

TECHNICAL SUPPORT DOCUMENT
For
DRAFT/PROPOSED AIR EMISSION PERMIT NO. 00900021-004

This Technical Support Document (TSD) is intended for all parties interested in the draft/proposed permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the draft/proposed permit.

1. General Information

1.1 Applicant and Stationary Source Location:

Table 1. Applicant and Source Address

Applicant/Address	Stationary Source/Address (SIC Code: 4911)
Northern States Power d/b/a Xcel Energy 414 Nicollet Mall Minneapolis, Minnesota 55401-1993	Xcel Energy - Granite City Generating 680 Highway 10 North St. Cloud, Minnesota 56304 Benton County
Contact: Jonathan Amos Phone: 612-330-7682 jonathan.m.amos@xcelenergy.com	

1.2 Facility Description

This facility generates electricity mainly during periods of peak electrical demand. It is composed of four identical 16975 Kw simple cycle combustion turbine generators (EUs 001-004) capable of firing either natural gas or distillate fuel oil, four identical 300HP startup engines (EUs 007-010), and one 139HP emergency engine (EU 006). This permit is a reissuance of the Title V operating permit. No changes are authorized by this permit.

1.3 Description of any Changes Allowed with this Permit Issuance

This permit is a reissuance of the Title V operating permit. No changes are authorized by this permit.

1.4 Permit History

There have been no permit amendments since the 2007 Title V reissuance.

1.5 Facility Emissions:

Table 2. Total Facility Potential to Emit Summary

	PM tpy	PM ₁₀ tpy	PM _{2.5} tpy	SO ₂ tpy	NO _x tpy	CO tpy	CO ₂ e tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions (PTE)	66	66	66	2,237	4,139	421	745,094	23	3.6	5.8
Total Facility Actual Emissions (2011)	0.0067	0.0066	0.0042	0.033	1.48	0.28	*	0.007	*	

*Not reported in MN emission inventory.

Table 3. Facility Classification

Classification	Major/Affected Source	Synthetic Minor/Area	Minor/Area
PSD	x (SO ₂ , NO _x , CO)		
Part 70 Permit Program	x (SO ₂ , NO _x , CO, CO ₂ e)		
Part 63 NESHAP			x

1.6 Changes to Permit

The following changes have been made:

- permit language has been updated to reflect current MPCA templates and standard citation formatting;
- moved emission units (EUs) 006-010 from insignificant activities to permitted emission units because they do not qualify as an insignificant activity;
- entered PTE for EUs 006-010 and updated PTE data for EUs 001-004 in the Delta facility description;
- corrected the startup date for EUs 001-004 based on Permittee's application;
- added stack vents (SV) 005-009 which correspond to EUs 006-010 within Delta facility description; and
- removed tank 001 due to inactivity in the Delta facility description.

2. Regulatory and/or Statutory Basis

New Source Review

The facility is an existing major source under New Source Review (NSR) regulations because the PTE for SO₂, NO_x, and CO are greater than the major source thresholds for NSR (40 CFR § 52.21(b)(1)) of 100 tpy. No changes are authorized by this permit.

Part 70 Permit Program

The PTE for SO₂, NO_x, and CO are greater than the major source of 100 tpy. Therefore, the facility is a major source under the Part 70 permit program.

New Source Performance Standards (NSPS)

There are no New Source Performance Standards applicable to the operations at this facility. The four gas turbines at this facility (EUs 001-004) were constructed prior to the effective date of 40 CFR pt. 60, subp. GG, Standards of Performance for Stationary Gas Turbines (Subp. GG), and have not been modified or reconstructed after the effective date, October 3, 1977. Therefore, Subp. GG does not apply.

The four startup engines and the emergency generator at this facility (EUs 006-010) were constructed prior to the effective date of 40 CFR pt. 60, subp. IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (Subp. IIII), and have not been modified or reconstructed after the effective date, June 11, 2005. Therefore, Subp. IIII does not apply.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The facility is an area source under 40 CFR pt. 63. Thus, no major source NESHAPs apply.

As an area source, 40 CFR pt. 63, subp. ZZZZ applies to all reciprocating internal combustion engines (RICE) at the facility. This includes the four existing, non-emergency, compression ignition (CI) ≤ 300 HP startup engines (EUs 007-010) and the one existing, emergency, black start CI generator (EU 006).

Compliance Assurance Monitoring (CAM)

There are no controls for emission units at this facility. Therefore, 40 CFR pt. 64 (CAM) does not apply.

Environmental Review & AERA

There are no changes authorized by this permit action, and therefore environmental review is not required.

Minnesota State Rules

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines

Environmental Review & AERA

There are no changes authorized by this permit action, and therefore environmental review is not required.

Table 4. Regulatory Overview of Facility

Level*	Applicable Regulations	Comments:
FC	Minn. R. 7007.0800	The permit contains general provisions for the pollution control equipment. At the time of permit issuance, the Facility has no pollution control equipment and therefore no need for an operation and maintenance plan.
GP 001 (Turbines) and GP 002 (Startup Engines) and EU 006 (Emergency Generator)	Minn. R. 7011.2300	Standards of Performance for Stationary Internal Combustion Engines. Opacity and SO ₂ limits.
GP 001 (Turbines)	Minn. R. 7005.0100, subp. 35a; Minn. R. 7007.0800, subp. 2	Limits permitted fuels to pipeline natural gas and distillate fuel oil only. Limits sulfur content of distillate fuel oil to less than or equal to 0.49 percent by weight.
GP 002 (Startup Engines) and EU 006 (Emergency Generator)	Minn. R. 7005.0100, subp. 35a; Minn. R. 7007.0800, subp. 2	Limits permitted fuel to distillate fuel oil only. Limits sulfur content of distillate fuel oil to less than or equal to 0.051 percent by weight.
GP 002 (Startup Engines)	40 CFR pt. 63 subp. ZZZZ; Minn. R. 7011.8150,	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Requirements determined from Table 2d based on the following- <ul style="list-style-type: none"> the facility is an area source; the units were constructed before June 12, 2006; and the units are black start, stationary compression ignition RICE.
EU 006 (Emergency Generator)	40 CFR pt. 63 subp. ZZZZ; Minn. R. 7011.8150	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Requirements determined from Table 2d based on the following- <ul style="list-style-type: none"> the facility is an area source; the unit was constructed before June 12, 2006; and the unit is an emergency, stationary compression ignition RICE.

*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

3. Technical Information

3.1 Calculations of Potential to Emit

Attachment 1 to this TSD contains Form GI-07, which summarizes the PTE of the facility, while Attachment 2 contains detailed spreadsheets and supporting information prepared by the MPCA and the Permittee. The PTE calculations have been updated since the original permit issuance. Emission rates are generally based on AP-42 emission factors, except for greenhouse gas pollutants. PTE of greenhouse gases are based on emission factors found in Table 12.9 of The Climate Registry and Global Warming Potentials found in Table a-1 of 40 CFR pt. 98. Attachment 2 also contains sample calculations.

The fuel oil PM emission factor for the four turbines (EU 001-004) was corrected to reflect both filterable and condensable PM. Application calculations for permit action 004 used $EF_{fo} = 0.0043$ lb/mmBtu and was changed to $EF_{fo} = 0.012$ lb/mmBtu.

The heat input capacities of the four gas turbines in the permit application for this action were based on lower heating values (LHV). Since the AP-42 emission factors are based on higher heating values (HHV), the rated capacities used in emissions calculations were converted to HHV using the following conversion.

$$\begin{array}{ll} LHV_{ng} * 1.10 = HHV_{ng} & \text{ng = natural gas} \\ LHV_{fo} * 1.065 = HHV_{fo} & \text{fo = fuel oil} \end{array}$$

Calculations added to those provided in the application for this permit action include PTE for total PAHs and hourly HAPs.

3.2 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considers the following:

- The likelihood of the facility violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

Table 5 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 5. Periodic Monitoring

Level*	Requirement (basis)	Additional Monitoring	Discussion
GP 001 (Gas Turbines)	$\text{SO}_2 \leq 0.50 \text{ lbs / million Btu heat input}$ (Minn. R. 7011.2300) $\text{Sulfur Content of Fuel} \leq 0.5\%$ (Minn. R. 7005.0100, subp. 35a; Minn. R. 7007.0800)	Recordkeeping: For each delivery of fuel, maintain the following - Distillate oil supplier certification of fuel oil sulfur content; or test according to current ASTM method(s) and keep records of lab analysis of sulfur for each shipment.	Fuel oil certification documents or records for lab analysis of sulfur are adequate to show sulfur content of fuel is in compliance with the limit.
GP 002 (Startup Engines) and EU 006 (Emergency Generator)	$\text{SO}_2 \leq 0.50 \text{ lbs / million Btu heat input}$ (Minn. R. 7011.2300) $\text{Sulfur Content of Fuel} \leq 0.05\%$ (Minn. R. 7005.0100, subp. 35a; Minn. R. 7007.0800)	Recordkeeping: For each delivery of fuel, maintain the following - Distillate oil supplier certification of fuel oil sulfur content; or test according to current ASTM method(s) and keep records of lab analysis of sulfur for each shipment.	Fuel oil certification documents or records for lab analysis of sulfur are adequate to show sulfur content of fuel is in compliance with the limit.

Level*	Requirement (basis)	Additional Monitoring	Discussion
GP 001 (Gas Turbines)	Opacity: $\leq 20\%$ (Minn. R. 7011.2300)	Performance test for opacity.	<p>Use of natural gas should result in little or no visible emissions.</p> <p>Use of fuel oil should result in little or no visible emissions. However, a performance test will provide additional assurance of continuous compliance and verify the requirement is met.</p> <p>The limit applies to each of the EUs individually and the requirement to test is at the EU level.</p>
GP 002 (Startup Engines)	<p>Work practice standards (40 CFR pt. 63 subp. ZZZZ; Minn. R. 7011.8150)</p> <p>Opacity: $\leq 20\%$ (Minn. R. 7011.2300)</p>	None.	<p>Monitoring required by Subp. ZZZZ is considered adequate to have a reasonable assurance of continuous compliance.</p> <p>Use of fuel oil or natural gas should result in little or no visible emissions.</p> <p>In addition, compliance with Subp. ZZZZ provides additional assurance that the engines will be operated and maintained in a way that helps demonstrate compliance with this requirement.</p>
EU 006 (Emergency Generator)	<p>Work Practice Standards (40 CFR pt. 63 subp. ZZZZ; Minn. R. 7011.8150)</p> <p>Opacity: $\leq 20\%$ (Minn. R. 7011.2300)</p>	None.	<p>Monitoring required by Subp. ZZZZ is considered adequate to have a reasonable assurance of continuous compliance.</p> <p>Use of fuel oil or natural gas should result in little or no visible emissions.</p> <p>In addition, compliance with Subp. ZZZZ provides additional assurance that the engines will be operated and maintained in a way that helps demonstrate compliance with this requirement.</p>

*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

3.3 Insignificant Activities

Xcel Energy – Granite City Generating Plant has several operations which are classified as insignificant activities under the MPCA's permitting rules. These are listed in Appendix I – Insignificant Activities and Applicable Requirements to the permit.

The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this Facility are only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities.

Table 6. Insignificant Activities

Insignificant Activity	General Applicable Emission limit	Discussion
Brazing, soldering or welding equipment	PM, variable depending on airflow Opacity \leq 20% (Minn. R. 7011.0710/715)	For these units, based on EPA published emissions factors, it is highly unlikely that they could violate the applicable requirement. In addition, these units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.
Infrequent use of spray paint equipment for routine housekeeping or plant upkeep activities not associated with primary production processes at the stationary source	PM, variable depending on airflow or process weight rate Opacity \leq 20% (Minn. R. 7011.0715)	While spray equipment will have the potential to emit particulate matter, these particular activities are those not associated with production, so they would be infrequent and usually occur outdoors. Testing or monitoring is not feasible.
Storage Tanks: fuel oil	Minn. R. 7011.1505	There is one 1,000,000 gallon tank at the facility that is out of service, and another approximately 500,000 gallon capacity tank for fuel oil storage. The very low vapor pressure of oil results in very low annual emissions and therefore requires no controls.
VOC fugitive emissions from distillate oil pumps, valves, flanges, four turbine startup engine reservoirs, and fuel oil truck loading	No applicable requirements.	Potential VOC emissions are extremely low due to very low vapor pressure of fuel oil. There are no applicable requirements, so no monitoring is warranted.

3.4 Permit Organization

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. One area where this permit deviates slightly from Delta guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be electronically tracked (e.g., limits, submittals, etc.), should be in Table A or B of the permit. The main reason is that the appendices are word processing sections and are not part of the electronic tracking system. Violation of the appendix can be enforced, but the computer system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

3.5 Comments Received

This section will be completed after the public comment and EPA review periods.

4. Permit Fee Assessment

This permit action is the reissuance of an individual Part 70; therefore, no application fees apply under Minn. R. 7002.0016, subp. 1. Attachment 4 - Points Calculator is provided for reference.

5. Conclusion

Based on the information provided by Xcel Energy, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 00900021-004 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Cassandra Meyer (permit engineer)
 Dave Crowell (enforcement)
 Marc Severin (stack testing)
 Adriane Lenshek (peer reviewer)

AQ File No. 202Q; DQ 3924

Attachments: 1. Form GI-07-R Potential to Emit – Supplemental Information
 2. PTE Summary Calculation Spreadsheets
 3. Facility Description and CD-01 Forms
 4. Points Calculator

Xcel Energy – Granite City Generating
Permit No. 00900021-004
Technical Support Document

Attachment 1
Form GI-07 Potential to Emit – Supplemental Information



**Minnesota Pollution
Control Agency**

520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 -R

**Potential To Emit - Supplemental Information
for Title V Reissuance**
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID No.:	00900021
1b) AQ File No.	202Q
2) Facility Name:	Xcel Energy - Granite City Generating Plant

a)	b)	c) CAS#				CAS#						CAS#		
Emission Source Type	Emission Source ID No.	d) Pollutant Name:	CO			Pollutant Name:			CO2			Pollutant Name:		
		e)			f)			e)			f)			
		Potential			Actual			Potential			Actual			
		Lbs per Hr	Unc tpy	Lim tpy	Tons per yr	Lbs per Hr	Unc tpy	Lim tpy	Tons per yr	Lbs per Hr	Unc tpy	Lim tpy	Tons per yr	
EU	001	22.02	96.44	96.44	X	42,041	184139	184139	X	42,182	184,759	184,759	X	
EU	002	22.02	96.44	96.44	X	42,041	184139	184139	X	42,182	184,759	184,759	X	
EU	003	22.02	96.44	96.44	X	42,041	184139	184139	X	42,182	184,759	184,759	X	
EU	004	22.02	96.44	96.44	X	42,041	184139	184139	X	42,182	184,759	184,759	X	
EU	006	0.92	4.05	0.23	X	159	695	40	X	159	697	40	X	
EU	007	2.00	8.74	8.74	X	342	1,500	1,500	X	344	1,505	1,505	X	
EU	008	2.00	8.74	8.74	X	342	1,500	1,500	X	344	1,505	1,505	X	
EU	009	2.00	8.74	8.74	X	342	1,500	1,500	X	344	1,505	1,505	X	
EU	010	2.00	8.74	8.74	X	342	1,500	1,500	X	344	1,505	1,505	X	
	Totals	97	425	421	Totals	169,692	743,249	742,594	Totals	170,263	745,751	745,094		

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a) Emission Source Type	b) Emission Source ID No.	c) CAS#		CAS#		CAS#		CAS#		CAS#		CAS#	
		d) Pollutant Name:		PM2.5		Pollutant Name:		SO2		Pollutant Name:		Pollutant Name:	
		e)		f)		e)		f)		e)		f)	
		Lbs per Hr	Potential Unc tpy	Lim tpy	Actual Tons per yr	Lbs per Hr	Potential Unc tpy	Lim tpy	Actual Tons per yr	Lbs per Hr	Potential Unc tpy	Lim tpy	Actual Tons per yr
EU	001	3.094	13.552	13.552	X	127.60	558.90	558.90	X	0.5639	2.4698	2.4698	X
EU	002	3.094	13.552	13.552	X	127.60	558.90	558.90	X	0.5639	2.4698	2.4698	X
EU	003	3.094	13.552	13.552	X	127.60	558.90	558.90	X	0.5639	2.4698	2.4698	X
EU	004	3.094	13.552	13.552	X	127.60	558.90	558.90	X	0.5639	2.4698	2.4698	X
EU	006	0.3016	1.3211	0.0754	X	0.0491	0.2152	0.01228	X	0.3503	1.5342	0.0876	X
EU	007	0.6510	2.8514	2.8514	X	0.1061	0.4645	0.4645	X	0.7560	3.3113	3.3113	X
EU	008	0.6510	2.8514	2.8514	X	0.1061	0.4645	0.4645	X	0.7560	3.3113	3.3113	X
EU	009	0.6510	2.8514	2.8514	X	0.1061	0.4645	0.4645	X	0.7560	3.3113	3.3113	X
EU	010	0.6510	2.8514	2.8514	X	0.1061	0.4645	0.4645	X	0.7560	3.3113	3.3113	X
Totals		15	67	66	Totals	511	2,238	2,237	Totals	5.6	25	23	

a) Emission Source Type	b) Emission Source ID No.	c) CAS#		75-07-0		CAS#		107-02-8		CAS#		7440-38-2	
		d) Pollutant Name:		Acetaldehyde		Pollutant Name:		Acrolein		Pollutant Name:		Arsenic	
		e)		f)		e)		f)		e)		f)	
		Lbs per Hr	Potential Unc tpy	Lim tpy	Actual Tons per yr	Lbs per Hr	Potential Unc tpy	Lim tpy	Actual Tons per yr	Lbs per Hr	Potential Unc tpy	Lim tpy	Actual Tons per yr
EU	001	0.011	0.047	0.047	X	0.0017	0.0075	0.0075	X	0.0028	0.0124	0.0124	X
EU	002	0.011	0.047	0.047	X	0.0017	0.0075	0.0075	X	0.0028	0.0124	0.0124	X
EU	003	0.011	0.047	0.047	X	0.0017	0.0075	0.0075	X	0.0028	0.0124	0.0124	X
EU	004	0.011	0.047	0.047	X	0.0017	0.0075	0.0075	X	0.0028	0.0124	0.0124	X
EU	006	0.0007	0.0033	0.0002	X	0.00005	0.0002	0.00001	X	0	0	0	X
EU	007	0.0016	0.0071	0.0071	X	0.0001	0.0004	0.0004	X	0	0	0	X
EU	008	0.0016	0.0071	0.0071	X	0.0001	0.0004	0.0004	X	0	0	0	X
EU	009	0.0016	0.0071	0.0071	X	0.0001	0.0004	0.0004	X	0	0	0	X
EU	010	0.0016	0.0071	0.0071	X	0.0001	0.0004	0.0004	X	0	0	0	X
Totals		0.050	0.22	0.22	Totals	0.0073	0.032	0.032	Totals	0.011	0.050	0.050	

a)	b)	c) CAS#	7440-41-7	CAS#	71-43-2	CAS#	106-99-0		
Emission Source	Emission Source	d) Pollutant Name:	Beryllium	Pollutant Name:	Benzene	Pollutant Name:	1,3 Butadiene		
Type	ID No.	e)		e)		e)		f)	
		Lbs per Hr	Potential	Actual	Potential	Actual	Potential	Actual	
			Unc tpy	Lim tpy	Unc tpy	Lim tpy	Unc tpy	Lim tpy	Tons per yr
EU	001	0.0001	0.0004	0.0004	0.0142	0.0621	0.0041	0.0181	
EU	002	0.0001	0.0004	0.0004	0.0142	0.0621	0.0041	0.0181	
EU	003	0.0001	0.0004	0.0004	0.0142	0.0621	0.0041	0.0181	
EU	004	0.0001	0.0004	0.0004	0.0142	0.0621	0.0041	0.0181	
EU	006	0	0	0	0.0009	0.0040	0.0000	0.0001	0.0000048
EU	007	0	0	0	0.0020	0.0086	0.0000	0.0002	
EU	008	0	0	0	0.0020	0.0086	0.0000	0.0002	
EU	009	0	0	0	0.0020	0.0086	0.0000	0.0002	
EU	010	0	0	0	0.0020	0.0086	0.0000	0.0002	
Totals		0.0003	0.0014	0.0014	0.065	0.29	0.017	0.073	0.073

a)		b)	c) CAS#	7440-43-9	CAS#	7440-47-3	CAS#	100-41-4
Emission Source Type	Emission Source ID No.	d) Pollutant Name:	Cadmium	e)	f)	e)	f)	Ethylbenzene
		Potential	Actual					
		Lbs per Hr	Tons per yr	Lbs per Hr	Tons per yr	Lbs per Hr	Tons per yr	
		Unc tpy	Lim tpy	Unc tpy	Lim tpy	Unc tpy	Lim tpy	
EU	001	0.0012	0.0054	0.0028	0.0124	0.0086	0.0376	
EU	002	0.0012	0.0054	0.0028	0.0124	0.0086	0.0376	
EU	003	0.0012	0.0054	0.0028	0.0124	0.0086	0.0376	
EU	004	0.0012	0.0054	0.0028	0.0124	0.0086	0.0376	
EU	006	0	0	0	0	0	0	
EU	007	0	0	0	0	0	0	
EU	008	0	0	0	0	0	0	
EU	009	0	0	0	0	0	0	
EU	010	0	0	0	0	0	0	
Totals		0.0050	0.022	0.011	0.050	0.034	0.15	0.15

