryer Reject Air Jig 21 (Lignite Dust Collector FS30-25)	TSP	561,975	tons	83	tons	0.74	lb/ton	6771	99%	0.00	0.001	0.001	12.7
			PM10	561,975	tons	83	tons	0.35	lb/ton	6771	99%	0.00	0.001	0.001	6.0
			PM2.5	561,975	tons	83	tons	0.053	lb/ton	6771	99%	0.00	0.000	0.000	0.9
40	44	Lignite Rail Loading Silo (Vent Fan FS32-91)	TSP	98,516	tons	100	tons	0.74	lb/ton	985	99%	0.00	0.000	0.002	15.3
			PM10	98,516	tons	100	tons	0.35	lb/ton	985	99%	0.00	0.000	0.001	7.2
			PM2.5	98,516	tons	100	tons	0.053	lb/ton	985	99%	0.00	0.000	0.000	1.1
41	45	Lignite Dust Collector 98 (Lignite Dust Collector FS25-98)	TSP	98,516	tons	100	tons	0.74	lb/ton	985	99%	0.00	0.000	0.002	15.3
			PM10	98,516	tons	100	tons	0.35	lb/ton	985	99%	0.00	0.000	0.001	7.2
			PM2.5	98,516	tons	100	tons	0.053	lb/ton	985	99%	0.00	0.000	0.000	1.1
42	46	Lignite Rail Loading Surge Hopper 91 (Vent Fan FS32-92)	TSP	98,516	tons	100	tons	0.74	lb/ton	985	99%	0.00	0.000	0.002	15.3
			PM10	98,516	tons	100	tons	0.35	lb/ton	985	99%	0.00	0.000	0.001	7.2
			PM2.5	98,516	tons	100	tons	0.053	lb/ton	985	99%	0.00	0.000	0.000	1.1
43	47	Lignite Dust Collector 99 (Lignite Dust Collector FS25-99)	TSP	98,516	tons	100	tons	0.74	lb/ton	985	99%	0.00	0.000	0.109	958.3
			PM10	98,516	tons	100	tons	0.35	lb/ton	985	99%	0.00	0.000	0.052	453.3
			PM2.5	98,516	tons	100	tons	0.053	lb/ton	985	99%	0.00	0.000	0.008	68.6
45	49	Fluidized Bed Pilot Dryer (Lignite Dust Collector FS31-91)	TSP	0	tons	100	tons	0.74	lb/ton	0	99%	0.00	0.000	0.109	958.3
			PM10	0	tons	100	tons	0.35	lb/ton	0	99%	0.00	0.000	0.052	453.3
			PM2.5	0	tons	100	tons	0.053	lb/ton	0	99%	0.00	0.000	0.008	68.6

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 01/31/2014

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	State Reporting Generation (MWh) (MWh)	State Reporting Coal Usage (tons) (tons)
2/28/2013	1345.40	686.27	22.95	15.38	11.83	0.1242	3.3524	2.211	2.956	802657	591369.3
3/31/2013	1452.90	685.25	25.54	17.11	12.62	0.1325	3.3920	2.163	3.058	856661	630770
4/30/2013	691.30	386.04	20.64	13.83	6.10	0.0640	3.3339	2.237	2.906	414712	304931.7
5/31/2013	1122.00	625.74	23.58	15.80	10.68	0.1121	3.0735	2.096	2.859	730118	533839
6/30/2013	1401.10	684.25	24.85	16.65	12.35	0.1296	3.2732	2.207	2.892	856116	617342
7/31/2013	1411.30	765.68	24.67	16.53	12.74	0.1337	3.2611	2.184	2.911	865544	636843
8/31/2013	1430.50	738.23	25.66	17.19	12.61	0.1324	3.2756	2.073	3.081	873417	630397
9/30/2013	1301.21	679.56	23.39	15.67	11.72	0.1228	3.2076	2.004	3.120	811332	584785
10/31/2013	1386.70	716.44	24.62	16.50	12.34	0.1296	3.2310	1.983	3.177	858384	617101
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
Sum	**15666.91**	**7982.95**	**286.43**	**191.91**	**139.19**	**1.4608**				**9,548,425**	**6,956,101**
Calculated							**3.2816**	**2.082**	**3.073**		
Baseline Emission	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 02/28/2014