a) Emission Source Type	b) Emission Source ID No.	c) CAS#		50-00-0		CAS#		7439-92-1		CAS#		7439-96-5	
		d) Pollutant Name:		Formaldehyde		Pollutant Name:		Lead		Pollutant Name:		Manganese	
		e)		f)		e)		f)		e)		f)	
		Potential		Actual		Potential		Actual		Potential		Actual	
		Lbs per Hr	Unc tpy	Lim tpy	Tons per yr	Lbs per Hr	Unc tpy	Lim tpy	Tons per yr	Lbs per Hr	Unc tpy	Lim tpy	Tons per yr
EU	001	0.1906	0.8350	0.8350	X	0.0036	0.0158	0.0158	X	0.2037	0.8922	0.8922	X
EU	002	0.1906	0.8350	0.8350	X	0.0036	0.0158	0.0158	X	0.2037	0.8922	0.8922	X
EU	003	0.1906	0.8350	0.8350	X	0.0036	0.0158	0.0158	X	0.2037	0.8922	0.8922	X
EU	004	0.1906	0.8350	0.8350	X	0.0036	0.0158	0.0158	X	0.2037	0.8922	0.8922	X
EU	006	0.0011	0.0050	0.0003	X	0	0	0	X	0	0	0	X
EU	007	0.0025	0.0109	0.0109	X	0	0	0	X	0	0	0	X
EU	008	0.0025	0.0109	0.0109	X	0	0	0	X	0	0	0	X
EU	009	0.0025	0.0109	0.0109	X	0	0	0	X	0	0	0	X
EU	010	0.0025	0.0109	0.0109	X	0	0	0	X	0	0	0	X
Totals		0.77	3.4	3.4	Totals	0.014	0.063	0.063	Totals	0.81	3.6	3.6	Totals

a)	b)	c) CAS#	7439-97-6		CAS#		91-20-3		CAS#		7440-02-0		
Emission Source	Emission Source	d) Pollutant Name:	Mercury		Pollutant Name:		Naphthalene		Pollutant Name:		Nickel		
Type	ID No.	e)		f)		e)		f)		e)		f)	
		Lbs per Hr	Potential	Actual	Tons per yr	Lbs per Hr	Potential	Actual	Tons per yr	Lbs per Hr	Potential	Actual	Tons per yr
EU	001	0.0003	0.0014	0.0014	X	0.0090	0.0395	0.0395	X	0.0012	0.0052	0.0052	X
EU	002	0.0003	0.0014	0.0014	X	0.0090	0.0395	0.0395	X	0.0012	0.0052	0.0052	X
EU	003	0.0003	0.0014	0.0014	X	0.0090	0.0395	0.0395	X	0.0012	0.0052	0.0052	X
EU	004	0.0003	0.0014	0.0014	X	0.0090	0.0395	0.0395	X	0.0012	0.0052	0.0052	X
EU	006	0	0	0	X	0.0001	0.0004	0.000021	X	0	0	0	X
EU	007	0	0	0	X	0.0002	0.0008	0.0008	X	0	0	0	X
EU	008	0	0	0	X	0.0002	0.0008	0.0008	X	0	0	0	X
EU	009	0	0	0	X	0.0002	0.0008	0.0008	X	0	0	0	X
EU	010	0	0	0	X	0.0002	0.0008	0.0008	X	0	0	0	X
Totals		0.0012	0.0054	0.0054	Totals	0.037	0.16	0.16	Totals	0.0047	0.021	0.021	Totals

a)	b)	c) CAS#	75-56-9		CAS#		7782-49-2		CAS#		108-88-3		
Emission Source	Emission Source	d) Pollutant Name:	Propylene Oxide		Pollutant Name:		Selenium		Pollutant Name:		Toluene		
Type	ID No.	e)		f)		e)		f)		e)		f)	
		Potential		Actual		Potential		Actual		Potential		Actual	
		Lbs per Hr	Unc tpy	Lim tpy	Tons per yr	Lbs per Hr	Unc tpy	Lim tpy	Tons per yr	Lbs per Hr	Unc tpy	Lim tpy	Tons per yr
EU	001	0.0078	0.0341	0.0341	X	0.0064	0.0282	0.0282	X	0.0349	0.1529	0.2709	X
EU	002	0.0078	0.0341	0.0341	X	0.0064	0.0282	0.0282	X	0.0349	0.1529	0.2709	X
EU	003	0.0078	0.0341	0.0341	X	0.0064	0.0282	0.0282	X	0.0349	0.1529	0.2709	X
EU	004	0.0078	0.0341	0.0341	X	0.0064	0.0282	0.0282	X	0.0349	0.1529	0.2709	X
EU	006	0	0	0	X	0	0	0	X	0.0004	0.0017	0.0001	X
EU	007	0	0	0	X	0	0	0	X	0.0009	0.0038	0.0038	X
EU	008	0	0	0	X	0	0	0	X	0.0009	0.0038	0.0038	X
EU	009	0	0	0	X	0	0	0	X	0.0009	0.0038	0.0038	X
EU	010	0	0	0	X	0	0	0	X	0.0009	0.0038	0.0038	X
Totals		0.031	0.14	0.14	Totals	0.026	0.11	0.11	Totals	0.14	0.63	1.10	

a) Emission Source Type	b) Emission Source ID No.	c) CAS#		1330-20-7		CAS#		CAS#		Total HAPs		CAS#		Total PAHs (POM)	
		d) Pollutant Name:		Xylenes		Pollutant Name:		Pollutant Name:		Pollutant Name:		Pollutant Name:		Pollutant Name:	
		e)		f)		e)		f)		e)		f)		e)	
		Lbs per Hr	Potential Unc tpy	Lim tpy	Actual Tons per yr	Lbs per Hr	Potential Unc tpy	Lim tpy	Actual Tons per yr	Lbs per Hr	Potential Unc tpy	Lim tpy	Actual Tons per yr	Lbs per Hr	Potential Unc tpy
EU	001	0.0172	0.0753	0.0753		0.322	1.409	1.409		0.0103	0.0452	0.0452		0.0103	0.0452
EU	002	0.0172	0.0753	0.0753		0.322	1.409	1.409		0.0103	0.0452	0.0452		0.0103	0.0452
EU	003	0.0172	0.0753	0.0753		0.322	1.409	1.409		0.0103	0.0452	0.0452		0.0103	0.0452
EU	004	0.0172	0.0753	0.0753		0.322	1.409	1.409		0.0103	0.0452	0.0452		0.0103	0.0452
EU	006	0.0003	0.0012	0.0001		0.0036	0.0009	0.0009		0.0002	0.0007	0.00004		0.0002	0.00004
EU	007	0.0006	0.0026	0.0026		0.0078	0.0343	0.0343		0.0004	0.0015	0.0015		0.0004	0.0015
EU	008	0.0006	0.0026	0.0026		0.0078	0.0343	0.0343		0.0004	0.0015	0.0015		0.0004	0.0015
EU	009	0.0006	0.0026	0.0026		0.0078	0.0343	0.0343		0.0004	0.0015	0.0015		0.0004	0.0015
EU	010	0.0006	0.0026	0.0026		0.0078	0.0343	0.0343		0.0004	0.0015	0.0015		0.0004	0.0015
Totals		0.071	0.31	0.31	Totals	1.3219	5.7751	5.78	Totals	0.0428	0.1876	0.1869		0.0428	0.1869

Total HAPs for Site 8.5688

Xcel Energy – Granite City Generating
Permit No. 00900021-004
Technical Support Document

Attachment 2

PTE Summary Calculations Spreadsheets

Xcel Energy - Granite City Generating Plant
Criteria and Hazardous Air Pollutants PTE by Emission Unit and Fuel

Emission Unit ID	Unit Name	Pollutant	Rated Capacity	Process Rate Units	Emission Factor	Emission Factor Units	Emission Factor Source	Emission Rate (lb/hr)	Uncontrolled Potential to Emit (ton/yr)	Controlled Potential to Emit (ton/yr)	Limited Potential to Emit (ton/yr)	Permit Limit	Actual Emissions (ton/yr)
EU 001	Combustion turbine 1 (oil)	CO	257.84	mmBtu/hr	3.30E-03	lb/mmBtu	AP-42 Table 3.1-1	0.85	3.73	3.73	3.73	NA	Note 2
EU 001	Combustion turbine 1 (oil)	CO ₂	257.84	mmBtu/hr	1.63E-02	lb/mmBtu	40 CFR 98	42,040.81	184,138.76	184,138.76	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Methane	257.84	mmBtu/hr	6.61E-03	lb/mmBtu	40 CFR 98	1.71	7.47	7.47	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Nitrous oxides	257.84	mmBtu/hr	1.32E-03	lb/mmBtu	40 CFR 98	0.34	1.49	1.49	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	CO ₂ e	257.84	mmBtu/hr	1.64E-02	lb/mmBtu	40 CFR 98	42,182.35	184,758.70	184,758.70	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	NO _x	257.84	mmBtu/hr	8.8E-01	lb/mmBtu	AP-42 Table 3.1-1	226.90	993.81	993.81	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	PM	257.84	mmBtu/hr	1.20E-02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	PM ₁₀	257.84	mmBtu/hr	1.20E-02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	PM _{2.5}	257.84	mmBtu/hr	1.20E-02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	SO ₂	257.84	mmBtu/hr	4.95E-01	lb/mmBtu	AP-42 Table 3.1-2a	127.60	558.90	558.90	0.5 lb/mmBtu	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Total VOC	257.84	mmBtu/hr	4.10E-04	lb/mmBtu	AP-42 Table 3.1-5	0.11	0.46	0.46	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Arsenic	257.84	mmBtu/hr	1.10E-05	lb/mmBtu	AP-42 Table 3.1-5	0.003	0.01	0.0124	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Benzene	257.84	mmBtu/hr	5.50E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.06	0.062	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Beryllium	257.84	mmBtu/hr	3.10E-07	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.00	0.0004	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	1,3 Butadiene	257.84	mmBtu/hr	1.60E-05	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.02	0.0181	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Cadmium	257.84	mmBtu/hr	4.80E-06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.0054	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Chromium	257.84	mmBtu/hr	1.10E-05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.0124	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Formaldehyde	257.84	mmBtu/hr	2.80E-04	lb/mmBtu	AP-42 Table 3.1-3	0.07	0.32	0.3162	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Lead	257.84	mmBtu/hr	1.40E-05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.02	0.0158	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Manganese	257.84	mmBtu/hr	7.90E-04	lb/mmBtu	AP-42 Table 3.1-5	0.20	0.89	0.8922	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Mercury	257.84	mmBtu/hr	1.20E-06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.00	0.0014	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Naphthalene (PAH)	257.84	mmBtu/hr	3.50E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.04	0.0395	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Nickel	257.84	mmBtu/hr	4.60E-06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.0052	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	PAHs	257.84	mmBtu/hr	4.00E-05	lb/mmBtu	AP-42 Table 3.1-3	0.010	0.045	0.0452	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Selenium	257.84	mmBtu/hr	2.50E-05	lb/mmBtu	AP-42 Table 3.1-5	0.01	0.03	0.0282	NA	NA	Note 2
EU 001	Combustion turbine 1 (oil)	Total HAPs	257.84	mmBtu/hr	8.20E-02	lb/mmBtu	AP-42 Table 3.1-1	0.32	1.41	1.4093	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	CO	268.51	mmBtu/hr	1.71E-02	lb/mmBtu	40 CFR 98	22.02	96.41	96.41	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	CO ₂	268.51	mmBtu/hr	2.20E-03	lb/mmBtu	40 CFR 98	31,385.57	137,468.79	137,468.79	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Methane	268.51	mmBtu/hr	2.20E-03	lb/mmBtu	40 CFR 98	0.59	2.59	2.59	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Nitrous oxides	268.51	mmBtu/hr	2.20E-04	lb/mmBtu	40 CFR 98	0.06	0.26	0.26	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	CO ₂ e	268.51	mmBtu/hr	1.17E-02	lb/mmBtu	40 CFR 98	31,416.35	137,603.61	137,603.61	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	NO _x	268.51	mmBtu/hr	3.20E-01	lb/mmBtu	AP-42 Table 3.1-1	85.92	376.34	376.34	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	PM	268.51	mmBtu/hr	6.00E-03	lb/mmBtu	AP-42 Table 3.1-2	1.77	7.76	7.762	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	PM ₁₀	268.51	mmBtu/hr	6.00E-03	lb/mmBtu	AP-42 Table 3.1-2	1.77	7.76	7.762	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	PM _{2.5}	268.51	mmBtu/hr	6.00E-03	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	1.77	7.76	7.762	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	SO ₂	268.51	mmBtu/hr	1.32E-04	lb/mmBtu	AP-42 Table 3.1-2	0.04	0.15	0.1548	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Total VOC	268.51	mmBtu/hr	2.10E-05	lb/mmBtu	AP-42 Table 3.1-2	0.56	2.47	2.4698	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Acetaldehyde	268.51	mmBtu/hr	4.00E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.05	0.0470	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Acrolein	268.51	mmBtu/hr	6.40E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.01	0.0075	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Benzene	268.51	mmBtu/hr	1.20E-05	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.01	0.014	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	1,3 Butadiene	268.51	mmBtu/hr	4.30E-07	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.0005	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Ethylbenzene	268.51	mmBtu/hr	3.20E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.04	0.0376	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Formaldehyde	268.51	mmBtu/hr	7.10E-04	lb/mmBtu	AP-42 Table 3.1-3	0.19	0.84	0.8350	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Naphthalene (PAH)	268.51	mmBtu/hr	1.30E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.0015	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	PAHs	268.51	mmBtu/hr	2.20E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.0026	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Propylene Oxide	268.51	mmBtu/hr	2.90E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.03	0.034	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Toluene	268.51	mmBtu/hr	1.30E-04	lb/mmBtu	AP-42 Table 3.1-3	0.03	0.15	0.1529	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Xylenes	268.51	mmBtu/hr	6.40E-05	lb/mmBtu	AP-42 Table 3.1-3	0.02	0.08	0.0753	NA	NA	Note 2
EU 001	Combustion turbine 1 (gas)	Total HAPs	268.51	mmBtu/hr	3.30E-03	lb/mmBtu	AP-42 Table 3.1-1	0.28	1.21	1.2056	NA	NA	Note 2
EU 002	Combustion turbine 2 (oil)	CO	257.84	mmBtu/hr	3.30E-03	lb/mmBtu	AP-42 Table 3.1-1	0.85	3.73	3.73	NA	NA	Note 2
EU 002	Combustion turbine 2 (oil)	CO ₂	257.84	mmBtu/hr	1.63E-02	lb/mmBtu	40 CFR 98	42,040.81	184,138.76	184,138.76	NA	NA	Note 2
EU 002	Combustion turbine 2 (oil)	Methane	257.84	mmBtu/hr	6.61E-03	lb/mmBtu	40 CFR 98	1.71	7.47	7.47	NA	NA	Note 2
EU 002	Combustion turbine 2 (oil)	Nitrous oxides	257.84	mmBtu/hr	1.32E-03	lb/mmBtu	40 CFR 98	0.34	1.49	1.49	NA	NA	Note 2

Xcel Energy - Granite City Generating Plant
Criteria and Hazardous Air Pollutants PTE by Emission Unit and Fuel

Emission Unit ID	Unit Name	Pollutant	Rated Capacity	Process Rate Units	Emission Factor	Emission Factor Units	Emission Factor Source	Emission Rate (lb/hr)	Uncontrolled Potential to Emit (ton/yr)	Controlled Potential to Emit (ton/yr)	Limited Potential to Emit (ton/yr)	Permit Limit	Actual Emissions (ton/yr)
EU 002	Combustion turbine 2 (oil)	CO ₂ e	257.84	mmBtu/hr	1.64E+02	lb/mmBtu	40 CFR 98	42,182.35	184,758.70	184,758.70	NA		Note 2
EU 002	Combustion turbine 2 (oil)	NO _x	257.84	mmBtu/hr	1.64E+02	lb/mmBtu	AP-42 Table 3.1-1	42,182.35	184,758.70	184,758.70	NA		Note 2
EU 002	Combustion turbine 2 (oil)	PM	257.84	mmBtu/hr	1.20E+02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA		Note 2
EU 002	Combustion turbine 2 (oil)	PM10	257.84	mmBtu/hr	1.20E+02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA		Note 2
EU 002	Combustion turbine 2 (oil)	PM2.5	257.84	mmBtu/hr	1.20E+02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA		Note 2
EU 002	Combustion turbine 2 (oil)	SO ₂	257.84	mmBtu/hr	4.95E+01	lb/mmBtu	AP-42 Table 3.1-2a	127.60	558.90	558.90	558.90 0.5 lb/mmBtu		Note 2
EU 002	Combustion turbine 2 (oil)	Total VOC	257.84	mmBtu/hr	4.10E+04	lb/mmBtu	AP-42 Table 3.1-2a	0.11	0.46	0.46	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Arsenic	257.84	mmBtu/hr	1.10E+05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Benzene	257.84	mmBtu/hr	5.50E+05	lb/mmBtu	AP-42 Table 3.1-5	0.01	0.06	0.06	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Beryllium	257.84	mmBtu/hr	3.10E+07	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.00	0.00	NA		Note 2
EU 002	Combustion turbine 2 (oil)	1,3 Butadiene	257.84	mmBtu/hr	1.60E+05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.02	0.02	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Cadmium	257.84	mmBtu/hr	4.80E+06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Chromium	257.84	mmBtu/hr	1.10E+05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Formaldehyde	257.84	mmBtu/hr	2.80E+04	lb/mmBtu	AP-42 Table 3.1-5	0.07	0.32	0.32	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Lead	257.84	mmBtu/hr	1.40E+05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.02	0.02	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Manganese	257.84	mmBtu/hr	7.90E+04	lb/mmBtu	AP-42 Table 3.1-5	0.20	0.89	0.89	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Mercury	257.84	mmBtu/hr	1.20E+06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.00	0.00	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Naphthalene (PAH)	257.84	mmBtu/hr	3.50E+05	lb/mmBtu	AP-42 Table 3.1-5	0.01	0.04	0.04	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Nickel	257.84	mmBtu/hr	4.60E+06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	NA		Note 2
EU 002	Combustion turbine 2 (oil)	PAHs	257.84	mmBtu/hr	4.00E+05	lb/mmBtu	AP-42 Table 3.1-5	0.01	0.05	0.05	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Selenium	257.84	mmBtu/hr	2.50E+05	lb/mmBtu	AP-42 Table 3.1-5	0.01	0.03	0.03	NA		Note 2
EU 002	Combustion turbine 2 (oil)	Total HAPs	257.84	mmBtu/hr	8.20E+02	lb/mmBtu	AP-42 Table 3.1-1	22.02	96.44	96.44	NA		Note 2
EU 002	Combustion turbine 2 (gas)	CO	268.51	mmBtu/hr	1.17E+02	lb/mmBtu	40 CFR 98	31,385.57	137,468.79	137,468.79	NA		Note 2
EU 002	Combustion turbine 2 (gas)	CO ₂	268.51	mmBtu/hr	2.20E+03	lb/mmBtu	40 CFR 98	0.59	2.59	2.59	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Methane	268.51	mmBtu/hr	2.20E+04	lb/mmBtu	40 CFR 98	0.06	0.26	0.26	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Nitrous oxides	268.51	mmBtu/hr	1.17E+02	lb/mmBtu	40 CFR 98	31,416.35	137,603.61	137,603.61	NA		Note 2
EU 002	Combustion turbine 2 (gas)	CO ₂ e	268.51	mmBtu/hr	3.20E+01	lb/mmBtu	AP-42 Table 3.1-1	85.92	376.34	376.34	NA		Note 2
EU 002	Combustion turbine 2 (gas)	PM	268.51	mmBtu/hr	6.00E+03	lb/mmBtu	AP-42 Table 3.1-2	1.77	7.76	7.76	NA		Note 2
EU 002	Combustion turbine 2 (gas)	PM10	268.51	mmBtu/hr	6.00E+03	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	1.77	7.76	7.76	NA		Note 2
EU 002	Combustion turbine 2 (gas)	PM2.5	268.51	mmBtu/hr	6.00E+03	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	1.77	7.76	7.76	NA		Note 2
EU 002	Combustion turbine 2 (gas)	SO ₂	268.51	mmBtu/hr	1.32E+04	lb/mmBtu	AP-42 Table 3.1-2	0.04	0.15	0.15	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Total VOC	268.51	mmBtu/hr	2.10E+03	lb/mmBtu	AP-42 Table 3.1-2	0.56	2.47	2.47	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Acetaldehyde	268.51	mmBtu/hr	4.00E+05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.05	0.05	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Acrolein	268.51	mmBtu/hr	6.40E+06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.01	0.01	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Benzene	268.51	mmBtu/hr	1.20E+05	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.01	0.01	NA		Note 2
EU 002	Combustion turbine 2 (gas)	1,3 Butadiene	268.51	mmBtu/hr	4.30E+07	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Ethylbenzene	268.51	mmBtu/hr	3.20E+05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.04	0.04	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Formaldehyde	268.51	mmBtu/hr	7.10E+04	lb/mmBtu	AP-42 Table 3.1-3	0.19	0.84	0.84	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Naphthalene (PAH)	268.51	mmBtu/hr	1.30E+06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	NA		Note 2
EU 002	Combustion turbine 2 (gas)	PAHs	268.51	mmBtu/hr	2.20E+06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Propylene Oxide	268.51	mmBtu/hr	2.90E+05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.03	0.03	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Toluene	268.51	mmBtu/hr	1.30E+04	lb/mmBtu	AP-42 Table 3.1-3	0.03	0.15	0.15	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Xylenes	268.51	mmBtu/hr	6.40E+05	lb/mmBtu	AP-42 Table 3.1-3	0.02	0.08	0.08	NA		Note 2
EU 002	Combustion turbine 2 (gas)	Total HAPs	268.51	mmBtu/hr	3.30E+03	lb/mmBtu	AP-42 Table 3.1-1	0.28	1.21	1.21	NA		Note 2
EU 003	Combustion turbine 3 (oil)	CO	257.84	mmBtu/hr	1.63E+02	lb/mmBtu	40 CFR 98	42,040.81	184,138.76	184,138.76	NA		Note 2
EU 003	Combustion turbine 3 (oil)	CO ₂	257.84	mmBtu/hr	6.01E+03	lb/mmBtu	40 CFR 98	1.71	7.47	7.47	NA		Note 2
EU 003	Combustion turbine 3 (oil)	Methane	257.84	mmBtu/hr	1.32E+03	lb/mmBtu	40 CFR 98	0.34	1.49	1.49	NA		Note 2
EU 003	Combustion turbine 3 (oil)	Nitrous oxides	257.84	mmBtu/hr	1.64E+02	lb/mmBtu	40 CFR 98	42,182.35	184,758.70	184,758.70	NA		Note 2
EU 003	Combustion turbine 3 (oil)	CO ₂ e	257.84	mmBtu/hr	8.60E+01	lb/mmBtu	AP-42 Table 3.1-1	226.90	993.81	993.81	NA		Note 2
EU 003	Combustion turbine 3 (oil)	NO _x	257.84	mmBtu/hr	1.20E+02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA		Note 2
EU 003	Combustion turbine 3 (oil)	PM	257.84	mmBtu/hr	1.20E+02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA		Note 2
EU 003	Combustion turbine 3 (oil)	PM10	257.84	mmBtu/hr	1.20E+02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA		Note 2
EU 003	Combustion turbine 3 (oil)	PM2.5	257.84	mmBtu/hr	1.20E+02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	NA		Note 2

Xcel Energy - Granite City Generating Plant
Criteria and Hazardous Air Pollutants PTE by Emission Unit and Fuel

Emission Unit ID	Unit Name	Pollutant	Rated Capacity	Process Rate Units	Emission Factor	Emission Factor Units	Emission Factor Source	Emission Rate (lb/hr)	Uncontrolled Potential to Emit (ton/yr)	Controlled Potential to Emit (ton/yr)	Limited Potential to Emit (ton/yr)	Permit Limit	Actual Emissions (ton/yr)
EU 003	Combustion turbine 3 (oil)	SO2	257.84	mmBtu/hr	4.95E-01	lb/mmBtu	AP-42 Table 3.1-2a	127.60	558.90	558.90	558.90	0.5 lb/mmBtu	Note 2
EU 003	Combustion turbine 3 (oil)	Total VOC	257.84	mmBtu/hr	4.10E-04	lb/mmBtu	AP-42 Table 3.1-2a	0.11	0.46	0.46	0.46	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Arsenic	257.84	mmBtu/hr	1.10E-05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	0.01	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Benzene	257.84	mmBtu/hr	5.50E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.06	0.06	0.06	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Beryllium	257.84	mmBtu/hr	3.10E-07	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	0.00	NA	Note 2
EU 003	Combustion turbine 3 (oil)	1,3 Butadiene	257.84	mmBtu/hr	1.60E-05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.02	0.02	0.02	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Cadmium	257.84	mmBtu/hr	4.80E-06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	0.01	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Chromium	257.84	mmBtu/hr	1.10E-05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	0.01	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Formaldehyde	257.84	mmBtu/hr	2.80E-04	lb/mmBtu	AP-42 Table 3.1-3	0.07	0.32	0.32	0.32	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Lead	257.84	mmBtu/hr	1.40E-05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.02	0.02	0.02	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Manganese	257.84	mmBtu/hr	7.90E-04	lb/mmBtu	AP-42 Table 3.1-5	0.20	0.89	0.89	0.89	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Mercury	257.84	mmBtu/hr	1.20E-06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.00	0.00	0.00	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Naphthalene (PAH)	257.84	mmBtu/hr	3.50E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.04	0.04	0.04	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Nickel	257.84	mmBtu/hr	4.60E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.01	0.01	0.01	NA	Note 2
EU 003	Combustion turbine 3 (oil)	PAHs	257.84	mmBtu/hr	4.00E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.05	0.05	0.05	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Selenium	257.84	mmBtu/hr	2.50E-05	lb/mmBtu	AP-42 Table 3.1-5	0.01	0.03	0.03	0.03	NA	Note 2
EU 003	Combustion turbine 3 (oil)	Total HAPs	257.84	mmBtu/hr	2.50E-05	lb/mmBtu	AP-42 Table 3.1-5	0.32	1.41	1.41	1.41	NA	Note 2
EU 003	Combustion turbine 3 (gas)	CO	268.51	mmBtu/hr	8.20E-02	lb/mmBtu	AP-42 Table 3.1-1	22.02	96.44	96.44	96.44	NA	Note 2
EU 003	Combustion turbine 3 (gas)	CO2	268.51	mmBtu/hr	1.17E-02	lb/mmBtu	40 CFR 98	31,385.57	137,468.79	137,468.79	137,468.79	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Methane	268.51	mmBtu/hr	2.20E-03	lb/mmBtu	40 CFR 98	0.59	2.59	2.59	2.59	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Nitrous oxides	268.51	mmBtu/hr	2.20E-04	lb/mmBtu	40 CFR 98	0.06	0.26	0.26	0.26	NA	Note 2
EU 003	Combustion turbine 3 (gas)	CO2e	268.51	mmBtu/hr	1.17E-02	lb/mmBtu	40 CFR 98	31,416.35	137,603.61	137,603.61	137,603.61	NA	Note 2
EU 003	Combustion turbine 3 (gas)	NOx	268.51	mmBtu/hr	3.20E-04	lb/mmBtu	AP-42 Table 3.1-1	85.92	376.34	376.34	376.34	NA	Note 2
EU 003	Combustion turbine 3 (gas)	PM	268.51	mmBtu/hr	6.00E-03	lb/mmBtu	AP-42 Table 3.1-2	1.77	7.76	7.76	7.76	NA	Note 2
EU 003	Combustion turbine 3 (gas)	PM10	268.51	mmBtu/hr	6.00E-03	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	1.77	7.76	7.76	7.76	NA	Note 2
EU 003	Combustion turbine 3 (gas)	PM2.5	268.51	mmBtu/hr	6.00E-03	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	1.77	7.76	7.76	7.76	NA	Note 2
EU 003	Combustion turbine 3 (gas)	SO2	268.51	mmBtu/hr	1.32E-04	lb/mmBtu	AP-42 Table 3.1-2	0.04	0.15	0.15	0.15	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Total VOC	268.51	mmBtu/hr	2.10E-03	lb/mmBtu	AP-42 Table 3.1-2	0.56	2.47	2.47	2.47	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Acetaldehyde	268.51	mmBtu/hr	4.00E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.05	0.05	0.05	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Acrolein	268.51	mmBtu/hr	6.40E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.01	0.01	0.01	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Benzene	268.51	mmBtu/hr	1.20E-05	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.01	0.01	0.01	NA	Note 2
EU 003	Combustion turbine 3 (gas)	1,3 Butadiene	268.51	mmBtu/hr	4.30E-07	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	0.00	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Ethylbenzene	268.51	mmBtu/hr	3.20E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.04	0.04	0.04	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Formaldehyde	268.51	mmBtu/hr	7.10E-04	lb/mmBtu	AP-42 Table 3.1-3	0.19	0.84	0.84	0.84	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Naphthalene (PAH)	268.51	mmBtu/hr	1.30E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	0.00	NA	Note 2
EU 003	Combustion turbine 3 (gas)	PAHs	268.51	mmBtu/hr	2.20E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	0.00	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Propylene Oxide	268.51	mmBtu/hr	2.90E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.03	0.03	0.03	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Toluene	268.51	mmBtu/hr	1.30E-04	lb/mmBtu	AP-42 Table 3.1-3	0.03	0.15	0.15	0.15	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Xylenes	268.51	mmBtu/hr	6.40E-05	lb/mmBtu	AP-42 Table 3.1-3	0.02	0.08	0.08	0.08	NA	Note 2
EU 003	Combustion turbine 3 (gas)	Total HAPs	268.51	mmBtu/hr	4.95E-01	lb/mmBtu	AP-42 Table 3.1-2a	0.28	1.21	1.21	1.21	NA	Note 2
EU 004	Combustion turbine 4 (oil)	CO	257.84	mmBtu/hr	3.30E-03	lb/mmBtu	AP-42 Table 3.1-1	0.85	3.73	3.73	3.73	NA	Note 2
EU 004	Combustion turbine 4 (oil)	CO2	257.84	mmBtu/hr	1.63E-02	lb/mmBtu	40 CFR 98	42,040.81	184,138.76	184,138.76	184,138.76	NA	Note 2
EU 004	Combustion turbine 4 (oil)	Methane	257.84	mmBtu/hr	6.61E-03	lb/mmBtu	40 CFR 98	1.71	7.47	7.47	7.47	NA	Note 2
EU 004	Combustion turbine 4 (oil)	Nitrous oxides	257.84	mmBtu/hr	1.32E-03	lb/mmBtu	40 CFR 98	0.34	1.49	1.49	1.49	NA	Note 2
EU 004	Combustion turbine 4 (oil)	CO2e	257.84	mmBtu/hr	1.64E-02	lb/mmBtu	40 CFR 98	42,182.35	184,758.70	184,758.70	184,758.70	NA	Note 2
EU 004	Combustion turbine 4 (oil)	NOx	257.84	mmBtu/hr	8.80E-01	lb/mmBtu	AP-42 Table 3.1-1	226.90	993.81	993.81	993.81	NA	Note 2
EU 004	Combustion turbine 4 (oil)	PM	257.84	mmBtu/hr	1.20E-02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	13.55	NA	Note 2
EU 004	Combustion turbine 4 (oil)	PM10	257.84	mmBtu/hr	1.20E-02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	13.55	NA	Note 2
EU 004	Combustion turbine 4 (oil)	PM2.5	257.84	mmBtu/hr	1.20E-02	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	3.09	13.55	13.55	13.55	NA	Note 2
EU 004	Combustion turbine 4 (oil)	SO2	257.84	mmBtu/hr	4.95E-01	lb/mmBtu	AP-42 Table 3.1-2a	127.60	558.90	558.90	558.90	0.5 lb/mmBtu	Note 2
EU 004	Combustion turbine 4 (oil)	Total VOC	257.84	mmBtu/hr	4.10E-04	lb/mmBtu	AP-42 Table 3.1-2a	0.11	0.46	0.46	0.46	NA	Note 2
EU 004	Combustion turbine 4 (oil)	1,3 Butadiene	257.84	mmBtu/hr	1.60E-05	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.02	0.02	0.02	NA	Note 2
EU 004	Combustion turbine 4 (oil)	Formaldehyde	257.84	mmBtu/hr	2.80E-04	lb/mmBtu	AP-42 Table 3.1-3	0.07	0.32	0.32	0.32	NA	Note 2
EU 004	Combustion turbine 4 (oil)	Naphthalene (PAH)	257.84	mmBtu/hr	3.50E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.04	0.04	0.04	NA	Note 2
EU 004	Combustion turbine 4 (oil)	PAHs	257.84	mmBtu/hr	4.00E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.05	0.05	0.05	NA	Note 2

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Criteria and Hazardous Air Pollutants PTE by Emission Unit and Fuel

Emission Unit ID	Unit Name	Pollutant	Rated Capacity	Process Rate Units	Emission Factor	Emission Factor Units	Emission Factor Source	Emission Rate (lb/hr)	Uncontrolled Potential to Emit (ton/yr)	Controlled Potential to Emit (ton/yr)	Limited Potential to Emit (ton/yr)	Permit Limit	Actual Emissions (ton/yr)
EU 004	Combustion turbine 4 (oil)	Arsenic	257.84	mmBtu/hr	1.10E-05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Benzene	257.84	mmBtu/hr	5.50E-05	lb/mmBtu	AP-42 Table 3.1-5	0.01	0.06	0.06	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Beryllium	257.84	mmBtu/hr	3.10E-07	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.00	0.00	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Cadmium	257.84	mmBtu/hr	4.80E-06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Chromium	257.84	mmBtu/hr	1.10E-05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Lead	257.84	mmBtu/hr	1.40E-05	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.02	0.02	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Manganese	257.84	mmBtu/hr	7.90E-04	lb/mmBtu	AP-42 Table 3.1-5	0.20	0.89	0.89	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Mercury	257.84	mmBtu/hr	1.20E-06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.00	0.00	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Nickel	257.84	mmBtu/hr	4.60E-06	lb/mmBtu	AP-42 Table 3.1-5	0.00	0.01	0.01	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Selenium	257.84	mmBtu/hr	2.50E-05	lb/mmBtu	AP-42 Table 3.1-5	0.01	0.03	0.03	NA		Note 2
EU 004	Combustion turbine 4 (oil)	Total HAPs						0.32	1.41	1.41	NA		Note 2
EU 004	Combustion turbine 4 (gas)	CO	268.51	mmBtu/hr	8.20E-02	lb/mmBtu	AP-42 Table 3.1-1	22.02	96.44	96.44	NA		Note 2
EU 004	Combustion turbine 4 (gas)	CO ₂	268.51	mmBtu/hr	1.17E+02	lb/mmBtu	40 CFR 98	31,385.57	137,468.79	137,468.79	NA		Note 2
EU 004	Combustion turbine 4 (gas)	CO ₂ e	268.51	mmBtu/hr	2.20E-03	lb/mmBtu	40 CFR 98	0.59	2.59	2.59	NA		Note 2
EU 004	Combustion turbine 4 (gas)	NO _x	268.51	mmBtu/hr	3.20E-01	lb/mmBtu	AP-42 Table 3.1-1	85.92	376.34	376.34	NA		Note 2
EU 004	Combustion turbine 4 (gas)	PM	268.51	mmBtu/hr	6.60E-03	lb/mmBtu	AP-42 Table 3.1-2	1.77	7.76	7.76	NA		Note 2
EU 004	Combustion turbine 4 (gas)	PM ₁₀	268.51	mmBtu/hr	6.60E-03	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	1.77	7.76	7.76	NA		Note 2
EU 004	Combustion turbine 4 (gas)	PM _{2.5}	268.51	mmBtu/hr	6.60E-03	lb/mmBtu	AP-42 Table 3.1-2 for PM + cond.	1.77	7.76	7.76	NA		Note 2
EU 004	Combustion turbine 4 (gas)	SO ₂	268.51	mmBtu/hr	1.32E-04	lb/mmBtu	AP-42 Table 3.1-2	0.04	0.15	0.15	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Total VOC	268.51	mmBtu/hr	2.10E-03	lb/mmBtu	AP-42 Table 3.1-2	0.56	2.47	2.47	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Acetaldehyde	268.51	mmBtu/hr	4.00E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.05	0.05	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Acrolein	268.51	mmBtu/hr	6.40E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.01	0.01	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Benzene	268.51	mmBtu/hr	1.20E-05	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.01	0.01	NA		Note 2
EU 004	Combustion turbine 4 (gas)	1,3-Butadiene	268.51	mmBtu/hr	4.30E-07	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Ethylbenzene	268.51	mmBtu/hr	3.20E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.04	0.04	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Formaldehyde	268.51	mmBtu/hr	7.10E-04	lb/mmBtu	AP-42 Table 3.1-3	0.19	0.84	0.84	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Naphthalene (PAH)	268.51	mmBtu/hr	1.30E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	NA		Note 2
EU 004	Combustion turbine 4 (gas)	PAHs	268.51	mmBtu/hr	2.20E-06	lb/mmBtu	AP-42 Table 3.1-3	0.00	0.00	0.00	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Propylene Oxide	268.51	mmBtu/hr	2.90E-05	lb/mmBtu	AP-42 Table 3.1-3	0.01	0.03	0.03	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Toluene	268.51	mmBtu/hr	1.30E-04	lb/mmBtu	AP-42 Table 3.1-3	0.03	0.15	0.15	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Xylenes	268.51	mmBtu/hr	6.40E-05	lb/mmBtu	AP-42 Table 3.1-3	0.02	0.08	0.08	NA		Note 2
EU 004	Combustion turbine 4 (gas)	Total HAPs						0.28	1.21	1.21	NA		Note 2
EU 006	Emergency engine-gen (oil)	CO	0.973	mmBtu/hr	9.50E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.92	4.05	4.05	0.2311	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	NO _x	0.973	mmBtu/hr	4.41E+00	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	4.29	18.79	18.79	1.0727	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	PM	0.973	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1(10/96)	0.30	1.32	1.32	0.0754	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	PM ₁₀	0.973	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1(10/96)	0.30	1.32	1.32	0.0754	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	PM _{2.5}	0.973	mmBtu/hr	3.10E-01	lb/MMBtu	Assumed same as PM ₁₀	0.30	1.32	1.32	0.0754	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	SO ₂	0.973	mmBtu/hr	5.05E-02	lb/MMBtu	AP-42 3.4-1	0.05	0.22	0.22	0.0123	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Total VOC	0.973	mmBtu/hr	3.60E-01	lb/MMBtu	AP-42 Table 3.3-1(10/96)	0.35	1.53	1.53	0.0876	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	CO ₂	0.973	mmBtu/hr	1.63E+02	lb/MMBtu	40 CFR 98	158.65	694.89	694.89	39.6625	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Methane	0.973	mmBtu/hr	6.61E-03	lb/MMBtu	40 CFR 98	0.01	0.03	0.03	0.0016	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Nitrous oxides	0.973	mmBtu/hr	1.32E-03	lb/MMBtu	40 CFR 98	0.00	0.01	0.01	0.0003	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	CO ₂ e	0.973	mmBtu/hr	1.64E+02	lb/MMBtu	40 CFR 98	159.18	697.23	697.23	39.7960	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Acetaldehyde	0.973	mmBtu/hr	7.67E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0007	0.0033	0.0033	0.0002	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Acrolein	0.973	mmBtu/hr	4.63E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0000	0.0002	0.0002	0.0000	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	1,3-Butadiene	0.973	mmBtu/hr	1.96E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0001	0.0001	0.0001	0.0000	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Benzene	0.973	mmBtu/hr	9.33E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0009	0.0040	0.0040	0.0002	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Formaldehyde	0.973	mmBtu/hr	1.18E-03	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0011	0.0050	0.0050	0.0003	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Naphthalene	0.973	mmBtu/hr	8.48E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0001	0.0004	0.0004	0.0000	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Toluene	0.973	mmBtu/hr	4.09E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0004	0.0017	0.0017	0.0001	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Xylenes	0.973	mmBtu/hr	2.85E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0003	0.0012	0.0012	0.0001	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Total PAHs (POM)	0.973	mmBtu/hr	1.68E-04	lb/MMBtu	AP-42 Table 3.3-2	0.0002	0.0007	0.0007	0.0000	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Total PAHs (POM)-Naphthalene	0.973	mmBtu/hr	8.32E-05	lb/MMBtu	AP-42 Table 3.3-3	0.0001	0.0004	0.0004	0.0000	Can assume 500 hrs/yr	
EU 006	Emergency engine-gen (oil)	Total HAPs						3.62E-03	1.59E-02	1.59E-02	9.06E-04	Can assume 500 hrs/yr	

Xcel Energy - Granite City Generating Plant
Criteria and Hazardous Air Pollutants PTE by Emission Unit and Fuel