State Reporting

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	Generation (MWh) (MWh)	Coal Usage (tons) (tons)
3/31/2013	1452.90	685.25	25.54	17.11	12.62	0.1325	3.3920	2.163	3.058	856661	630770
4/30/2013	691.30	386.04	20.64	13.83	6.10	0.0640	3.3339	2.237	2.906	414712	304931.7
5/31/2013	1122.00	625.74	23.58	15.80	10.68	0.1121	3.0735	2.096	2.859	730118	533839
6/30/2013	1401.10	684.25	24.85	16.65	12.35	0.1296	3.2732	2.207	2.892	856116	617342
7/31/2013	1411.30	765.68	24.67	16.53	12.74	0.1337	3.2611	2.184	2.911	865544	636843
8/31/2013	1430.50	738.23	25.66	17.19	12.61	0.1324	3.2756	2.073	3.081	873417	630397
9/30/2013	1301.21	679.56	23.39	15.67	11.72	0.1228	3.2076	2.004	3.120	811332	584785
10/31/2013	1386.70	716.44	24.62	16.50	12.34	0.1296	3.2310	1.983	3.177	858384	617101
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
2/28/2014	1345.10	682.98	23.60	15.81	11.85	0.1244	3.3901	2.032	3.253	793538	592476
Sum	**15666.61**	**7979.66**	**287.07**	**192.34**	**139.21**	**1.4610**				**9,539,306**	**6,957,208**
Calculated							**3.2846**	**2.067**	**3.099**		
Baseline	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Emission Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 03/31/2014

State Reporting

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	Generation (MWh) (MWh)	Coal Usage (tons) (tons)
4/30/2013	691.30	386.04	20.64	13.83	6.10	0.0640	3.3339	2.237	2.906	414712	304931.7
5/31/2013	1122.00	625.74	23.58	15.80	10.68	0.1121	3.0735	2.096	2.859	730118	533839
6/30/2013	1401.10	684.25	24.85	16.65	12.35	0.1296	3.2732	2.207	2.892	856116	617342
7/31/2013	1411.30	765.68	24.67	16.53	12.74	0.1337	3.2611	2.184	2.911	865544	636843
8/31/2013	1430.50	738.23	25.66	17.19	12.61	0.1324	3.2756	2.073	3.081	873417	630397
9/30/2013	1301.21	679.56	23.39	15.67	11.72	0.1228	3.2076	2.004	3.120	811332	584785
10/31/2013	1386.70	716.44	24.62	16.50	12.34	0.1296	3.2310	1.983	3.177	858384	617101
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
2/28/2014	1345.10	682.98	23.60	15.81	11.85	0.1244	3.3901	2.032	3.253	793538	592476
3/31/2014	1455.80	693.38	25.68	17.20	12.62	0.1325	3.3723	2.064	3.186	863398	630950
Sum	**15669.51**	**7987.78**	**287.21**	**192.44**	**139.21**	**1.4611**				**9,546,043**	**6,957,388**
Calculated							**3.2829**	**2.058**	**3.110**		
Baseline	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Emission Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 04/30/2014

State Reporting

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	Generation (MWh) (MWh)	Coal Usage (tons) (tons)
5/31/2013	1122.00	625.74	23.58	15.80	10.68	0.1121	3.0735	2.096	2.859	730118	533839
6/30/2013	1401.10	684.25	24.85	16.65	12.35	0.1296	3.2732	2.207	2.892	856116	617342
7/31/2013	1411.30	765.68	24.67	16.53	12.74	0.1337	3.2611	2.184	2.911	865544	636843
8/31/2013	1430.50	738.23	25.66	17.19	12.61	0.1324	3.2756	2.073	3.081	873417	630397
9/30/2013	1301.21	679.56	23.39	15.67	11.72	0.1228	3.2076	2.004	3.120	811332	584785
10/31/2013	1386.70	716.44	24.62	16.50	12.34	0.1296	3.2310	1.983	3.177	858384	617101
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
2/28/2014	1345.10	682.98	23.60	15.81	11.85	0.1244	3.3901	2.032	3.253	793538	592476
3/31/2014	1455.80	693.38	25.68	17.20	12.62	0.1325	3.3723	2.064	3.186	863398	630950
4/30/2014	1125.60	493.79	16.48	11.04	9.94	0.1044	3.3216	2.155	3.006	677747	496931
Sum	**16103.81**	**8095.53**	**283.04**	**189.64**	**143.05**	**1.5014**				**9,809,078**	**7,149,387**
Calculated							**3.2835**	**2.059**	**3.110**		
Baseline Emission	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 06/01/2014