Emission Unit ID	Unit Name	Pollutant	Rated Capacity	Process Rate Units	Emission Factor	Emission Factor Units	Emission Factor Source	Emission Rate (lb/hr)	Uncontrolled Potential to Emit (ton/yr)	Controlled Potential to Emit (ton/yr)	Limited Potential to Emit (ton/yr)	Permit Limit	Actual Emissions (ton/yr)
EU 007	Startup engine 1 (oil)	CO	2.100	mmBtu/hr	9.50E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	2.00	8.74	8.74	8.74	NA	
EU 007	Startup engine 1 (oil)	NO _x	2.100	mmBtu/hr	4.41E+00	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	9.26	40.56	40.56	40.56	NA	
EU 007	Startup engine 1 (oil)	PM	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.65	2.85	2.85	2.85	NA	
EU 007	Startup engine 1 (oil)	PM ₁₀	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.65	2.85	2.85	2.85	NA	
EU 007	Startup engine 1 (oil)	PM _{2.5}	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	Assumed same as PM ₁₀	0.65	2.85	2.85	2.85	NA	
EU 007	Startup engine 1 (oil)	SO ₂	2.100	mmBtu/hr	5.05E-02	lb/MMBtu	AP-42 3.4-1	0.11	0.46	0.46	0.46	NA	
EU 007	Startup engine 1 (oil)	Total VOC	2.100	mmBtu/hr	3.60E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.76	3.31	3.31	3.31	NA	
EU 007	Startup engine 1 (oil)	CO ₂	2.100	mmBtu/hr	1.63E+02	lb/MMBtu	40 CFR 98	342.41	1,499.75	1,499.75	1,499.75	NA	
EU 007	Startup engine 1 (oil)	Methane	2.100	mmBtu/hr	6.61E-03	lb/MMBtu	40 CFR 98	0.01	0.06	0.06	0.06	NA	
EU 007	Startup engine 1 (oil)	Nitrous oxides	2.100	mmBtu/hr	1.32E-03	lb/MMBtu	40 CFR 98	0.00	0.01	0.01	0.01	NA	
EU 007	Startup engine 1 (oil)	CO _{2e}	2.100	mmBtu/hr	1.64E+02	lb/MMBtu	40 CFR 98	343.56	1,504.80	1,504.80	1,504.80	NA	
EU 007	Startup engine 1 (oil)	Acetaldehyde	2.100	mmBtu/hr	7.67E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.0071	0.0071	0.01	NA	
EU 007	Startup engine 1 (oil)	Acrolein	2.100	mmBtu/hr	4.63E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.0004	0.0004	0.00	NA	
EU 007	Startup engine 1 (oil)	1,3-Butadiene	2.100	mmBtu/hr	1.96E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00018	0.00018	0.00	NA	
EU 007	Startup engine 1 (oil)	Benzene	2.100	mmBtu/hr	9.33E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.0086	0.0086	0.01	NA	
EU 007	Startup engine 1 (oil)	Formaldehyde	2.100	mmBtu/hr	1.18E-03	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.0109	0.0109	0.01	NA	
EU 007	Startup engine 1 (oil)	Naphthalene	2.100	mmBtu/hr	8.48E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.0008	0.0008	0.00	NA	
EU 007	Startup engine 1 (oil)	Toluene	2.100	mmBtu/hr	4.09E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.0038	0.0038	0.00	NA	
EU 007	Startup engine 1 (oil)	Xylenes	2.100	mmBtu/hr	2.85E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.0026	0.0026	0.00	NA	
EU 007	Startup engine 1 (oil)	Total PAHs (POM)	2.100	mmBtu/hr	1.68E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0004	0.0015	0.0015	0.0015	NA	
EU 007	Startup engine 1 (oil)	Total PAHs (POM) Superalumin	2.100	mmBtu/hr	8.32E-05	lb/MMBtu	AP-42 Table 3.3-3	0.0002	0.0008	0.0008	0.00	NA	
EU 007	Startup engine 2 (oil)	Total HAPs	2.100	mmBtu/hr	8.32E-05	lb/MMBtu	AP-42 Table 3.3-3	0.01	0.0543	0.0543	0.03	NA	
EU 008	Startup engine 2 (oil)	CO	2.100	mmBtu/hr	9.50E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	2.00	8.74	8.74	8.74	NA	
EU 008	Startup engine 2 (oil)	NO _x	2.100	mmBtu/hr	4.41E+00	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	9.26	40.56	40.56	40.56	NA	
EU 008	Startup engine 2 (oil)	PM	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.65	2.85	2.85	2.85	NA	
EU 008	Startup engine 2 (oil)	PM ₁₀	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.65	2.85	2.85	2.85	NA	
EU 008	Startup engine 2 (oil)	PM _{2.5}	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	Assumed same as PM ₁₀	0.65	2.85	2.85	2.85	NA	
EU 008	Startup engine 2 (oil)	SO ₂	2.100	mmBtu/hr	5.05E-02	lb/MMBtu	AP-42 3.4-1	0.11	0.46	0.46	0.46	NA	
EU 008	Startup engine 2 (oil)	Total VOC	2.100	mmBtu/hr	3.60E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.76	3.31	3.31	3.31	NA	
EU 008	Startup engine 2 (oil)	CO ₂	2.100	mmBtu/hr	1.63E+02	lb/MMBtu	40 CFR 98	342.41	1,499.75	1,499.75	1,499.75	NA	
EU 008	Startup engine 2 (oil)	Methane	2.100	mmBtu/hr	6.61E-03	lb/MMBtu	40 CFR 98	0.01	0.06	0.06	0.06	NA	
EU 008	Startup engine 2 (oil)	Nitrous oxides	2.100	mmBtu/hr	1.32E-03	lb/MMBtu	40 CFR 98	0.00	0.01	0.01	0.01	NA	
EU 008	Startup engine 2 (oil)	CO _{2e}	2.100	mmBtu/hr	1.64E+02	lb/MMBtu	40 CFR 98	343.56	1,504.80	1,504.80	1,504.80	NA	
EU 008	Startup engine 2 (oil)	Acetaldehyde	2.100	mmBtu/hr	7.67E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0016	0.0071	0.0071	0.0071	NA	
EU 008	Startup engine 2 (oil)	Acrolein	2.100	mmBtu/hr	4.63E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0001	0.0004	0.0004	0.0004	NA	
EU 008	Startup engine 2 (oil)	1,3-Butadiene	2.100	mmBtu/hr	1.96E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0000	0.0002	0.0002	0.0002	NA	
EU 008	Startup engine 2 (oil)	Benzene	2.100	mmBtu/hr	9.33E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0020	0.0086	0.0086	0.0086	NA	
EU 008	Startup engine 2 (oil)	Formaldehyde	2.100	mmBtu/hr	1.18E-03	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0025	0.0109	0.0109	0.0109	NA	
EU 008	Startup engine 2 (oil)	Naphthalene	2.100	mmBtu/hr	8.48E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0002	0.0008	0.0008	0.0008	NA	
EU 008	Startup engine 2 (oil)	Toluene	2.100	mmBtu/hr	4.09E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0009	0.0038	0.0038	0.0038	NA	
EU 008	Startup engine 2 (oil)	Xylenes	2.100	mmBtu/hr	2.85E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0006	0.0026	0.0026	0.0026	NA	
EU 008	Startup engine 2 (oil)	Total PAHs (POM)	2.100	mmBtu/hr	1.68E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.0004	0.0015	0.0015	0.0015	NA	
EU 008	Startup engine 2 (oil)	Total PAHs (POM) Superalumin	2.100	mmBtu/hr	8.32E-05	lb/MMBtu	AP-42 Table 3.3-3	0.0002	0.0008	0.0008	0.0008	NA	
EU 009	Startup engine 3 (oil)	CO	2.100	mmBtu/hr	9.50E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	2.00	8.74	8.74	8.74	NA	
EU 009	Startup engine 3 (oil)	NO _x	2.100	mmBtu/hr	4.41E+00	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	9.26	40.56	40.56	40.56	NA	
EU 009	Startup engine 3 (oil)	PM	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.65	2.85	2.85	2.85	NA	
EU 009	Startup engine 3 (oil)	PM ₁₀	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.65	2.85	2.85	2.85	NA	
EU 009	Startup engine 3 (oil)	PM _{2.5}	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	Assumed same as PM ₁₀	0.65	2.85	2.85	2.85	NA	
EU 009	Startup engine 3 (oil)	SO ₂	2.100	mmBtu/hr	5.05E-02	lb/MMBtu	AP-42 3.4-1	0.11	0.46	0.46	0.46	NA	
EU 009	Startup engine 3 (oil)	Total VOC	2.100	mmBtu/hr	3.60E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.76	3.31	3.31	3.31	NA	
EU 009	Startup engine 3 (oil)	CO ₂	2.100	mmBtu/hr	1.63E+02	lb/MMBtu	40 CFR 98	342.41	1,499.75	1,499.75	1,499.75	NA	
EU 009	Startup engine 3 (oil)	Methane	2.100	mmBtu/hr	6.61E-03	lb/MMBtu	40 CFR 98	0.01	0.06	0.06	0.06	NA	

Xcel Energy - Granite City Generating Plant
Criteria and Hazardous Air Pollutants PTE by Emission Unit and Fuel

Emission Unit ID	Unit Name	Pollutant	Rated Capacity	Process Rate Units	Emission Factor	Emission Factor Units	Emission Factor Source	Emission Rate (lb/hr)	Uncontrolled Potential to Emit (ton/yr)	Controlled Potential to Emit (ton/yr)	Limited Potential to Emit (ton/yr)	Permit Limit	Actual Emissions (ton/yr)
EU 009	Startup engine 3 (oil)	Nitrous oxides	2.100	mmBtu/hr	1.32E-03	lb/MMBtu	40 CFR 98	0.00	0.01	0.01	NA		
EU 009	Startup engine 3 (oil)	CO ₂ e	2.100	mmBtu/hr	1.64E+02	lb/MMBtu	40 CFR 98	343.56	1,504.80	1,504.80	NA		
EU 009	Startup engine 3 (oil)	Acetaldehyde	2.100	mmBtu/hr	7.67E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.01	0.01	NA		
EU 009	Startup engine 3 (oil)	Acrolein	2.100	mmBtu/hr	4.63E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 009	Startup engine 3 (oil)	1,3-Butadiene	2.100	mmBtu/hr	1.96E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 009	Startup engine 3 (oil)	Benzene	2.100	mmBtu/hr	9.33E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.01	0.01	NA		
EU 009	Startup engine 3 (oil)	Formaldehyde	2.100	mmBtu/hr	1.18E-03	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.01	0.01	NA		
EU 009	Startup engine 3 (oil)	Naphthalene	2.100	mmBtu/hr	8.48E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 009	Startup engine 3 (oil)	Toluene	2.100	mmBtu/hr	4.09E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 009	Startup engine 3 (oil)	Xylenes	2.100	mmBtu/hr	2.85E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 009	Startup engine 3 (oil)	Total PAHs (POM)	2.100	mmBtu/hr	1.68E-04	lb/MMBtu	AP-42 Table 3.3-2	0.0004	0.0015	0.0015	NA		
EU 009	Startup engine 3 (oil)	Total PAHs (POM)-Naphthalene	2.100	mmBtu/hr	8.32E-05	lb/MMBtu	AP-42 Table 3.3-3	0.0002	0.0008	0.0008	NA		
EU 009	Startup engine 3 (oil)	Total HAPs	2.100	mmBtu/hr	9.50E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.01	0.03	0.03	NA		
EU 010	Startup engine 4 (oil)	CO	2.100	mmBtu/hr	4.41E+00	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	2.00	8.74	8.74	NA		
EU 010	Startup engine 4 (oil)	NO _x	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	9.26	40.56	40.56	NA		
EU 010	Startup engine 4 (oil)	PM ₁₀	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.65	2.85	2.85	NA		
EU 010	Startup engine 4 (oil)	PM _{2.5}	2.100	mmBtu/hr	3.10E-01	lb/MMBtu	Assumed same as PM ₁₀	0.65	2.85	2.85	NA		
EU 010	Startup engine 4 (oil)	SO _x	2.100	mmBtu/hr	5.05E-02	lb/MMBtu	AP-42 3.4-1	0.11	0.46	0.46	NA		
EU 010	Startup engine 4 (oil)	Total VOC	2.100	mmBtu/hr	3.60E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.76	3.31	3.31	NA		
EU 010	Startup engine 4 (oil)	CO ₂	2.100	mmBtu/hr	1.63E+02	lb/MMBtu	40 CFR 98	342.41	1,497.75	1,497.75	NA		
EU 010	Startup engine 4 (oil)	Methane	2.100	mmBtu/hr	6.61E-03	lb/MMBtu	40 CFR 98	0.01	0.06	0.06	NA		
EU 010	Startup engine 4 (oil)	Nitrous oxides	2.100	mmBtu/hr	1.32E-03	lb/MMBtu	40 CFR 98	0.00	0.01	0.01	NA		
EU 010	Startup engine 4 (oil)	CO ₂ e	2.100	mmBtu/hr	1.64E+02	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	343.56	1,504.80	1,504.80	NA		
EU 010	Startup engine 4 (oil)	Acetaldehyde	2.100	mmBtu/hr	7.67E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.01	0.01	NA		
EU 010	Startup engine 4 (oil)	Acrolein	2.100	mmBtu/hr	4.63E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 010	Startup engine 4 (oil)	1,3-Butadiene	2.100	mmBtu/hr	1.96E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 010	Startup engine 4 (oil)	Benzene	2.100	mmBtu/hr	9.33E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.01	0.01	NA		
EU 010	Startup engine 4 (oil)	Formaldehyde	2.100	mmBtu/hr	1.18E-03	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.01	0.01	NA		
EU 010	Startup engine 4 (oil)	Naphthalene	2.100	mmBtu/hr	8.48E-05	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 010	Startup engine 4 (oil)	Toluene	2.100	mmBtu/hr	4.09E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 010	Startup engine 4 (oil)	Xylenes	2.100	mmBtu/hr	2.85E-04	lb/MMBtu	AP-42 Table 3.3-2 (10/96)	0.00	0.00	0.00	NA		
EU 010	Startup engine 4 (oil)	Total PAHs (POM)	2.100	mmBtu/hr	1.68E-04	lb/MMBtu	AP-42 Table 3.3-2	0.0004	0.0015	0.0015	NA		
EU 010	Startup engine 4 (oil)	Total PAHs (POM)-Naphthalene	2.100	mmBtu/hr	8.32E-05	lb/MMBtu	AP-42 Table 3.3-3	0.0002	0.0008	0.0008	NA		
EU 010	Startup engine 4 (oil)	Total HAPs	2.100	mmBtu/hr	9.50E-01	lb/MMBtu	AP-42 Table 3.3-1 (10/96)	0.01	0.03	0.03	NA		

Notes:
1 Combustion turbine rated capacities (i.e. base load) are based on manufacturer's data. This is the maximum achievable at 80 degree F, at site elevation barometric pressure, sustainable for 24 hours, and at lower heating value of fuel.

Capacity will increase at lower temperatures and will decrease at higher temperatures. Capacity can be higher for short periods of time.

2 See emission inventories.

Xcel Energy - Granite City Generating Plant
Criteria and Hazardous Air Pollutants PTE by Emission Unit and Fuel

Emission Unit ID	Unit Name	Pollutant	Rated Capacity	Process Rate Units	Emission Factor	Emission Factor Units	Emission Factor Source	Emission Rate (lb/hr)	Uncontrolled Potential to Emit (ton/yr)	Controlled Potential to Emit (ton/yr)	Limited Potential to Emit (ton/yr)	Permit Limit	Actual Emissions (ton/yr)
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GHG rates calculated from 40 CFR 98 and Table 12.9 of The Climate Registry	Rate	Units	Global warming potential	Convert kg to lb	lb/mmBtu	CO ₂ e lb/mmBtu							
CO ₂ - natural gas	53.02	kg/mmBtu	1	2.2046	116.89	116.89							
CO ₂ - oil	73.96	kg/mmBtu	1	2.2046	163.05	163.05							
CO ₂ - kerosene	75.20	kg/mmBtu	1	2.2046	165.79	165.79							
Methane - nat. gas	0.001	kg/mmBtu	21	2.2046	0.0022	0.046							
Methane - oil	0.003	kg/mmBtu	21	2.2046	0.0066	0.139							
Methane - kerosene - use petroleum factor	0.003	kg/mmBtu	21	2.2046	0.0066	0.14							
Nitrous oxide - nat. gas	0.0001	kg/mmBtu	310	2.2046	0.0002	0.0683							
Nitrous oxide - oil	0.0006	kg/mmBtu	310	2.2046	0.0013	0.4101							
Nitrous oxide - kerosene - use petroleum factor	0.0006	kg/mmBtu	310	2.2046	0.0013	0.4101							
Oil CO ₂ e						163.60							
Natural gas CO ₂ e						117.00							

Table 12.9. The Climate Registry

Conversion of Low Heating Value (LHV) to High Heating Value (HHV)

	LHV [mmBtu/hr]	Conversion Factor	HHV [mmBtu/hr]
Natural Gas	244.1	1.10	268.5
Fuel Oil	242.1	1.065	257.8

Sample Calculations

Emission Unit ID	Unit Name	Pollutant	Rated Capacity	Process Rate Units	Emission Factor	Emission Factor Units	Emission Factor Source	Emission Rate (lb/hr)	Uncontrolled Potential to Emit (ton/yr)	Pollution Control Efficiency (%)	Controlled Potential to Emit (ton/yr)	Limited Potential to Emit (ton/yr)
EU 001	Combustion turbine 1 (oil)	CO	242.10	mmBtu/hr	3.30E-03	lb/mmBtu	AP-42 Table 3.1-1	0.80	3.50	0.00	3.50	NA

= (Rated Capacity) x (Emission Factor)

= (Emission Rate, lb/hr) x (8,760 hr/yr) / (2000 lb/ton)

= (Uncontrolled PTE, tpy) x (100-Pollution Control Efficiency) / 100

GHG rates calculated from 40 CFR 98 and Table 12.9 of The Climate Registry					Global warming potential	Convert kg to lb	lb/mmBtu	CO ₂ lb/mmBtu
CO ₂ - oil	73.96	kg/mmBtu	1	2.2046	163.05			163.1
Methane - oil	0.003	kg/mmBtu	21	2.2046	0.0066			0.14
Nitrous oxide - oil	0.0006	kg/mmBtu	310	2.2046	0.0013			0.41
Oil CO ₂ e								164

Table 12.9, The Climate Registry

= (Rate) x (lb/kg)

= (Rate[lb/mmBtu]) x (Global warming potential)

= (CO₂ - oil) + (Methane - oil) + (Nitrous oxide - oil)

Xcel Energy – Granite City Generating
Permit No. 00900021-004
Technical Support Document

Attachment 3

Facility Description and CD-01 Forms

FACILITY DESCRIPTION: GROUPS (GP)

Show: Active and Pending Records

Action: PER 004

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

ID No.	Group Status	Added By (Action)	Retired By (Action)	Include in EI	Operator ID for Item	Group Description	Group Items
1	GP 001	Active	PER 001	<input type="checkbox"/>		Combustion Turbines	EU 001, EU 002, EU 003, EU 004
2	GP 002	Active	PER 004	<input type="checkbox"/>		Startup Engines	EU 007, EU 008, EU 009, EU 010

FACILITY DESCRIPTION: STACK/VENTS (SV)

Show: Active and Pending Records

Action: PER 004

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

ID No.	Stack/ Vent Status	Added By (Action)	Retired By (Action)	Operator ID for Item	Operator's Description	Height of Opening From Ground (feet)	Inside Dimensions		Design Flow Rate at Top (ACFM)	Exit Gas Temperature at Top (°F)	Flow Rate/ Temperature Information Source	Discharge Direction
							Diameter or Length (feet)	Width (feet)				
1	SV 001	Active	PER 003		Turbine Engine 1	33	7.4	10.6	425000	930	Manufacturer	Up, No Cap
2	SV 002	Active	PER 003		Turbine Engine 2	33	7.4	10.6	425000	930	Manufacturer	Up, No Cap
3	SV 003	Active	PER 003		Turbine Engine 3	33	7.4	10.6	425000	930	Manufacturer	Up, No Cap
4	SV 004	Active	PER 003		Turbine Engine 4	33	7.4	10.6	425000	930	Manufacturer	Up, No Cap
5	SV 005	Active	PER 004		Emergency Engine - Generator at Substation (EU 006)	11	0.33		777	846	Manufacturer	Up, No Cap
6	SV 006	Active	PER 004		Startup Engine for Turbine Engine 1 (EU 007)	13.5	0.5		475	400	Estimate	Horizontal
7	SV 007	Active	PER 004		Startup Engine for Turbine Engine 2 (EU 008)	13.5	0.5		475	400	Estimate	Horizontal
8	SV 008	Active	PER 004		Startup Engine for Turbine Engine 3 (EU 009)	13.5	0.5		475	400	Estimate	Horizontal
9	SV 009	Active	PER 004		Startup Engine for Turbine Engine 4 (EU 010)	13.5	0.5		475	400	Estimate	Horizontal

FACILITY DESCRIPTION: EMISSION UNIT (EU)

Show: Active and Pending Records

Action: PER 004

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

ID No.	Emission Unit Status	Added By (Action)	Retired By (Action)	Insignif-icant Activity	Operator ID for Item	Stack/Vent ID No(s).	Control Equip. ID No(s).	Operator Description	Manufacturer	Model Number	SIC	Max. Design Capacity	Maximum Design Capacity		Max Fuel Input (mil Btu)
													Materials	Units n	Units d
1 EU 001	Active	EIS 010		<input type="checkbox"/>		SV 001		Turbine Engine 1	GE	ML75A1PLAG5	4911	16975		Kw	269
2 EU 001	Active	PER 004		<input type="checkbox"/>		SV 001		Turbine Engine 1	GE	ML75A1PLAG5	4911	16975		Kw	269
3 EU 002	Active	EIS 010		<input type="checkbox"/>		SV 002		Turbine Engine 2	GE	ML75A1PLAG5	4911	16975		Kw	269
4 EU 002	Active	PER 004		<input type="checkbox"/>		SV 002		Turbine Engine 2	GE	ML75A1PLAG5	4911	16975		Kw	269
5 EU 003	Active	EIS 010		<input type="checkbox"/>		SV 003		Turbine Engine 3	GE	ML75A1PLAG5	4911	16975		Kw	269
6 EU 003	Active	PER 004		<input type="checkbox"/>		SV 003		Turbine Engine 3	GE	ML75A1PLAG5	4911	16975		Kw	269
7 EU 004	Active	EIS 010		<input type="checkbox"/>		SV 004		Turbine Engine 4	GE	ML75A1PLAG5	4911	16975		Kw	269
8 EU 004	Active	PER 004		<input type="checkbox"/>		SV 004		Turbine Engine 4	GE	ML75A1PLAG5	4911	16975		Kw	269
9 EU 005	Retired	PER 003		<input type="checkbox"/>				Gasoline Loading			5171				
10 EU 006	Active	PER 004		<input type="checkbox"/>		SV 005 (M)		Emergency Engine - Generator at Substation	Caterpillar	3304	4911	139	Energy	Hp	0.973
11 EU 007	Active	PER 004		<input type="checkbox"/>		SV 006 (M)		Startup Engine for Turbine Engine 1	Cummins	V8-300	4911	300	Energy	Hp	2.100
12 EU 008	Active	PER 004		<input type="checkbox"/>		SV 007 (M)		Startup Engine for Turbine Engine 2	Cummins	V8-300	4911	300	Energy	Hp	2.100
13 EU 009	Active	PER 004		<input type="checkbox"/>		SV 008 (M)		Startup Engine for Turbine Engine 3	Cummins	V8-300	4911	300	Energy	Hp	2.100
14 EU 010	Active	PER 004		<input type="checkbox"/>		SV 009 (M)		Startup Engine for Turbine Engine 4	Cummins	V8-300	4911	300	Energy	Hp	2.100