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	State Reporting Generation (MWh) (MWh)	State Reporting Coal Usage (tons) (tons)
7/31/2013	1411.30	765.68	24.67	16.53	12.74	0.1337	3.2611	2.184	2.911	865544	636843
8/31/2013	1430.50	738.23	25.66	17.19	12.61	0.1324	3.2756	2.073	3.081	873417	630397
9/30/2013	1301.21	679.56	23.39	15.67	11.72	0.1228	3.2076	2.004	3.120	811332	584785
10/31/2013	1386.70	716.44	24.62	16.50	12.34	0.1296	3.2310	1.983	3.177	858384	617101
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
2/28/2014	1345.10	682.98	23.60	15.81	11.85	0.1244	3.3901	2.032	3.253	793538	592476
3/31/2014	1455.80	693.38	25.68	17.20	12.62	0.1325	3.3723	2.064	3.186	863398	630950
4/30/2014	1125.60	493.79	16.48	11.04	9.94	0.1044	3.3216	2.155	3.006	677747	496931
5/31/2014	766.51	364.97	10.57	7.08	6.82	0.0713	3.3153	2.152	3.003	462401	339602
Sum	**14347.22**	**7150.51**	**245.19**	**164.28**	**126.83**	**1.3309**				**8,685,245**	**6,337,808**
Calculated							**3.3038**	**2.050**	**3.142**		
Baseline	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Emission Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 06/30/2014 *State Reporting*

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	Generation (MWh) (MWh)	Coal Usage (tons) (tons)
7/31/2013	1411.30	765.68	24.67	16.53	12.74	0.1337	3.2611	2.184	2.911	865544	636843
8/31/2013	1430.50	738.23	25.66	17.19	12.61	0.1324	3.2756	2.073	3.081	873417	630397
9/30/2013	1301.21	679.56	23.39	15.67	11.72	0.1228	3.2076	2.004	3.120	811332	584785
10/31/2013	1386.70	716.44	24.62	16.50	12.34	0.1296	3.2310	1.983	3.177	858384	617101
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
2/28/2014	1345.10	682.98	23.60	15.81	11.85	0.1244	3.3901	2.032	3.253	793538	592476
3/31/2014	1455.80	693.38	25.68	17.20	12.62	0.1325	3.3723	2.064	3.186	863398	630950
4/30/2014	1125.60	493.79	16.48	11.04	9.94	0.1044	3.3216	2.155	3.006	677747	496931
5/31/2014	766.51	364.97	10.57	7.08	6.82	0.0713	3.3153	2.152	3.003	462401	339602
6/30/2014	1304.30	686.90	23.41	15.69	11.42	0.1199	3.3046	2.173	2.965	789387	570808
Sum	**15651.52**	**7837.41**	**268.60**	**179.97**	**138.25**	**1.4508**				**9,474,632**	**6,908,616**
Calculated							**3.3039**	**2.061**	**3.126**		
Baseline	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Emission Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 07/31/2014