FACILITY DESCRIPTION: EMISSION UNIT (EU)

	ID No.	Emission Unit Status	Added By (Action)	Commence Const. Date	Initial Startup Date	Removal Date	Firing Method	Pct. Fuel/ Space Heat	Bottleneck	Elevator Type
1	EU 001	Active	EIS 010		06/01/1972					
2	EU 001	Active	PER 004		01/01/1969					
3	EU 002	Active	EIS 010		06/01/1972					
4	EU 002	Active	PER 004		01/01/1969					
5	EU 003	Active	EIS 010		06/01/1972					
6	EU 003	Active	PER 004		01/01/1969					
7	EU 004	Active	EIS 010		06/01/1972					
8	EU 004	Active	PER 004		01/01/1969					
9	EU 005	Retired	PER 003							
10	EU 006	Active	PER 004	11/01/1993	12/22/1993					
11	EU 007	Active	PER 004	01/01/1969	01/01/1969					
12	EU 008	Active	PER 004	01/01/1969	01/01/1969					
13	EU 009	Active	PER 004	01/01/1969	01/01/1969					
14	EU 010	Active	PER 004	01/01/1969	01/01/1969					

FACILITY DESCRIPTION: STORAGE TANKS (TK)

Show: Active and Pending Records

Action: PER 004

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

ID No.	Tank Status	Added By (Action)	Retired By (Action)	Insignif-icant Activity	Operator ID for Item	Control Equip. ID No(s).	Product Stored	Interior Height (ft.)	Interior Diameter (ft.)	Capacity (1000 gal)	Construction Type
1 TK 001	Active	PER 003		<input checked="" type="checkbox"/>			Gasoline			1000	
2 TK 001	Removed	PER 004		<input checked="" type="checkbox"/>			Gasoline			1000	

FACILITY DESCRIPTION: STORAGE TANKS (TK)

	ID No.	Tank Status	Added By (Action)	Support Type (floating roof only)	Column Count	Column Diameter (ft.)	Deck Type (floating roof only)	Seal Type (floating roof only)	Year Installed	Year Removed
1	TK 001	Active	PER 003							
2	TK 001	Removed	PER 004							

FACILITY DESCRIPTION: BUILDINGS (BG)

Show: Active and Pending Records

Action: PER 004

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

	ID No.	Added By (Action)	Retired By (Action)	Operator ID for Item	Length (feet)	Width (feet)	Roof Height from Ground (feet)	Description/Comment	Building Status
1	BG 001	PER 004			68	25	12.5	Gas Turbine 1 Structure	Active
2	BG 002	PER 004			68	25	12.5	Gas Turbine 2 Structure	Active
3	BG 003	PER 004			68	25	12.5	Gas Turbine 3 Structure	Active
4	BG 004	PER 004			68	25	12.5	Gas Turbine 4 Structure	Active
5	BG 005	PER 004			10	34	11	Control House Building for Turbines	Active
6	BG 006	PER 004			10	13	10	CO2 Building	Active
7	BG 007	PER 004			20	20	10	Parts Building	Active
8	BG 008	PER 004			16	8	10	Emergency Engine-Generator Enclosure	Active
9	BG 009	PER 004			73		32	Tank 001	Active
10	BG 010	PER 004			73		32	Tank 002	Active
11	BG 011	PER 004			16	9.5	10	Fuel Forwarding Pump House	Active
12	BG 012	PER 004			16	9.5	10	Fuel Unloading Pump House	Active
13	BG 013	PER 004			60	16	12	Control House Building - Substation	Active
14	BG 014	PER 004			13	15	10	Switchgear 1-2 Structure	Active
15	BG 015	PER 004			13	15	10	Switchgear 3-4 Structure	Active

FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
EU 001							
	Acetaldehyde	PER 003		1.07E-02	4.70E-02	4.70E-02	
	Acetaldehyde	PER 004		1.10E-02	4.70E-02	4.70E-02	
	Acrolein	PER 003		1.70E-03	7.50E-03	7.50E-03	
	Acrolein	PER 004		1.70E-03	7.50E-03	7.50E-03	
	Benzene	PER 003		1.42E-02	6.21E-02	6.21E-02	
	Benzene	PER 004		1.42E-02	6.21E-02	6.21E-02	
	Arsenic compounds	PER 003		2.80E-03	1.24E-02	1.24E-02	
	Arsenic compounds	PER 004		2.80E-03	1.24E-02	1.24E-02	
	1,3-Butadiene	PER 003		4.10E-03	1.81E-02	1.81E-02	
	1,3-Butadiene	PER 004		4.10E-03	1.81E-02	1.81E-02	
	Beryllium	PER 003		8.00E-05	3.50E-04	3.50E-04	
	Beryllium	PER 004		1.00E-04	4.00E-04	4.00E-04	
	Carbon Dioxide Equivalent	PER 004		4.22E+04	1.85E+05	1.85E+05	
	Cadmium compounds	PER 003		1.20E-03	5.40E-03	5.40E-03	
	Cadmium compounds	PER 004		1.20E-03	5.40E-03	5.40E-03	
	Carbon Monoxide	PER 003		2.20E+01	9.64E+01	9.64E+01	
	Carbon Monoxide	PER 004		2.20E+01	9.64E+01	9.64E+01	
	Carbon Dioxide	PER 004		4.20E+04	1.84E+05	1.84E+05	
	Chromium compounds	PER 003		2.80E-03	1.24E-02	1.24E-02	
	Chromium compounds	PER 004		2.80E-03	1.24E-02	1.24E-02	
	Ethylbenzene	PER 003		8.60E-03	3.76E-02	3.76E-02	
	Ethylbenzene	PER 004		8.60E-03	3.76E-02	3.76E-02	
	Formaldehyde	PER 003		1.91E-01	8.35E-01	8.35E-01	
	Formaldehyde	PER 004		1.91E-01	8.35E-01	8.35E-01	
	Naphthalene	PER 003		9.00E-03	3.95E-02	3.95E-02	
	Naphthalene	PER 004		9.00E-03	3.95E-02	3.95E-02	
	HAPs - Total	PER 003		3.32E-01	1.45E+00	1.45E+00	
	HAPs - Total	PER 004				1.41E+00	
	Mercury	PER 003		3.00E-04	1.40E-03	1.40E-03	
	Mercury Compounds	PER 004		3.00E-04	1.40E-03	1.40E-03	
	Propylene oxide	PER 003		7.80E-03	3.41E-02	3.41E-02	
	Propylene oxide	PER 004		7.80E-03	3.41E-02	3.41E-02	
	Toluene	PER 003		3.49E-02	1.53E-01	1.53E-01	
	Toluene	PER 004		3.49E-02	1.53E-01	1.53E-01	
	Xylenes (mixed isomers)	PER 003		1.72E-02	7.53E-02	7.53E-02	
	Xylenes (mixed isomers)	PER 004		1.72E-02	7.53E-02	7.53E-02	
	Manganese compounds	PER 003		2.04E-01	8.92E-01	8.92E-01	
	Manganese compounds	PER 004		2.04E-01	8.92E-01	8.92E-01	
	Total Polycyclic aromatic hydr	PER 003		1.03E-02	4.52E-02	4.52E-02	
	Nickel compounds	PER 003		1.20E-03	5.20E-03	5.20E-03	
	Nickel compounds	PER 004		1.20E-03	5.20E-03	5.20E-03	
	Nitrogen Oxides	PER 003		2.27E+02	9.94E+02	9.94E+02	
	Nitrogen Oxides	PER 004		2.27E+02	9.94E+02	9.94E+02	
	PM < 2.5 micron	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Lead	PER 003		3.60E-03	1.58E-02	1.58E-02	
	Lead	PER 004		3.60E-03	1.58E-02	1.58E-02	

FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
EU 001							
	PM < 10 micron	PER 003		3.09E+00	1.36E+01	1.36E+01	
	PM < 10 micron	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Polycyclic organic matter	PER 004		1.03E-02	4.52E-02	4.52E-02	
	Total Particulate Matter	PER 003		3.09E+00	1.36E+01	1.36E+01	
	Total Particulate Matter	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Selenium compounds	PER 003		6.40E-03	2.82E-02	2.82E-02	
	Selenium compounds	PER 004		6.40E-03	2.82E-02	2.82E-02	
	Sulfur Dioxide	PER 003		1.30E+02	5.70E+02	5.70E+02	
	Sulfur Dioxide	PER 004		1.28E+02	5.59E+02	5.59E+02	
	Volatile Organic Compounds	PER 003		5.60E-01	2.47E+00	2.47E+00	
	Volatile Organic Compounds	PER 004		5.64E-01	2.47E+00	2.47E+00	
EU 002							
	Acetaldehyde	PER 003		1.07E-02	4.70E-02	4.70E-02	
	Acetaldehyde	PER 004		1.10E-02	4.70E-02	4.70E-02	
	Acrolein	PER 003		1.70E-03	7.50E-03	7.50E-03	
	Acrolein	PER 004		1.70E-03	7.50E-03	7.50E-03	
	Benzene	PER 003		1.42E-02	6.21E-02	6.21E-02	
	Benzene	PER 004		1.42E-02	6.21E-02	6.21E-02	
	Arsenic compounds	PER 003		2.80E-03	1.24E-02	1.24E-02	
	Arsenic compounds	PER 004		2.80E-03	1.24E-02	1.24E-02	
	1,3-Butadiene	PER 003		4.10E-03	1.81E-02	1.81E-02	
	1,3-Butadiene	PER 004		4.10E-03	1.81E-02	1.81E-02	
	Beryllium	PER 003		8.00E-05	3.50E-04	3.50E-04	
	Beryllium	PER 004		1.00E-04	4.00E-04	4.00E-04	
	Carbon Dioxide Equivalent	PER 004		4.22E+04	1.85E+05	1.85E+05	
	Cadmium compounds	PER 003		1.20E-03	5.40E-03	5.40E-03	
	Cadmium compounds	PER 004		1.20E-03	5.40E-03	5.40E-03	
	Carbon Monoxide	PER 003		2.20E+01	9.64E+01	9.64E+01	
	Carbon Monoxide	PER 004		2.20E+01	9.64E+01	9.64E+01	
	Carbon Dioxide	PER 004		4.20E+04	1.84E+05	1.84E+05	
	Chromium compounds	PER 003		2.80E-03	1.24E-02	1.24E-02	
	Chromium compounds	PER 004		2.80E-03	1.24E-02	1.24E-02	
	Ethylbenzene	PER 003		8.60E-03	3.76E-02	3.76E-02	
	Ethylbenzene	PER 004		8.60E-03	3.76E-02	3.76E-02	
	Formaldehyde	PER 003		1.91E-01	8.35E-01	8.35E-01	
	Formaldehyde	PER 004		1.91E-01	8.35E-01	8.35E-01	
	Naphthalene	PER 003		9.00E-03	3.95E-02	3.95E-02	
	Naphthalene	PER 004		9.00E-03	3.95E-02	3.95E-02	
	HAPs - Total	PER 003		3.32E-01	1.45E+00	1.45E+00	
	HAPs - Total	PER 004				1.41E+00	
	Mercury	PER 003		3.00E-04	1.40E-03	1.40E-03	
	Mercury Compounds	PER 004		3.00E-04	1.40E-03	1.40E-03	
	Propylene oxide	PER 003		7.80E-03	3.41E-02	3.41E-02	
	Propylene oxide	PER 004		7.80E-03	3.41E-02	3.41E-02	
	Toluene	PER 003		3.49E-02	1.53E-01	1.53E-01	
	Toluene	PER 004		3.49E-02	1.53E-01	1.53E-01	

FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
EU 002							
	Xylenes (mixed isomers)	PER 003		1.72E-02	7.53E-02	7.53E-02	
	Xylenes (mixed isomers)	PER 004		1.72E-02	7.53E-02	7.53E-02	
	Manganese compounds	PER 003		2.04E-01	8.92E-01	8.92E-01	
	Manganese compounds	PER 004		2.04E-01	8.92E-01	8.92E-01	
	Total Polycyclic aromatic hydr	PER 003		1.03E-02	4.52E-02	4.52E-02	
	Nickel compounds	PER 003		1.20E-03	5.20E-03	5.20E-03	
	Nickel compounds	PER 004		1.20E-03	5.20E-03	5.20E-03	
	Nitrogen Oxides	PER 003		2.27E+02	9.94E+02	9.94E+02	
	Nitrogen Oxides	PER 004		2.27E+02	9.94E+02	9.94E+02	
	PM < 2.5 micron	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Lead	PER 003		3.60E-03	1.58E-02	1.58E-02	
	Lead	PER 004		3.60E-03	1.58E-02	1.58E-02	
	PM < 10 micron	PER 003		3.09E+00	1.36E+01	1.36E+01	
	PM < 10 micron	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Polycyclic organic matter	PER 004		1.03E-02	4.52E-02	4.52E-02	
	Total Particulate Matter	PER 003		3.09E+00	1.36E+01	1.36E+01	
	Total Particulate Matter	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Selenium compounds	PER 003		6.40E-03	2.82E-02	2.82E-02	
	Selenium compounds	PER 004		6.40E-03	2.82E-02	2.82E-02	
	Sulfur Dioxide	PER 003		1.30E+02	5.70E+02	5.70E+02	
	Sulfur Dioxide	PER 004		1.28E+02	5.59E+02	5.59E+02	
	Volatile Organic Compounds	PER 003		5.60E-01	2.47E+00	2.47E+00	
	Volatile Organic Compounds	PER 004		5.64E-01	2.47E+00	2.47E+00	
EU 003							
	Acetaldehyde	PER 003		1.07E-02	4.70E-02	4.70E-02	
	Acetaldehyde	PER 004		1.10E-02	4.70E-02	4.70E-02	
	Acrolein	PER 003		1.70E-03	7.50E-03	7.50E-03	
	Acrolein	PER 004		1.70E-03	7.50E-03	7.50E-03	
	Benzene	PER 003		1.42E-02	6.21E-02	6.21E-02	
	Benzene	PER 004		1.42E-02	6.21E-02	6.21E-02	
	Arsenic compounds	PER 003		2.80E-03	1.24E-02	1.24E-02	
	Arsenic compounds	PER 004		2.80E-03	1.24E-02	1.24E-02	
	1,3-Butadiene	PER 003		4.10E-03	1.81E-02	1.81E-02	
	1,3-Butadiene	PER 004		4.10E-03	1.81E-02	1.81E-02	
	Beryllium	PER 003		8.00E-05	3.50E-04	3.50E-04	
	Beryllium	PER 004		1.00E-04	4.00E-04	4.00E-04	
	Carbon Dioxide Equivalent	PER 004		4.22E+04	1.85E+05	1.85E+05	
	Cadmium compounds	PER 003		1.20E-03	5.40E-03	5.40E-03	
	Cadmium compounds	PER 004		1.20E-03	5.40E-03	5.40E-03	
	Carbon Monoxide	PER 003		2.20E+01	9.64E+01	9.64E+01	
	Carbon Monoxide	PER 004		2.20E+01	9.64E+01	9.64E+01	
	Carbon Dioxide	PER 004		4.20E+04	1.84E+05	1.84E+05	
	Chromium compounds	PER 003		2.80E-03	1.24E-02	1.24E-02	
	Chromium compounds	PER 004		2.80E-03	1.24E-02	1.24E-02	
	Ethylbenzene	PER 003		8.60E-03	3.76E-02	3.76E-02	
	Ethylbenzene	PER 004		8.60E-03	3.76E-02	3.76E-02	

FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
EU 003							
	Formaldehyde	PER 003		1.91E-01	8.35E-01	8.35E-01	
	Formaldehyde	PER 004		1.91E-01	8.35E-01	8.35E-01	
	Naphthalene	PER 003		9.00E-03	3.95E-02	3.95E-02	
	Naphthalene	PER 004		9.00E-03	3.95E-02	3.95E-02	
	HAPs - Total	PER 003		3.32E-01	1.45E+00	1.45E+00	
	HAPs - Total	PER 004				1.41E+00	
	Mercury	PER 003		3.00E-04	1.40E-03	1.40E-03	
	Mercury Compounds	PER 004		3.00E-04	1.40E-03	1.40E-03	
	Propylene oxide	PER 003		7.80E-03	3.41E-02	3.41E-02	
	Propylene oxide	PER 004		7.80E-03	3.41E-02	3.41E-02	
	Toluene	PER 003		3.49E-02	1.53E-01	1.53E-01	
	Toluene	PER 004		3.49E-02	1.53E-01	1.53E-01	
	Xylenes (mixed isomers)	PER 003		1.72E-02	7.53E-02	7.53E-02	
	Xylenes (mixed isomers)	PER 004		1.72E-02	7.53E-02	7.53E-02	
	Manganese compounds	PER 003		2.04E-01	8.92E-01	8.92E-01	
	Manganese compounds	PER 004		2.04E-01	8.92E-01	8.92E-01	
	Total Polycyclic aromatic hydr	PER 003		1.03E-02	4.52E-02	4.52E-02	
	Nickel compounds	PER 003		1.20E-03	5.20E-03	5.20E-03	
	Nickel compounds	PER 004		1.20E-03	5.20E-03	5.20E-03	
	Nitrogen Oxides	PER 003		2.27E+02	9.94E+02	9.94E+02	
	Nitrogen Oxides	PER 004		2.27E+02	9.94E+02	9.94E+02	
	PM < 2.5 micron	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Lead	PER 003		3.60E-03	1.58E-02	1.58E-02	
	Lead	PER 004		3.60E-03	1.58E-02	1.58E-02	
	PM < 10 micron	PER 003		3.09E+00	1.36E+01	1.36E+01	
	PM < 10 micron	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Polycyclic organic matter	PER 004		1.03E-02	4.52E-02	4.52E-02	
	Total Particulate Matter	PER 003		3.09E+00	1.36E+01	1.36E+01	
	Total Particulate Matter	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Selenium compounds	PER 003		6.40E-03	2.82E-02	2.82E-02	
	Selenium compounds	PER 004		6.40E-03	2.82E-02	2.82E-02	
	Sulfur Dioxide	PER 003		1.30E+02	5.70E+02	5.70E+02	
	Sulfur Dioxide	PER 004		1.28E+02	5.59E+02	5.59E+02	
	Volatile Organic Compounds	PER 003		5.60E-01	2.47E+00	2.47E+00	
	Volatile Organic Compounds	PER 004		5.64E-01	2.47E+00	2.47E+00	
EU 004							
	Acetaldehyde	PER 003		1.07E-02	4.70E-02	4.70E-02	
	Acetaldehyde	PER 004		1.10E-02	4.70E-02	4.70E-02	
	Acrolein	PER 003		1.70E-03	7.50E-03	7.50E-03	
	Acrolein	PER 004		1.70E-03	7.50E-03	7.50E-03	
	Benzene	PER 003		1.42E-02	6.21E-02	6.21E-02	
	Benzene	PER 004		1.42E-02	6.21E-02	6.21E-02	
	Arsenic compounds	PER 003		2.80E-03	1.24E-02	1.24E-02	
	Arsenic compounds	PER 004		2.80E-03	1.24E-02	1.24E-02	
	1,3-Butadiene	PER 003		4.10E-03	1.81E-02	1.81E-02	
	1,3-Butadiene	PER 004		4.10E-03	1.81E-02	1.81E-02	

FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
EU 004							
	Beryllium	PER 003		8.00E-05	3.50E-04	3.50E-04	
	Beryllium	PER 004		1.00E-04	4.00E-04	4.00E-04	
	Carbon Dioxide Equivalent	PER 004		4.22E+04	1.85E+05	1.85E+05	
	Cadmium compounds	PER 003		1.20E-03	5.40E-03	5.40E-03	
	Cadmium compounds	PER 004		1.20E-03	5.40E-03	5.40E-03	
	Carbon Monoxide	PER 003		2.20E+01	9.64E+01	9.64E+01	
	Carbon Monoxide	PER 004		2.20E+01	9.64E+01	9.64E+01	
	Carbon Dioxide	PER 004		4.20E+04	1.84E+05	1.84E+05	
	Chromium compounds	PER 003		2.80E-03	1.24E-02	1.24E-02	
	Chromium compounds	PER 004		2.80E-03	1.24E-02	1.24E-02	
	Ethylbenzene	PER 003		8.60E-03	3.76E-02	3.76E-02	
	Ethylbenzene	PER 004		8.60E-03	3.76E-02	3.76E-02	
	Formaldehyde	PER 003		1.91E-01	8.35E-01	8.35E-01	
	Formaldehyde	PER 004		1.91E-01	8.35E-01	8.35E-01	
	Naphthalene	PER 003		9.00E-03	3.95E-02	3.95E-02	
	Naphthalene	PER 004		9.00E-03	3.95E-02	3.95E-02	
	HAPs - Total	PER 003		3.32E-01	1.45E+00	1.45E+00	
	HAPs - Total	PER 004				1.41E+00	
	Mercury	PER 003		3.00E-04	1.40E-03	1.40E-03	
	Mercury Compounds	PER 004		3.00E-04	1.40E-03	1.40E-03	
	Propylene oxide	PER 003		7.80E-03	3.41E-02	3.41E-02	
	Propylene oxide	PER 004		7.80E-03	3.41E-02	3.41E-02	
	Toluene	PER 003		3.49E-02	1.53E-01	1.53E-01	
	Toluene	PER 004		3.49E-02	1.53E-01	1.53E-01	
	Xylenes (mixed isomers)	PER 003		1.72E-02	7.53E-02	7.53E-02	
	Xylenes (mixed isomers)	PER 004		1.72E-02	7.53E-02	7.53E-02	
	Manganese compounds	PER 003		2.04E-01	8.92E-01	8.92E-01	
	Manganese compounds	PER 004		2.04E-01	8.92E-01	8.92E-01	
	Total Polycyclic aromatic hydr	PER 003		1.03E-02	4.52E-02	4.52E-02	
	Nickel compounds	PER 003		1.20E-03	5.20E-03	5.20E-03	
	Nickel compounds	PER 004		1.20E-03	5.20E-03	5.20E-03	
	Nitrogen Oxides	PER 003		2.27E+02	9.94E+02	9.94E+02	
	Nitrogen Oxides	PER 004		2.27E+02	9.94E+02	9.94E+02	
	PM < 2.5 micron	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Lead	PER 003		3.60E-03	1.58E-02	1.58E-02	
	Lead	PER 004		3.60E-03	1.58E-02	1.58E-02	
	PM < 10 micron	PER 003		3.09E+00	1.36E+01	1.36E+01	
	PM < 10 micron	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Polycyclic organic matter	PER 004		1.03E-02	4.52E-02	4.52E-02	
	Total Particulate Matter	PER 003		3.09E+00	1.36E+01	1.36E+01	
	Total Particulate Matter	PER 004		3.09E+00	1.36E+01	1.36E+01	
	Selenium compounds	PER 003		6.40E-03	2.82E-02	2.82E-02	
	Selenium compounds	PER 004		6.40E-03	2.82E-02	2.82E-02	
	Sulfur Dioxide	PER 003		1.30E+02	5.70E+02	5.70E+02	
	Sulfur Dioxide	PER 004		1.28E+02	5.59E+02	5.59E+02	
	Volatile Organic Compounds	PER 003		5.60E-01	2.47E+00	2.47E+00	

FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
EU 004							
	Volatile Organic Compounds	PER 004		5.64E-01	2.47E+00	2.47E+00	
EU 006							
	Acetaldehyde	PER 004		7.00E-04	3.30E-03	2.00E-04	
	Acrolein	PER 004		5.00E-05	2.00E-04	1.00E-05	
	Benzene	PER 004		9.00E-04	4.00E-03	2.00E-04	
	1,3-Butadiene	PER 004			1.00E-04	4.80E-06	
	Carbon Dioxide Equivalent	PER 004		1.59E+02	6.97E+02	4.00E+01	
	Carbon Monoxide	PER 004		9.20E-01	4.05E+00	2.30E-01	
	Carbon Dioxide	PER 004		1.59E+02	6.95E+02	4.00E+01	
	Formaldehyde	PER 004		1.10E-03	5.00E-03	3.00E-04	
	Naphthalene	PER 004		1.00E-04	4.00E-04	2.10E-05	
	HAPs - Total	PER 004				9.00E-04	
	Toluene	PER 004		4.00E-04	1.70E-03	1.00E-04	
	Xylenes (mixed isomers)	PER 004		3.00E-04	1.20E-03	1.00E-04	
	Nitrogen Oxides	PER 004		4.29E+00	1.88E+01	1.07E+00	
	PM < 2.5 micron	PER 004		3.02E-01	1.32E+00	7.54E-02	
	PM < 10 micron	PER 004		3.02E-01	1.32E+00	7.50E-02	
	Polycyclic organic matter	PER 004		2.00E-04	7.00E-04	4.00E-05	
	Total Particulate Matter	PER 004		3.02E-01	1.32E+00	7.54E-02	
	Sulfur Dioxide	PER 004		4.91E-02	2.15E-01	1.23E-02	
	Volatile Organic Compounds	PER 004		3.50E-01	1.53E+00	8.76E-02	
EU 007							
	Acetaldehyde	PER 004		1.60E-03	7.10E-03	7.10E-03	
	Acrolein	PER 004		1.00E-04	4.00E-04	4.00E-04	
	Benzene	PER 004		2.00E-03	8.60E-03	8.60E-03	
	1,3-Butadiene	PER 004			2.00E-04	2.00E-04	
	Carbon Dioxide Equivalent	PER 004		3.44E+02	1.51E+03	1.51E+03	
	Carbon Monoxide	PER 004		2.00E+00	8.74E+00	8.74E+00	
	Carbon Dioxide	PER 004		3.42E+02	1.50E+03	1.50E+03	
	Formaldehyde	PER 004		2.50E-03	1.09E-02	1.09E-02	
	Naphthalene	PER 004		2.00E-04	8.00E-04	8.00E-04	
	HAPs - Total	PER 004				3.43E-02	
	Toluene	PER 004		9.00E-04	3.80E-03	3.80E-03	
	Xylenes (mixed isomers)	PER 004		6.00E-04	2.60E-03	2.60E-03	
	Nitrogen Oxides	PER 004		9.26E+00	4.06E+01	4.06E+01	
	PM < 2.5 micron	PER 004		6.51E-01	2.85E+00	2.85E+00	
	PM < 10 micron	PER 004		6.51E-01	2.85E+00	2.85E+00	
	Polycyclic organic matter	PER 004		4.00E-04	1.50E-03	1.50E-03	
	Total Particulate Matter	PER 004		6.51E-01	2.85E+00	2.85E+00	
	Sulfur Dioxide	PER 004		1.06E-01	4.65E-01	4.65E-01	
	Volatile Organic Compounds	PER 004		7.56E-01	3.31E+00	3.31E+00	
EU 008							
	Acetaldehyde	PER 004		1.60E-03	7.10E-03	7.10E-03	
	Acrolein	PER 004		1.00E-04	4.00E-04	4.00E-04	
	Benzene	PER 004		2.00E-03	8.60E-03	8.60E-03	
	1,3-Butadiene	PER 004			2.00E-04	2.00E-04	

FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
EU 008							
	Carbon Dioxide Equivalent	PER 004		3.44E+02	1.51E+03	1.51E+03	
	Carbon Monoxide	PER 004		2.00E+00	8.74E+00	8.74E+00	
	Carbon Dioxide	PER 004		3.42E+02	1.50E+03	1.50E+03	
	Formaldehyde	PER 004		2.50E-03	1.09E-02	1.09E-02	
	Naphthalene	PER 004		2.00E-04	8.00E-04	8.00E-04	
	HAPs - Total	PER 004				3.43E-02	
	Toluene	PER 004		9.00E-04	3.80E-03	3.80E-03	
	Xylenes (mixed isomers)	PER 004		6.00E-04	2.60E-03	2.60E-03	
	Nitrogen Oxides	PER 004		9.26E+00	4.06E+01	4.06E+01	
	PM < 2.5 micron	PER 004		6.51E-01	2.85E+00	2.85E+00	
	PM < 10 micron	PER 004		6.51E-01	2.85E+00	2.85E+00	
	Polycyclic organic matter	PER 004		4.00E-04	1.50E-03	1.50E-03	
	Total Particulate Matter	PER 004		6.51E-01	2.85E+00	2.85E+00	
	Sulfur Dioxide	PER 004		1.06E-01	4.65E-01	4.65E-01	
	Volatile Organic Compounds	PER 004		7.56E-01	3.31E+00	3.31E+00	
EU 009							
	Acetaldehyde	PER 004		1.60E-03	7.10E-03	7.10E-03	
	Acrolein	PER 004		1.00E-04	4.00E-04	4.00E-04	
	Benzene	PER 004		2.00E-03	8.60E-03	8.60E-03	
	1,3-Butadiene	PER 004			2.00E-04	2.00E-04	
	Carbon Dioxide Equivalent	PER 004		3.44E+02	1.51E+03	1.51E+03	
	Carbon Monoxide	PER 004		2.00E+00	8.74E+00	8.74E+00	
	Carbon Dioxide	PER 004		3.42E+02	1.50E+03	1.50E+03	
	Formaldehyde	PER 004		2.50E-03	1.09E-02	1.09E-02	
	Naphthalene	PER 004		2.00E-04	8.00E-04	8.00E-04	
	HAPs - Total	PER 004				3.43E-02	
	Toluene	PER 004		9.00E-04	3.80E-03	3.80E-03	
	Xylenes (mixed isomers)	PER 004		6.00E-04	2.60E-03	2.60E-03	
	Nitrogen Oxides	PER 004		9.26E+00	4.06E+01	4.06E+01	
	PM < 2.5 micron	PER 004		6.51E-01	2.85E+00	2.85E+00	
	PM < 10 micron	PER 004		6.51E-01	2.85E+00	2.85E+00	
	Polycyclic organic matter	PER 004		4.00E-04	1.50E-03	1.50E-03	
	Total Particulate Matter	PER 004		6.51E-01	2.85E+00	2.85E+00	
	Sulfur Dioxide	PER 004		1.06E-01	4.65E-01	4.65E-01	
	Volatile Organic Compounds	PER 004		7.56E-01	3.31E+00	3.31E+00	
EU 010							
	Acetaldehyde	PER 004		1.60E-03	7.10E-03	7.10E-03	
	Acrolein	PER 004		1.00E-04	4.00E-04	4.00E-04	
	Benzene	PER 004		2.00E-03	8.60E-03	8.60E-03	
	1,3-Butadiene	PER 004			2.00E-04	2.00E-04	
	Carbon Dioxide Equivalent	PER 004		3.44E+02	1.51E+03	1.51E+03	
	Carbon Monoxide	PER 004		2.00E+00	8.74E+00	8.74E+00	
	Carbon Dioxide	PER 004		3.42E+02	1.50E+03	1.50E+03	
	Formaldehyde	PER 004		2.50E-03	1.09E-02	1.09E-02	
	Naphthalene	PER 004		2.00E-04	8.00E-04	8.00E-04	
	HAPs - Total	PER 004				3.43E-02	

FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
EU 010							
	Toluene	PER 004		9.00E-04	3.80E-03	3.80E-03	
	Xylenes (mixed isomers)	PER 004		6.00E-04	2.60E-03	2.60E-03	
	Nitrogen Oxides	PER 004		9.26E+00	4.06E+01	4.06E+01	
	PM < 2.5 micron	PER 004		6.51E-01	2.85E+00	2.85E+00	
	PM < 10 micron	PER 004		6.51E-01	2.85E+00	2.85E+00	
	Polycyclic organic matter	PER 004		4.00E-04	1.50E-03	1.50E-03	
	Total Particulate Matter	PER 004		6.51E-01	2.85E+00	2.85E+00	
	Sulfur Dioxide	PER 004		1.06E-01	4.65E-01	4.65E-01	
	Volatile Organic Compounds	PER 004		7.56E-01	3.31E+00	3.31E+00	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Acetaldehyde							
	EU 001	PER 003		1.070E-02	4.700E-02	4.700E-02	
	EU 001	PER 004		1.100E-02	4.700E-02	4.700E-02	
	EU 002	PER 003		1.070E-02	4.700E-02	4.700E-02	
	EU 002	PER 004		1.100E-02	4.700E-02	4.700E-02	
	EU 003	PER 003		1.070E-02	4.700E-02	4.700E-02	
	EU 003	PER 004		1.100E-02	4.700E-02	4.700E-02	
	EU 004	PER 003		1.070E-02	4.700E-02	4.700E-02	
	EU 004	PER 004		1.100E-02	4.700E-02	4.700E-02	
	EU 006	PER 004		7.000E-04	3.300E-03	2.000E-04	
	EU 007	PER 004		1.600E-03	7.100E-03	7.100E-03	
	EU 008	PER 004		1.600E-03	7.100E-03	7.100E-03	
	EU 009	PER 004		1.600E-03	7.100E-03	7.100E-03	
	EU 010	PER 004		1.600E-03	7.100E-03	7.100E-03	
Totals					2.197E-01	2.166E-01	0.000E+00
Acrolein							
	EU 001	PER 003		1.700E-03	7.500E-03	7.500E-03	
	EU 001	PER 004		1.700E-03	7.500E-03	7.500E-03	
	EU 002	PER 003		1.700E-03	7.500E-03	7.500E-03	
	EU 002	PER 004		1.700E-03	7.500E-03	7.500E-03	
	EU 003	PER 003		1.700E-03	7.500E-03	7.500E-03	
	EU 003	PER 004		1.700E-03	7.500E-03	7.500E-03	
	EU 004	PER 003		1.700E-03	7.500E-03	7.500E-03	
	EU 004	PER 004		1.700E-03	7.500E-03	7.500E-03	
	EU 006	PER 004		5.000E-05	2.000E-04	1.000E-05	
	EU 007	PER 004		1.000E-04	4.000E-04	4.000E-04	
	EU 008	PER 004		1.000E-04	4.000E-04	4.000E-04	
	EU 009	PER 004		1.000E-04	4.000E-04	4.000E-04	
	EU 010	PER 004		1.000E-04	4.000E-04	4.000E-04	
Totals					3.180E-02	3.161E-02	0.000E+00
Benzene							
	EU 001	PER 003		1.420E-02	6.210E-02	6.210E-02	
	EU 001	PER 004		1.420E-02	6.210E-02	6.210E-02	
	EU 002	PER 003		1.420E-02	6.210E-02	6.210E-02	
	EU 002	PER 004		1.420E-02	6.210E-02	6.210E-02	
	EU 003	PER 003		1.420E-02	6.210E-02	6.210E-02	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Benzene							
	EU 003	PER 004		1.420E-02	6.210E-02	6.210E-02	
	EU 004	PER 003		1.420E-02	6.210E-02	6.210E-02	
	EU 004	PER 004		1.420E-02	6.210E-02	6.210E-02	
	EU 006	PER 004		9.000E-04	4.000E-03	2.000E-04	
	EU 007	PER 004		2.000E-03	8.600E-03	8.600E-03	
	EU 008	PER 004		2.000E-03	8.600E-03	8.600E-03	
	EU 009	PER 004		2.000E-03	8.600E-03	8.600E-03	
	EU 010	PER 004		2.000E-03	8.600E-03	8.600E-03	
Totals					2.868E-01	2.830E-01	0.000E+00
Arsenic compounds							
	EU 001	PER 003		2.800E-03	1.240E-02	1.240E-02	
	EU 001	PER 004		2.800E-03	1.240E-02	1.240E-02	
	EU 002	PER 003		2.800E-03	1.240E-02	1.240E-02	
	EU 002	PER 004		2.800E-03	1.240E-02	1.240E-02	
	EU 003	PER 003		2.800E-03	1.240E-02	1.240E-02	
	EU 003	PER 004		2.800E-03	1.240E-02	1.240E-02	
	EU 004	PER 003		2.800E-03	1.240E-02	1.240E-02	
	EU 004	PER 004		2.800E-03	1.240E-02	1.240E-02	
Totals					4.960E-02	4.960E-02	0.000E+00
1,3-Butadiene							
	EU 001	PER 003		4.100E-03	1.810E-02	1.810E-02	
	EU 001	PER 004		4.100E-03	1.810E-02	1.810E-02	
	EU 002	PER 003		4.100E-03	1.810E-02	1.810E-02	
	EU 002	PER 004		4.100E-03	1.810E-02	1.810E-02	
	EU 003	PER 003		4.100E-03	1.810E-02	1.810E-02	
	EU 003	PER 004		4.100E-03	1.810E-02	1.810E-02	
	EU 004	PER 003		4.100E-03	1.810E-02	1.810E-02	
	EU 004	PER 004		4.100E-03	1.810E-02	1.810E-02	
	EU 006	PER 004		0.000E+00	1.000E-04	4.800E-06	
	EU 007	PER 004		0.000E+00	2.000E-04	2.000E-04	
	EU 008	PER 004		0.000E+00	2.000E-04	2.000E-04	
	EU 009	PER 004		0.000E+00	2.000E-04	2.000E-04	
	EU 010	PER 004		0.000E+00	2.000E-04	2.000E-04	
Totals					7.330E-02	7.320E-02	0.000E+00

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Beryllium							
	EU 001	PER 003		8.000E-05	3.500E-04	3.500E-04	0.000E+00
	EU 001	PER 004		1.000E-04	4.000E-04	4.000E-04	0.000E+00
	EU 002	PER 003		8.000E-05	3.500E-04	3.500E-04	0.000E+00
	EU 002	PER 004		1.000E-04	4.000E-04	4.000E-04	0.000E+00
	EU 003	PER 003		8.000E-05	3.500E-04	3.500E-04	0.000E+00
	EU 003	PER 004		1.000E-04	4.000E-04	4.000E-04	0.000E+00
	EU 004	PER 003		8.000E-05	3.500E-04	3.500E-04	0.000E+00
	EU 004	PER 004		1.000E-04	4.000E-04	4.000E-04	0.000E+00
Totals					1.600E-03	1.600E-03	0.000E+00
Carbon Dioxide Equivalent							
	EU 001	PER 004		4.218E+04	1.848E+05	1.848E+05	
	EU 002	PER 004		4.218E+04	1.848E+05	1.848E+05	
	EU 003	PER 004		4.218E+04	1.848E+05	1.848E+05	
	EU 004	PER 004		4.218E+04	1.848E+05	1.848E+05	
	EU 006	PER 004		1.590E+02	6.970E+02	4.000E+01	
	EU 007	PER 004		3.440E+02	1.505E+03	1.505E+03	
	EU 008	PER 004		3.440E+02	1.505E+03	1.505E+03	
	EU 009	PER 004		3.440E+02	1.505E+03	1.505E+03	
	EU 010	PER 004		3.440E+02	1.505E+03	1.505E+03	
Totals					7.458E+05	7.451E+05	0.000E+00
Cadmium compounds							
	EU 001	PER 003		1.200E-03	5.400E-03	5.400E-03	
	EU 001	PER 004		1.200E-03	5.400E-03	5.400E-03	
	EU 002	PER 003		1.200E-03	5.400E-03	5.400E-03	
	EU 002	PER 004		1.200E-03	5.400E-03	5.400E-03	
	EU 003	PER 003		1.200E-03	5.400E-03	5.400E-03	
	EU 003	PER 004		1.200E-03	5.400E-03	5.400E-03	
	EU 004	PER 003		1.200E-03	5.400E-03	5.400E-03	
	EU 004	PER 004		1.200E-03	5.400E-03	5.400E-03	
Totals					2.160E-02	2.160E-02	0.000E+00
Carbon Monoxide							
	EU 001	PER 003		2.200E+01	9.640E+01	9.640E+01	
	EU 001	PER 004		2.202E+01	9.644E+01	9.644E+01	
	EU 002	PER 003		2.200E+01	9.640E+01	9.640E+01	
	EU 002	PER 004		2.202E+01	9.644E+01	9.644E+01	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Carbon Monoxide							
	EU 003	PER 003		2.200E+01	9.640E+01	9.640E+01	
	EU 003	PER 004		2.202E+01	9.644E+01	9.644E+01	
	EU 004	PER 003		2.200E+01	9.640E+01	9.640E+01	
	EU 004	PER 004		2.202E+01	9.644E+01	9.644E+01	
	EU 006	PER 004		9.200E-01	4.050E+00	2.300E-01	
	EU 007	PER 004		2.000E+00	8.740E+00	8.740E+00	
	EU 008	PER 004		2.000E+00	8.740E+00	8.740E+00	
	EU 009	PER 004		2.000E+00	8.740E+00	8.740E+00	
	EU 010	PER 004		2.000E+00	8.740E+00	8.740E+00	
Totals					4.248E+02	4.210E+02	0.000E+00
Carbon Dioxide							
	EU 001	PER 004		4.204E+04	1.841E+05	1.841E+05	
	EU 002	PER 004		4.204E+04	1.841E+05	1.841E+05	
	EU 003	PER 004		4.204E+04	1.841E+05	1.841E+05	
	EU 004	PER 004		4.204E+04	1.841E+05	1.841E+05	
	EU 006	PER 004		1.590E+02	6.950E+02	4.000E+01	
	EU 007	PER 004		3.420E+02	1.500E+03	1.500E+03	
	EU 008	PER 004		3.420E+02	1.500E+03	1.500E+03	
	EU 009	PER 004		3.420E+02	1.500E+03	1.500E+03	
	EU 010	PER 004		3.420E+02	1.500E+03	1.500E+03	
Totals					7.433E+05	7.426E+05	0.000E+00
Chromium compounds							
	EU 001	PER 003		2.800E-03	1.240E-02	1.240E-02	
	EU 001	PER 004		2.800E-03	1.240E-02	1.240E-02	
	EU 002	PER 003		2.800E-03	1.240E-02	1.240E-02	
	EU 002	PER 004		2.800E-03	1.240E-02	1.240E-02	
	EU 003	PER 003		2.800E-03	1.240E-02	1.240E-02	
	EU 003	PER 004		2.800E-03	1.240E-02	1.240E-02	
	EU 004	PER 003		2.800E-03	1.240E-02	1.240E-02	
	EU 004	PER 004		2.800E-03	1.240E-02	1.240E-02	
Totals					4.960E-02	4.960E-02	0.000E+00
Ethylbenzene							
	EU 001	PER 003		8.600E-03	3.760E-02	3.760E-02	
	EU 001	PER 004		8.600E-03	3.760E-02	3.760E-02	
	EU 002	PER 003		8.600E-03	3.760E-02	3.760E-02	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Ethylbenzene							
	EU 002	PER 004		8.600E-03	3.760E-02	3.760E-02	
	EU 003	PER 003		8.600E-03	3.760E-02	3.760E-02	
	EU 003	PER 004		8.600E-03	3.760E-02	3.760E-02	
	EU 004	PER 003		8.600E-03	3.760E-02	3.760E-02	
	EU 004	PER 004		8.600E-03	3.760E-02	3.760E-02	
Totals					1.504E-01	1.504E-01	0.000E+00
Formaldehyde							
	EU 001	PER 003		1.906E-01	8.350E-01	8.350E-01	
	EU 001	PER 004		1.906E-01	8.350E-01	8.350E-01	
	EU 002	PER 003		1.906E-01	8.350E-01	8.350E-01	
	EU 002	PER 004		1.906E-01	8.350E-01	8.350E-01	
	EU 003	PER 003		1.906E-01	8.350E-01	8.350E-01	
	EU 003	PER 004		1.906E-01	8.350E-01	8.350E-01	
	EU 004	PER 003		1.906E-01	8.350E-01	8.350E-01	
	EU 004	PER 004		1.906E-01	8.350E-01	8.350E-01	
	EU 006	PER 004		1.100E-03	5.000E-03	3.000E-04	
	EU 007	PER 004		2.500E-03	1.090E-02	1.090E-02	
	EU 008	PER 004		2.500E-03	1.090E-02	1.090E-02	
	EU 009	PER 004		2.500E-03	1.090E-02	1.090E-02	
	EU 010	PER 004		2.500E-03	1.090E-02	1.090E-02	
Totals					3.389E+00	3.384E+00	0.000E+00
Naphthalene							
	EU 001	PER 003		9.000E-03	3.950E-02	3.950E-02	
	EU 001	PER 004		9.000E-03	3.950E-02	3.950E-02	
	EU 002	PER 003		9.000E-03	3.950E-02	3.950E-02	
	EU 002	PER 004		9.000E-03	3.950E-02	3.950E-02	
	EU 003	PER 003		9.000E-03	3.950E-02	3.950E-02	
	EU 003	PER 004		9.000E-03	3.950E-02	3.950E-02	
	EU 004	PER 003		9.000E-03	3.950E-02	3.950E-02	
	EU 004	PER 004		9.000E-03	3.950E-02	3.950E-02	
	EU 006	PER 004		1.000E-04	4.000E-04	2.100E-05	
	EU 007	PER 004		2.000E-04	8.000E-04	8.000E-04	
	EU 008	PER 004		2.000E-04	8.000E-04	8.000E-04	
	EU 009	PER 004		2.000E-04	8.000E-04	8.000E-04	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