State Reporting

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	Generation (MWh) (MWh)	Coal Usage (tons) (tons)
8/31/2013	1430.50	738.23	25.66	17.19	12.61	0.1324	3.2756	2.073	3.081	873417	630397
9/30/2013	1301.21	679.56	23.39	15.67	11.72	0.1228	3.2076	2.004	3.120	811332	584785
10/31/2013	1386.70	716.44	24.62	16.50	12.34	0.1296	3.2310	1.983	3.177	858384	617101
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
2/28/2014	1345.10	682.98	23.60	15.81	11.85	0.1244	3.3901	2.032	3.253	793538	592476
3/31/2014	1455.80	693.38	25.68	17.20	12.62	0.1325	3.3723	2.064	3.186	863398	630950
4/30/2014	1125.60	493.79	16.48	11.04	9.94	0.1044	3.3216	2.155	3.006	677747	496931
5/31/2014	766.51	364.97	10.57	7.08	6.82	0.0713	3.3153	2.152	3.003	462401	339602
6/30/2014	1304.30	686.90	23.41	15.69	11.42	0.1199	3.3046	2.173	2.965	789387	570808
7/31/2014	1427.30	722.65	25.41	17.02	12.37	0.1298	3.3112	2.089	3.091	862112	617990
Sum	**15667.52**	**7794.38**	**269.33**	**180.46**	**137.88**	**1.4469**				**9,471,200**	**6,889,763**
Calculated							**3.3085**	**2.053**	**3.142**		
Baseline	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Emission Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 08/31/2014

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	State Reporting Generation (MWh) (MWh)	State Reporting Coal Usage (tons) (tons)
9/30/2013	1301.21	679.56	23.39	15.67	11.72	0.1228	3.2076	2.004	3.120	811332	584785
10/31/2013	1386.70	716.44	24.62	16.50	12.34	0.1296	3.2310	1.983	3.177	858384	617101
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
2/28/2014	1345.10	682.98	23.60	15.81	11.85	0.1244	3.3901	2.032	3.253	793538	592476
3/31/2014	1455.80	693.38	25.68	17.20	12.62	0.1325	3.3723	2.064	3.186	863398	630950
4/30/2014	1125.60	493.79	16.48	11.04	9.94	0.1044	3.3216	2.155	3.006	677747	496931
5/31/2014	766.51	364.97	10.57	7.08	6.82	0.0713	3.3153	2.152	3.003	462401	339602
6/30/2014	1304.30	686.90	23.41	15.69	11.42	0.1199	3.3046	2.173	2.965	789387	570808
7/31/2014	1427.30	722.65	25.41	17.02	12.37	0.1298	3.3112	2.089	3.091	862112	617990
8/31/2014	1350.40	715.61	25.23	16.91	11.81	0.1240	3.2783	2.077	3.078	823832	590495
Sum	**15587.42**	**7771.76**	**268.90**	**180.17**	**137.08**	**1.4385**				**9,421,615**	**6,849,861**
Calculated							**3.3089**	**2.053**	**3.142**		
Baseline	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Emission Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 09/30/2014

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	State Reporting Generation (MWh) (MWh)	State Reporting Coal Usage (tons) (tons)
10/31/2013	1386.70	716.44	24.62	16.50	12.34	0.1296	3.2310	1.983	3.177	858384	617101
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
2/28/2014	1345.10	682.98	23.60	15.81	11.85	0.1244	3.3901	2.032	3.253	793538	592476
3/31/2014	1455.80	693.38	25.68	17.20	12.62	0.1325	3.3723	2.064	3.186	863398	630950
4/30/2014	1125.60	493.79	16.48	11.04	9.94	0.1044	3.3216	2.155	3.006	677747	496931
5/31/2014	766.51	364.97	10.57	7.08	6.82	0.0713	3.3153	2.152	3.003	462401	339602
6/30/2014	1304.30	686.90	23.41	15.69	11.42	0.1199	3.3046	2.173	2.965	789387	570808
7/31/2014	1427.30	722.65	25.41	17.02	12.37	0.1298	3.3112	2.089	3.091	862112	617990
8/31/2014	1350.40	715.61	25.23	16.91	11.81	0.1240	3.2783	2.077	3.078	823832	590495
9/30/2014	1290.30	690.29	24.36	16.32	11.78	0.1237	3.1766	2.027	3.055	812389	588980
Sum	**15576.51**	**7782.48**	**269.87**	**180.82**	**137.13**	**1.4394**				**9,422,672**	**6,854,056**
Calculated							**3.3062**	**2.055**	**3.137**		
Baseline	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Emission Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