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AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Naphthalene							
	EU 010	PER 004		2.000E-04	8.000E-04	8.000E-04	
Totals					1.616E-01	1.612E-01	0.000E+00
HAPs - Total							
	EU 001	PER 003		3.321E-01	1.455E+00	1.455E+00	
	EU 001	PER 004		0.000E+00	0.000E+00	1.409E+00	
	EU 002	PER 003		3.321E-01	1.455E+00	1.455E+00	
	EU 002	PER 004		0.000E+00	0.000E+00	1.409E+00	
	EU 003	PER 003		3.321E-01	1.455E+00	1.455E+00	
	EU 003	PER 004		0.000E+00	0.000E+00	1.409E+00	
	EU 004	PER 003		3.321E-01	1.455E+00	1.455E+00	
	EU 004	PER 004		0.000E+00	0.000E+00	1.409E+00	
	EU 006	PER 004				9.000E-04	
	EU 007	PER 004				3.430E-02	
	EU 008	PER 004				3.430E-02	
	EU 009	PER 004				3.430E-02	
	EU 010	PER 004				3.430E-02	
Totals					0.000E+00	5.775E+00	0.000E+00
Mercury							
	EU 001	PER 003		3.000E-04	1.400E-03	1.400E-03	
	EU 002	PER 003		3.000E-04	1.400E-03	1.400E-03	
	EU 003	PER 003		3.000E-04	1.400E-03	1.400E-03	
	EU 004	PER 003		3.000E-04	1.400E-03	1.400E-03	
Totals					5.600E-03	5.600E-03	0.000E+00
Mercury Compounds							
	EU 001	PER 004		3.000E-04	1.400E-03	1.400E-03	
	EU 002	PER 004		3.000E-04	1.400E-03	1.400E-03	
	EU 003	PER 004		3.000E-04	1.400E-03	1.400E-03	
	EU 004	PER 004		3.000E-04	1.400E-03	1.400E-03	
Totals					5.600E-03	5.600E-03	0.000E+00
Propylene oxide							
	EU 001	PER 003		7.800E-03	3.410E-02	3.410E-02	
	EU 001	PER 004		7.800E-03	3.410E-02	3.410E-02	
	EU 002	PER 003		7.800E-03	3.410E-02	3.410E-02	
	EU 002	PER 004		7.800E-03	3.410E-02	3.410E-02	
	EU 003	PER 003		7.800E-03	3.410E-02	3.410E-02	
	EU 003	PER 004		7.800E-03	3.410E-02	3.410E-02	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Propylene oxide							
	EU 004	PER 003		7.800E-03	3.410E-02	3.410E-02	
	EU 004	PER 004		7.800E-03	3.410E-02	3.410E-02	
Totals					1.364E-01	1.364E-01	0.000E+00
Toluene							
	EU 001	PER 003		3.490E-02	1.529E-01	1.529E-01	
	EU 001	PER 004		3.490E-02	1.529E-01	1.529E-01	
	EU 002	PER 003		3.490E-02	1.529E-01	1.529E-01	
	EU 002	PER 004		3.490E-02	1.529E-01	1.529E-01	
	EU 003	PER 003		3.490E-02	1.529E-01	1.529E-01	
	EU 003	PER 004		3.490E-02	1.529E-01	1.529E-01	
	EU 004	PER 003		3.490E-02	1.529E-01	1.529E-01	
	EU 004	PER 004		3.490E-02	1.529E-01	1.529E-01	
	EU 006	PER 004		4.000E-04	1.700E-03	1.000E-04	
	EU 007	PER 004		9.000E-04	3.800E-03	3.800E-03	
	EU 008	PER 004		9.000E-04	3.800E-03	3.800E-03	
	EU 009	PER 004		9.000E-04	3.800E-03	3.800E-03	
	EU 010	PER 004		9.000E-04	3.800E-03	3.800E-03	
Totals					6.285E-01	6.269E-01	0.000E+00
Xylenes (mixed isomers)							
	EU 001	PER 003		1.720E-02	7.530E-02	7.530E-02	
	EU 001	PER 004		1.720E-02	7.530E-02	7.530E-02	
	EU 002	PER 003		1.720E-02	7.530E-02	7.530E-02	
	EU 002	PER 004		1.720E-02	7.530E-02	7.530E-02	
	EU 003	PER 003		1.720E-02	7.530E-02	7.530E-02	
	EU 003	PER 004		1.720E-02	7.530E-02	7.530E-02	
	EU 004	PER 003		1.720E-02	7.530E-02	7.530E-02	
	EU 004	PER 004		1.720E-02	7.530E-02	7.530E-02	
	EU 006	PER 004		3.000E-04	1.200E-03	1.000E-04	
	EU 007	PER 004		6.000E-04	2.600E-03	2.600E-03	
	EU 008	PER 004		6.000E-04	2.600E-03	2.600E-03	
	EU 009	PER 004		6.000E-04	2.600E-03	2.600E-03	
	EU 010	PER 004		6.000E-04	2.600E-03	2.600E-03	
Totals					3.128E-01	3.117E-01	0.000E+00
Manganese compounds							
	EU 001	PER 003		2.037E-01	8.922E-01	8.922E-01	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Manganese compounds							
	EU 001	PER 004		2.037E-01	8.922E-01	8.922E-01	
	EU 002	PER 003		2.037E-01	8.922E-01	8.922E-01	
	EU 002	PER 004		2.037E-01	8.922E-01	8.922E-01	
	EU 003	PER 003		2.037E-01	8.922E-01	8.922E-01	
	EU 003	PER 004		2.037E-01	8.922E-01	8.922E-01	
	EU 004	PER 003		2.037E-01	8.922E-01	8.922E-01	
	EU 004	PER 004		2.037E-01	8.922E-01	8.922E-01	
Totals					3.569E+00	3.569E+00	0.000E+00
Total Polycyclic aromatic hydr							
	EU 001	PER 003		1.030E-02	4.520E-02	4.520E-02	
	EU 002	PER 003		1.030E-02	4.520E-02	4.520E-02	
	EU 003	PER 003		1.030E-02	4.520E-02	4.520E-02	
	EU 004	PER 003		1.030E-02	4.520E-02	4.520E-02	
Totals					1.808E-01	1.808E-01	0.000E+00
Nickel compounds							
	EU 001	PER 003		1.200E-03	5.200E-03	5.200E-03	
	EU 001	PER 004		1.200E-03	5.200E-03	5.200E-03	
	EU 002	PER 003		1.200E-03	5.200E-03	5.200E-03	
	EU 002	PER 004		1.200E-03	5.200E-03	5.200E-03	
	EU 003	PER 003		1.200E-03	5.200E-03	5.200E-03	
	EU 003	PER 004		1.200E-03	5.200E-03	5.200E-03	
	EU 004	PER 003		1.200E-03	5.200E-03	5.200E-03	
	EU 004	PER 004		1.200E-03	5.200E-03	5.200E-03	
Totals					2.080E-02	2.080E-02	0.000E+00
Nitrogen Oxides							
	EU 001	PER 003		2.270E+02	9.940E+02	9.940E+02	
	EU 001	PER 004		2.269E+02	9.938E+02	9.938E+02	
	EU 002	PER 003		2.270E+02	9.940E+02	9.940E+02	
	EU 002	PER 004		2.269E+02	9.938E+02	9.938E+02	
	EU 003	PER 003		2.270E+02	9.940E+02	9.940E+02	
	EU 003	PER 004		2.269E+02	9.938E+02	9.938E+02	
	EU 004	PER 003		2.270E+02	9.940E+02	9.940E+02	
	EU 004	PER 004		2.269E+02	9.938E+02	9.938E+02	
	EU 006	PER 004		4.290E+00	1.879E+01	1.070E+00	
	EU 007	PER 004		9.260E+00	4.056E+01	4.056E+01	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Nitrogen Oxides							
	EU 008	PER 004		9.260E+00	4.056E+01	4.056E+01	
	EU 009	PER 004		9.260E+00	4.056E+01	4.056E+01	
	EU 010	PER 004		9.260E+00	4.056E+01	4.056E+01	
Totals					4.156E+03	4.139E+03	0.000E+00
PM < 2.5 micron							
	EU 001	PER 004		3.094E+00	1.355E+01	1.355E+01	
	EU 002	PER 004		3.094E+00	1.355E+01	1.355E+01	
	EU 003	PER 004		3.094E+00	1.355E+01	1.355E+01	
	EU 004	PER 004		3.094E+00	1.355E+01	1.355E+01	
	EU 006	PER 004		3.016E-01	1.321E+00	7.541E-02	
	EU 007	PER 004		6.510E-01	2.851E+00	2.851E+00	
	EU 008	PER 004		6.510E-01	2.851E+00	2.851E+00	
	EU 009	PER 004		6.510E-01	2.851E+00	2.851E+00	
	EU 010	PER 004		6.510E-01	2.851E+00	2.851E+00	
Totals					6.693E+01	6.569E+01	0.000E+00
Lead							
	EU 001	PER 003		3.600E-03	1.580E-02	1.580E-02	
	EU 001	PER 004		3.600E-03	1.580E-02	1.580E-02	
	EU 002	PER 003		3.600E-03	1.580E-02	1.580E-02	
	EU 002	PER 004		3.600E-03	1.580E-02	1.580E-02	
	EU 003	PER 003		3.600E-03	1.580E-02	1.580E-02	
	EU 003	PER 004		3.600E-03	1.580E-02	1.580E-02	
	EU 004	PER 003		3.600E-03	1.580E-02	1.580E-02	
	EU 004	PER 004		3.600E-03	1.580E-02	1.580E-02	
Totals					6.320E-02	6.320E-02	0.000E+00
PM < 10 micron							
	EU 001	PER 003		3.090E+00	1.360E+01	1.360E+01	
	EU 001	PER 004		3.094E+00	1.355E+01	1.355E+01	
	EU 002	PER 003		3.090E+00	1.360E+01	1.360E+01	
	EU 002	PER 004		3.094E+00	1.355E+01	1.355E+01	
	EU 003	PER 003		3.090E+00	1.360E+01	1.360E+01	
	EU 003	PER 004		3.094E+00	1.355E+01	1.355E+01	
	EU 004	PER 003		3.090E+00	1.360E+01	1.360E+01	
	EU 004	PER 004		3.094E+00	1.355E+01	1.355E+01	
	EU 006	PER 004		3.016E-01	1.321E+00	7.500E-02	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
PM < 10 micron							
	EU 007	PER 004		6.510E-01	2.851E+00	2.851E+00	
	EU 008	PER 004		6.510E-01	2.851E+00	2.851E+00	
	EU 009	PER 004		6.510E-01	2.851E+00	2.851E+00	
	EU 010	PER 004		6.510E-01	2.851E+00	2.851E+00	
Totals					6.693E+01	6.569E+01	0.000E+00
Polycyclic organic matter							
	EU 001	PER 004		1.030E-02	4.520E-02	4.520E-02	
	EU 002	PER 004		1.030E-02	4.520E-02	4.520E-02	
	EU 003	PER 004		1.030E-02	4.520E-02	4.520E-02	
	EU 004	PER 004		1.030E-02	4.520E-02	4.520E-02	
	EU 006	PER 004		2.000E-04	7.000E-04	4.000E-05	
	EU 007	PER 004		4.000E-04	1.500E-03	1.500E-03	
	EU 008	PER 004		4.000E-04	1.500E-03	1.500E-03	
	EU 009	PER 004		4.000E-04	1.500E-03	1.500E-03	
	EU 010	PER 004		4.000E-04	1.500E-03	1.500E-03	
Totals					1.875E-01	1.868E-01	0.000E+00
Total Particulate Matter							
	EU 001	PER 003		3.090E+00	1.355E+01	1.355E+01	
	EU 001	PER 004		3.090E+00	1.355E+01	1.355E+01	
	EU 002	PER 003		3.090E+00	1.355E+01	1.355E+01	
	EU 002	PER 004		3.090E+00	1.355E+01	1.355E+01	
	EU 003	PER 003		3.090E+00	1.355E+01	1.355E+01	
	EU 003	PER 004		3.090E+00	1.355E+01	1.355E+01	
	EU 004	PER 003		3.090E+00	1.355E+01	1.355E+01	
	EU 004	PER 004		3.090E+00	1.355E+01	1.355E+01	
	EU 006	PER 004		3.016E-01	1.321E+00	7.540E-02	
	EU 007	PER 004		6.510E-01	2.851E+00	2.851E+00	
	EU 008	PER 004		6.510E-01	2.851E+00	2.851E+00	
	EU 009	PER 004		6.510E-01	2.851E+00	2.851E+00	
	EU 010	PER 004		6.510E-01	2.851E+00	2.851E+00	
Totals					6.693E+01	6.568E+01	0.000E+00
Selenium compounds							
	EU 001	PER 003		6.400E-03	2.820E-02	2.820E-02	
	EU 001	PER 004		6.400E-03	2.820E-02	2.820E-02	
	EU 002	PER 003		6.400E-03	2.820E-02	2.820E-02	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Selenium compounds							
	EU 002	PER 004		6.400E-03	2.820E-02	2.820E-02	
	EU 003	PER 003		6.400E-03	2.820E-02	2.820E-02	
	EU 003	PER 004		6.400E-03	2.820E-02	2.820E-02	
	EU 004	PER 003		6.400E-03	2.820E-02	2.820E-02	
	EU 004	PER 004		6.400E-03	2.820E-02	2.820E-02	
Totals					1.128E-01	1.128E-01	0.000E+00
Sulfur Dioxide							
	EU 001	PER 003		1.302E+02	5.703E+02	5.703E+02	
	EU 001	PER 004		1.276E+02	5.589E+02	5.589E+02	
	EU 002	PER 003		1.302E+02	5.703E+02	5.703E+02	
	EU 002	PER 004		1.276E+02	5.589E+02	5.589E+02	
	EU 003	PER 003		1.302E+02	5.703E+02	5.703E+02	
	EU 003	PER 004		1.276E+02	5.589E+02	5.589E+02	
	EU 004	PER 003		1.302E+02	5.703E+02	5.703E+02	
	EU 004	PER 004		1.276E+02	5.589E+02	5.589E+02	
	EU 006	PER 004		4.910E-02	2.152E-01	1.228E-02	
	EU 007	PER 004		1.061E-01	4.645E-01	4.645E-01	
	EU 008	PER 004		1.061E-01	4.645E-01	4.645E-01	
	EU 009	PER 004		1.061E-01	4.645E-01	4.645E-01	
	EU 010	PER 004		1.061E-01	4.645E-01	4.645E-01	
Totals					2.238E+03	2.237E+03	0.000E+00
Volatile Organic Compounds							
	EU 001	PER 003		5.600E-01	2.470E+00	2.470E+00	
	EU 001	PER 004		5.639E-01	2.470E+00	2.470E+00	
	EU 002	PER 003		5.600E-01	2.470E+00	2.470E+00	
	EU 002	PER 004		5.639E-01	2.470E+00	2.470E+00	
	EU 003	PER 003		5.600E-01	2.470E+00	2.470E+00	
	EU 003	PER 004		5.639E-01	2.470E+00	2.470E+00	
	EU 004	PER 003		5.600E-01	2.470E+00	2.470E+00	
	EU 004	PER 004		5.639E-01	2.470E+00	2.470E+00	
	EU 006	PER 004		3.503E-01	1.534E+00	8.760E-02	
	EU 007	PER 004		7.560E-01	3.311E+00	3.311E+00	
	EU 008	PER 004		7.560E-01	3.311E+00	3.311E+00	
	EU 009	PER 004		7.560E-01	3.311E+00	3.311E+00	

FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 00900021

Facility Name: Xcel Energy - Granite City Generating

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
Volatile Organic Compounds							
	EU 010	PER 004		7.560E-01	3.311E+00	3.311E+00	
Totals					2.466E+01	2.321E+01	0.000E+00



COMPLIANCE PLAN **CD-01**

Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

Subject Item: Total Facility

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	SOURCE-SPECIFIC REQUIREMENTS
2.0		CD	Minn. R. 7007.0800, subp. 2	Permit Appendix: This permit contains an appendix as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in the appendix.
3.0		CD	hdr	DETERMINING IF A PROJECT/MODIFICATION IS SUBJECT TO NSR
4.0		CD	Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	<p>These requirements apply if a reasonable possibility (RP) as defined in 40 CFR Section 52.21(r)(6)(vi) exists that a proposed project, analyzed using the actual-to-projected-actual (ATPA) test (either by itself or as part of the hybrid test at Section 52.21(a)(2)(iv)(f)) and found to not be part of a major modification, may result in a significant emissions increase (SEI). If the ATPA test is not used for the project, or if there is no RP that the proposed project could result in a SEI, these requirements do not apply to that project. The Permittee is only subject to the Preconstruction Documentation requirement for a project where a RP occurs only within the meaning of Section 52.21(r)(6)(vi)(b).</p> <p>Even though a particular modification is not subject to New Source Review (NSR), or where there isn't a RP that a proposed project could result in a SEI, a permit amendment, recordkeeping, or notification may still be required by Minn. R. 7007.1150 - 7007.1500.</p>
5.0		CD	Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.1200, subp. 4; Minn. R. 7007.0800, subps. 4 & 5	<p>Preconstruction Documentation -- Before beginning actual construction on a project, the Permittee shall document the following:</p> <ol style="list-style-type: none"> 1. Project description 2. Identification of any emission unit (EU) whose emissions of an NSR pollutant could be affected 3. Pre-change potential emissions of any affected existing EU, and the projected post-change potential emissions of any affected existing or new EU. 4. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded due to increases not associated with the modification and that the EU could have accommodated during the baseline period, an explanation of why the amounts were excluded, and any creditable contemporaneous increases and decreases that were considered in the determination. <p>The Permittee shall maintain records of this documentation.</p>
6.0		CD	Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5	The Permittee shall monitor the actual emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using the ATPA test, and the potential emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using potential emissions in the hybrid test. The Permittee shall calculate and maintain a record of the sum of the actual and potential (if the hybrid test was used in the analysis) emissions of the regulated pollutant, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit of any unit associated with the project.
7.0		CD	Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5	<p>The Permittee must submit a report to the Agency if the annual summed (actual, plus potential if used in hybrid test) emissions differ from the preconstruction projection and exceed the baseline actual emissions by a significant amount as listed at 40 CFR Section 52.21(b)(23). Such report shall be submitted to the Agency within 60 days after the end of the year in which the exceedances occur. The report shall contain:</p> <ol style="list-style-type: none"> a. The name and ID number of the facility, and the name and telephone number of the facility contact person b. The annual emissions (actual, plus potential if any part of the project was analyzed using the hybrid test) for each pollutant for which the preconstruction projection and significant emissions increase are exceeded. c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection.
8.0		CD	hdr	OPERATIONAL REQUIREMENTS



COMPLIANCE PLAN **CD-01**

Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

9.0		CD	40 CFR pt. 50; Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080. Compliance shall be demonstrated upon written request by the MPCA.
10.0		CD	Minn. R. 7011.0020	Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.
11.0		CD	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)	Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated.
12.0		CD	Minn. R. 7007.0800, subps. 14 and 16(J)	Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.
13.0		CD	Minn. R. 7019.1000, subp. 4	Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.
14.0		CD	Minn. R. 7011.0150	Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.
15.0		CD	Minn. R. 7030.0010 - 7030.0080	Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.
16.0		CD	Minn. R. 7007.0800, subp. 9(A)	Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).
17.0		CD	Minn. R. 7007.0800, subp. 16	The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.
18.0		CD	hdr	PERFORMANCE TESTING
19.0		CD	Minn. R. ch. 7017	Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.
20.0		CD	Minn. R. 7017.2018; Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2	<p>Performance Test Notifications and Submittals:</p> <p>Performance Tests are due as outlined in Table A of the permit. See Table B for additional testing requirements.</p> <p>Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test</p> <p>The Notification, Test Plan, and Test Report may be submitted in an alternative format as allowed by Minn. R. 7017.2018.</p>
21.0		CD	Minn. R. 7017.2025, subp. 3	Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change.
22.0		CD	hdr	MONITORING REQUIREMENTS



COMPLIANCE PLAN **CD-01**

Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

23.0		CD	Minn. R. 7007.0800, subp. 4(D)	Monitoring Equipment Calibration: The Permittee shall calibrate all required monitoring equipment at least once every 12 months (any requirements applying to continuous emission monitors are listed separately in this permit).
24.0		CD	Minn. R. 7007.0800, subp. 4(D)	Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.
25.0		CD	hdr	RECORDKEEPING
26.0		CD	Minn. R. 7007.0800, subp. 5(C)	Recordkeeping: Retain all records at the stationary source or another Xcel Energy site for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).
27.0		CD	Minn. R. 7007.0800, subp. 5(B)	Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.
28.0		CD	Minn. R. 7007.1200, subp. 4	If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format.
29.0		CD	hdr	REPORTING/SUBMITTALS
30.0		CD	Minn. R. 7019.1000, subp. 3	Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.
31.0		CD	Minn. R. 7019.1000, subp. 2	Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.
32.0		CD	Minn. R. 7019.1000, subp. 1	Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.