Coal Creek Station: 12 Month Plant Emissions Report

Report Ending: 10/31/2014

Date	SO2 (tons)	NOx (tons)	TSP (tons)	PM10 (tons)	VOC (tons)	Pb (tons)	SO2 Per Generated Electricity (lb/gMWh)	Coal Sulfur Loading (lb/mmBtu) (lb/mmBtu)	Corrected SO2 Per Energy Generated (lb/gMWh) (lb/gMWh)	State Reporting Generation (MWh) (MWh)	State Reporting Coal Usage (tons) (tons)
11/30/2013	1378.40	653.01	25.01	16.76	12.26	0.1288	3.2376	1.921	3.287	851485	613177
12/31/2013	1262.20	667.31	19.29	12.92	11.03	0.1157	3.4000	2.061	3.217	742464	551165
1/31/2014	1483.90	695.18	26.22	17.57	12.89	0.1353	3.3514	1.929	3.388	885535	644381
2/28/2014	1345.10	682.98	23.60	15.81	11.85	0.1244	3.3901	2.032	3.253	793538	592476
3/31/2014	1455.80	693.38	25.68	17.20	12.62	0.1325	3.3723	2.064	3.186	863398	630950
4/30/2014	1125.60	493.79	16.48	11.04	9.94	0.1044	3.3216	2.155	3.006	677747	496931
5/31/2014	766.51	364.97	10.57	7.08	6.82	0.0713	3.3153	2.152	3.003	462401	339602
6/30/2014	1304.30	686.90	23.41	15.69	11.42	0.1199	3.3046	2.173	2.965	789387	570808
7/31/2014	1427.30	722.65	25.41	17.02	12.37	0.1298	3.3112	2.089	3.091	862112	617990
8/31/2014	1350.40	715.61	25.23	16.91	11.81	0.1240	3.2783	2.077	3.078	823832	590495
9/30/2014	1290.30	690.29	24.36	16.32	11.78	0.1237	3.1766	2.027	3.055	812389	588980
10/31/2014	1414.10	733.28	24.52	16.43	12.35	0.1296	3.2603	2.066	3.078	867473	617239
Sum	**15603.91**	**7799.32**	**269.77**	**180.75**	**137.14**	**1.4394**				**9,431,761**	**6,854,194**
Calculated							**3.3088**	**2.062**	**3.129**		
Baseline	**29496.7**	**11805.5**	**1829.8**	**1226.5**	**160.7**	**1.7**		**1.95**	**6.101**		
Emission Incr. Thres	29536.7	11845.5	1854.8	1241.5	200.7	2.3					

GREAT RIVER
ENERGY℠

Coal Creek Station • 2875 Third Street SW • Underwood, North Dakota 58576-9659 • 701-442-3211 • Fax 701-442-3726

March 3, 2015

Mr. Terry L. O'Clair
Director, Division of Air Quality
North Dakota Department of Health
918 East Divide, 2nd Floor
Bismarck, ND 58501-1947

Received
Air Quality
MAR 2015

Dear Mr. O'Clair:

Enclosed you will find the Coal Creek Station Annual Emissions Inventory for 2014.

As per the "Request for Additional Annual Emissions Data" for PM2.5 and Mercury, the emission values were included in form SFN 8536 (11-10), Fuel Burning Equipment Used for Indirect Heating Annual Emission Inventory Report.

The 12-Month Plant Emissions Report for the Blue Flint Ethanol plant for the year 2014, was performed through October, 2014. It was not performed for the full year as it was removed from the Title V Permit dated October 21, 2014.

As per the "2014 Request for Additional Annual Emissions Data, Prevention of Significant Deterioration", two Excel data files were down-loaded onto the Department of Health ftp site. One data file is for Unit 1, year 2014; and a second file is for Unit 2, year 2014.

If you should have any questions regarding the information contained in this report, please contact Ron McLeod at 701-442-7065.

Sincerely,

GREAT RIVER ENERGY

David Farnsworth

David Farnsworth
Manager, ND Generation

Enclosures
c: Diane Stockdill
c/enc: Deb Nelson
Route/File: Environmental\Air\PT\2014 Annual Emissions Inventory