COMPLIANCE PLAN **CD-01**

Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

33.0		CD	Minn. R. 7019.1000, subp. 1	Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.
34.0		S/A	Minn. R. 7007.0800, subp. 6(A)(2)	Semiannual Deviations Report: due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.
35.0		CD	Minn. R. 7007.1150 - 7007.1500	Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.
36.0		S/A	Minn. R. 7007.0400, subp. 2	Application for Permit Reissuance: due 180 days before expiration of Existing Permit
37.0		CD	Minn. R. 7007.1400, subp. 1(H)	Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H).
38.0		S/A	Minn. R. 7007.0800, subp. 6(C)	Compliance Certification: due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). The Permittee shall submit this on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.
39.0		CD	Minn. R. 7019.3000 - 7019.3100	Emission Inventory Report: due on or before April 1 of each calendar year following 11/07/2000, to be submitted on a form approved by the Commissioner.
40.0		CD	Minn. R. 7002.0005 - 7002.0095	Emission Fees: due 30 days after receipt of an MPCA bill.



COMPLIANCE PLAN **CD-01**

Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

Subject Item: GP 001 Combustion Turbines

Associated Items: EU 001 Turbine Engine 1

EU 002 Turbine Engine 2

EU 003 Turbine Engine 3

EU 004 Turbine Engine 4

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	EMISSION LIMITS
2.0		LIMIT	Minn. R. 7011.2300, subp. 1	Opacity: less than or equal to 20 percent opacity
3.0		LIMIT	Minn. R. 7011.2300, subp. 2	Sulfur Dioxide: less than or equal to 0.50 lbs/million Btu heat input (equivalent to a fuel oil sulfur content of 0.49 percent by weight) for each emission unit in GP 001.
4.0		LIMIT	Minn. R. 7005.0100 subp. 35a; Minn. R. 7007.0800, subp. 2	Sulfur Content of Fuel: less than or equal to 0.49 percent by weight for distillate fuel oil.
5.0		CD	hdr	OPERATING CONDITIONS
6.0		CD	Minn. R. 7005.0100, subp. 35a	Fuel type: Natural gas and No. 2 fuel oil only.
7.0		CD	hdr	MONITORING AND RECORDKEEPING REQUIREMENTS
8.0		CD	Minn. R. 7007.0800, subps. 4 & 5	Fuel Sulfur Content Monitoring: The Permittee shall determine fuel sulfur content according to one of the following methods: 1. Test according to current ASTM method(s) and keep records of lab analysis of the sulfur content of each shipment; or 2. Obtain and maintain a fuel supplier certification for each shipment of No. 2 fuel oil, certifying that the sulfur content does not exceed 0.49% by weight.
9.0		CD	Minn. R. 7007.0800, subp. 5	The Permittee shall keep records of fuel type and usage on a monthly basis.
10.0		CD	hdr	See Subject Items EU 001, EU 002, EU 003, and EU 004 for applicable performance testing requirements.



COMPLIANCE PLAN **CD-01**

Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

Subject Item: GP 002 Startup Engines

Associated Items: EU 007 Startup Engine for Turbine Engine 1

EU 008 Startup Engine for Turbine Engine 2

EU 009 Startup Engine for Turbine Engine 3

EU 010 Startup Engine for Turbine Engine 4

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	EMISSION LIMITS
2.0		LIMIT	Minn. R. 7011.2300, subp. 1	Opacity: less than or equal to 20 percent opacity
3.0		LIMIT	Minn. R. 7011.2300, subp. 2	Sulfur Dioxide: less than or equal to 0.50 lbs/million Btu heat input . The potential to emit from the unit is 0.051 lb/MMBtu due to equipment design and allowable fuels.
4.0		LIMIT	Minn. R. 7007.0800, subp. 2	Sulfur Content of Fuel: less than or equal to 0.051 percent by weight for distillate fuel oil.
5.0		CD	hdr	OPERATING CONDITIONS
6.0		CD	Minn. R. 7005.0100, subp. 35a	Fuel type: No. 2 fuel oil only.
7.0		CD	hdr	MONITORING AND RECORDKEEPING REQUIREMENTS
8.0		CD	Minn. R. 7007.0800, subps. 4 & 5	Fuel Sulfur Content Monitoring: The Permittee shall determine fuel sulfur content according to one of the following methods: 1. Test according to current ASTM method(s) and keep records of lab analysis of the sulfur content of each shipment; or 2. Obtain and maintain a fuel supplier certification for each shipment of No. 2 fuel oil, certifying that the sulfur content does not exceed 0.051% by weight.
9.0		CD	Minn. R. 7007.0800, subp. 5	The Permittee shall keep records of fuel type and usage on a monthly basis.
10.0		CD	hdr	NESHAP SUBPART ZZZZ REQUIREMENTS
11.0		CD	40 CFR Section 63.6595(a)(1); Minn. R. 7011.8150	The Permittee shall comply with all applicable emission and operational limitations from 40 CFR pt. 63, subp. ZZZZ no later than May 3, 2013.
12.0		CD	hdr	NESHAP EMISSION AND OPERATIONAL REQUIREMENTS
13.0		CD	40 CFR Section 63.6603(a); 40 CFR pt. 63, subp. ZZZZ, Table 2d; Minn. R. 7011.8150	Change oil and filter every 1,000 hours of operation or annually, whichever comes first, and replace as necessary. The Permittee has the option of utilizing an oil analysis program in order to extend the oil change requirement as described below.
14.0		CD	40 CFR Section 63.6603(a); 40 CFR pt. 63, subp. ZZZZ, Table 2d; Minn. R. 7011.8150	Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.
15.0		CD	40 CFR Section 63.6603(a); 40 CFR pt. 63, subp. ZZZZ, Table 2d; Minn. R. 7011.8150	Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
16.0		CD	40 CFR Section 63.6605(a); Minn. R. 7011.8150	The Permittee shall be in compliance with the emission limitations and operating limitations in this subpart that apply at all times.
17.0		CD	40 CFR Section 63.6605(b); Minn. R. 7011.8150	At all times, the Permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
18.0		CD	40 CFR Section 63.6625 (e); Minn. R. 7011.8150	The Permittee shall operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.



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19.0		CD	40 CFR Section 63.6625(h); Minn. R. 7011.8150	The Permittee shall minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.
20.0		CD	40 CFR Section 63.6625(i); Minn. R. 7011.8150	The Permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement. The oil analysis must be performed at the same frequency specified for changing the oil. The analysis program must at a minimum analyze the following 3 parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. (continued below)
21.0		CD	40 CFR Section 63.6625(i); Minn. R. 7011.8150	(continued from above) If none of the condemning limits are exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.
22.0		CD	40 CFR Section 63.6640(a); 40 CFR pt. 63 subp. ZZZZ, Table 6; Minn. R. 7011.8150	The Permittee shall operate and maintain the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or the Permittee shall develop and follow a maintenance plan which shall provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
23.0		CD	40 CFR Section 63.6665 and Table 8 to Subpart ZZZZ of Part 63; 40 CFR Section 63.1 - 63.15; Minn. R. 7011.8150; Minn. R. 7011.7000	The Permittee shall comply with the General Provisions in 40 CFR Section 63.1 through 63.15, as applicable.
24.0		CD	40 CFR Section 63.4(a); Minn. R. 7011.7000	The Permittee may not operate any affected source in violation of the requirements of 40 CFR pt. 63, subp. A. The Permittee shall not fail to keep records, notify, report or revise reports as required under this part.
25.0		CD	40 CFR Section 63.4(b); Minn. R. 7011.7000	The Permittee shall not build, erect, install, or use any article, machine, equipment, or process to conceal an emission that would otherwise constitute noncompliance with a relevant standard. Such concealment includes, but is not limited to: 1. The use of diluents to achieve compliance with a relevant standard based on the concentration of a pollutant in the effluent discharged to the atmosphere; 2. The use of gaseous diluents to achieve compliance with a relevant standard for visible emissions
26.0		CD	hdr	NESHAP RECORDKEEPING
27.0		CD	40 CFR Section 63.6640(a); 40 CFR Section 63.6655(d); 40 CFR pt. 63, subp. ZZZZ, Table 6; Minn. R. 7011.8150	The Permittee shall demonstrate continuous compliance with each emission limitation and operating limitation in Table 2d of 40 CFR pt. 63, subp. ZZZZ that apply according to methods specified in Table 6 of 40 CFR pt. 63, subp. ZZZZ.
28.0		CD	40 CFR Section 63.6655(e); Minn. R. 7011.8150	The Permittee shall keep records of the maintenance conducted on the stationary RICE in order to demonstrate that the Permittee operated and maintained the stationary RICE and after-treatment control device (if any) according to the maintenance plan.
29.0		CD	40 CFR Section 63.6660; 40 CFR Section 63.10(b)(1); Minn. R. 7011.8150	The Permittee shall keep records in a form suitable and readily available for expeditious review according to 40 CFR Section 63.10(b)(1). As specified in 40 CFR Section 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record.
30.0		CD	hdr	NESHAP REPORTING REQUIREMENTS



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31.0		CD	40 CFR Section 63.6640(b); Minn. R. 7011.8150	The Permittee shall report each instance in which the stationary RICE did not meet each applicable emission limitation or operating limitation. These instances are deviations from the emission and operating limitations. These deviations shall be reported according to the requirements in 40 CFR Section 63.6650.
32.0		CD	40 CFR Section 63.6640(e); 40 CFR pt. 63, subp. ZZZZ, Table 8; Minn. R. 7011.8150	The Permittee shall report each instance when the applicable requirements in Table 8 of 40 CFR pt. 63, subp. ZZZZ were not met.



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Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

Subject Item: EU 001 Turbine Engine 1

Associated Items: GP 001 Combustion Turbines

SV 001 Turbine Engine 1

	NC/ CA	Type	Citation	Requirement
1.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due 365 days after Permit Issuance to measure EU 001 opacity while combusting fuel oil. For additional applicable performance test requirements, see "Performance Test Notifications and Submittals" in Table A, Subject Item "Total Facility".



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Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

Subject Item: EU 002 Turbine Engine 2

Associated Items: GP 001 Combustion Turbines

SV 002 Turbine Engine 2

	NC/ CA	Type	Citation	Requirement
1.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due 365 days after Permit Issuance to measure EU 002 opacity while combusting fuel oil. For additional applicable performance test requirements, see "Performance Test Notifications and Submittals" in Table A, Subject Item "Total Facility".



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Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

Subject Item: EU 003 Turbine Engine 3

Associated Items: GP 001 Combustion Turbines

SV 003 Turbine Engine 3

	NC/ CA	Type	Citation	Requirement
1.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due 365 days after Permit Issuance to measure EU 003 opacity while combusting fuel oil. For additional applicable performance test requirements, see "Performance Test Notifications and Submittals" in Table A, Subject Item "Total Facility".



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Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

Subject Item: EU 004 Turbine Engine 4

Associated Items: GP 001 Combustion Turbines

SV 004 Turbine Engine 4

	NC/ CA	Type	Citation	Requirement
1.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due 365 days after Permit Issuance to measure EU 004 opacity while combusting fuel oil. For additional applicable performance test requirements, see "Performance Test Notifications and Submittals" in Table A, Subject Item "Total Facility".



COMPLIANCE PLAN **CD-01**

Facility Name: Xcel Energy - Granite City Generating

Permit Number: 00900021 - 004

Subject Item: EU 006 Emergency Engine - Generator at Substation

Associated Items: SV 005 Emergency Engine - Generator at Substation (EU 006)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	EMISSION LIMITS
2.0		LIMIT	Minn. R. 7011.2300, subp. 1	Opacity: less than or equal to 20 percent opacity
3.0		LIMIT	Minn. R. 7011.2300, subp. 2	Sulfur Dioxide: less than or equal to 0.50 lbs/million Btu heat input . The potential to emit from the unit is 0.051 lb/MMBtu due to equipment design and allowable fuels.
4.0		LIMIT	Minn. R. 7007.0800, subp. 2	Sulfur Content of Fuel: less than or equal to 0.051 percent by weight for distillate fuel oil.
5.0		CD	hdr	OPERATING CONDITIONS
6.0		CD	Minn. R. 7005.0100, subp. 35a	Fuel type: No. 2 fuel oil only.
7.0		CD	hdr	MONITORING AND RECORDKEEPING REQUIREMENTS
8.0		CD	Minn. R. 7007.0800, subps. 4 & 5	Fuel Sulfur Content Monitoring: The Permittee shall determine fuel sulfur content according to one of the following methods: 1. Test according to current ASTM method(s) and keep records of lab analysis of the sulfur content of each shipment; or 2. Obtain and maintain a fuel supplier certification for each shipment of No. 2 fuel oil, certifying that the sulfur content does not exceed 0.49% by weight.
9.0		CD	Minn. R. 7007.0800, subp. 5	The Permittee shall keep records of fuel type and usage on a monthly basis.
10.0		CD	hdr	NESHAP SUBPART ZZZZ REQUIREMENTS
11.0		CD	40 CFR Section 63.6595(a)(1); Minn. R. 7011.8150	The Permittee shall comply with all applicable emission and operational limitations from 40 CFR pt. 63, subp. ZZZZ no later than May 3, 2013.
12.0		CD	hdr	NESHAP EMISSION AND OPERATIONAL REQUIREMENTS
13.0		CD	40 CFR Section 63.6603; 40 CFR Section 63.6640; and Table 2d to subpart ZZZZ of Part 63; Minn. R. 7011.8150	Change oil and filter every 500 hours of operation or annually, whichever comes first. The Permittee has the option of utilizing an oil analysis program in order to extend the oil change requirement as described below.
14.0		CD	40 CFR Section 63.6603; 40 CFR Section 63.6640; and Table 2d to subpart ZZZZ of Part 63; Minn. R. 7011.8150	Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.
15.0		CD	40 CFR Section 63.6603; 40 CFR Section 63.6640; and Table 2d to subpart ZZZZ of Part 63; Minn. R. 7011.8150	Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
16.0		CD	40 CFR Section 63.6605(a); Minn. R. 7011.8150	The Permittee shall be in compliance with the operating limitations that apply at all times.
17.0		CD	40 CFR Section 63.6605(b); Minn. R. 7011.8150	At all times the Permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
18.0		CD	40 CFR Section 63.6625(e); Minn. R. 7011.8150	The Permittee shall operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop a maintenance plan which shall provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
19.0		CD	40 CFR Section 63.6625(f); Minn. R. 7011.8150	The Permittee shall install a non-resettable hour meter if one is not already installed by May 3, 2013.



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20.0		CD	40 CFR Section 63.6625(h); Minn. R. 7011.8150	The Permittee shall minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup apply.
21.0		CD	40 CFR Section 63.6625(i); Minn. R. 7011.8150	The Permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement. The oil analysis shall be performed at the same frequency specified for changing the oil. The analysis program shall at a minimum analyze the following 3 parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. (continued below)
22.0		CD	40 CFR Section 63.6625(i); Minn. R. 7011.8150	(continued from above) If none of the condemning limits are exceeded, the Permittee is not required to change the oil. If any of the limits are exceeded, the Permittee shall change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the Permittee shall change the oil within 2 days or before commencing operation, whichever is later. The Permittee shall keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program shall be part of the maintenance plan for the engine.
23.0		CD	40 CFR Section 63.6640(a); 40 CFR pt. 63 subp. ZZZZ, Table 6; Minn. R. 7011.8150	The Permittee shall operate and maintain the stationary RICE according to the manufacture's emission related operation and maintenance instructions; or the Permittee shall develop and follow a maintenance plan which shall provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
24.0		CD	40 CFR Section 63.6665 and Table 8 to Subpart ZZZZ of Part 63; 40 CFR Section 63.1 - 63.15; Minn. R. 7011.8150	The Permittee shall comply with the General Provisions in 40 CFR Section 63.1 through 63.15, as stated in 40 CFR pt. 63, subp. ZZZZ, Table 8, as applicable.
25.0		CD	40 CFR Section 63.4(a)	The Permittee shall comply with the Applicable Provisions in 40 CFR pt. 63, subp. A, as required by Table 8 of 40 CFR pt. 63, subp. ZZZZ.
26.0		CD	40 CFR Section 63.6665; 40 CFR Section 63.4(b); Minn. R. 7011.7000	The Permittee shall not build, erect, install, or use any article, machine, equipment, or process to conceal an emission that would otherwise constitute noncompliance with a relevant standard. Such concealment includes, but is not limited to: 1. The use of diluents to achieve compliance with a relevant standard based on the concentration of a pollutant in the effluent discharged to the atmosphere; 2. The use of gaseous diluents to achieve compliance with a relevant standard for visible emissions.
27.0		CD	hdr	NESHAP REQUIREMENTS FOR EMERGENCY STATIONARY RICE
28.0		CD	40 CFR Section 63.6640(f)(1); Minn. R. 7011.8150	The Permittee shall operate the emergency stationary RICE according to the requirements in paragraphs 40 CFR Section 63.6640 (f)(1)(i) through (iii). Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR Section 63.6640(f)(i) through (iii), is prohibited. If the engine is not operated according to the requirements in 40 CFR Section 63.6640(f)(1)(i) through (iii), the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines.
29.0		CD	40 CFR Section 63.6640(f)(1)(i) - (ii); Minn. R. 7011.8150	(i) There is no time limit on the use of emergency stationary RICE in emergency situations. (ii) The Permittee shall operate the emergency stationary RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. The Permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indication that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per year.



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Permit Number: 00900021 - 004

30.0		CD	40 CFR Section 63.6640(f)(1)(iii); Minn. R. 7011.8150	(iii) The Permittee shall operate the emergency stationary RICE up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity; except that the Permittee may operate the emergency engine for a maximum of 15 hours per year as part of a demand response program if the regional transmission organization or equivalent balancing authority and transmission operator has determined there are emergency conditions that could lead to a potential electrical blackout, such as unusually low frequency, equipment overload, capacity or energy deficiency, or unacceptable voltage level. (continued below)
31.0		CD	40 CFR Section 63.6640(f)(1)(iii); Minn. R. 7011.8150	(continued from above) The engine may not be operated for more than 30 minutes prior to the time when the emergency condition is expected to occur, and the engine operation shall be terminated immediately after the facility is notified that the emergency condition is no longer imminent. The 15 hours per year of demand response operation are counted as part of the 50 hours of operation per year provided for non-emergency situations. The supply of emergency power to another entity or entities pursuant to financial arrangement is not limited by this paragraph (f)(1)(iii), as long as the power provided by the financial arrangement is limited to emergency power.
32.0		CD	hdr	NESHAP RECORDKEEPING REQUIREMENTS
33.0		CD	40 CFR Section 63.6640(a); Minn. R. 7011.8150	The Permittee shall keep the following records: 1. A copy of each notification and report submitted to comply with 40 CFR pt. 63, subp. ZZZZ, including all documentation supporting any Initial Notification or Notification of Compliance Status submitted according to the requirement in 40 CFR Section 63.10(b)(2)(xiv). 2. Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. 3. Records of performance tests and performance evaluations as required in 40 CFR Section 63.10(b)(2)(viii). 4. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR Section 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.
34.0		CD	40 CFR Section 63.6655(e); Minn. R. 7011.8150	The Permittee shall keep records of the maintenance conducted on the stationary RICE in order to demonstrate that the Permittee operated and maintained the stationary RICE and after-treatment control device (if any) according to the maintenance plan.
35.0		CD	40 CFR Section 63.6655(f); Minn. R. 7011.8150	The Permittee shall keep records of the hours of operation of the engine that are recorded through the non-resettable hour meter. The Permittee shall document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for demand response operation, the Permittee shall keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response.
36.0		CD	40 CFR Section 63.6660; 40 CFR Section 63.10(b)(1); Minn. R. 7011.8150	The Permittee shall keep records in a form suitable and readily available for expeditious review according to 40 CFR Section 63.10(b)(1). As specified in 40 CFR Section 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record.
37.0		CD	hdr	NESHAP REPORTING AND NOTIFICATION REQUIREMENTS
38.0		CD	40 CFR Section 63.6640(b); Minn. R. 7011.8150	The Permittee shall report each instance in which the stationary RICE did not meet each applicable operating limitation. These instances are deviations from the emission and operating limitations. These deviations shall be reported with the deviations report required by Table A (listed at the Total Facility level) and Table B of this permit.

Xcel Energy – Granite City Generating
Permit No. 00900021-004
Technical Support Document

Attachment 4

Points Calculator

Points Calculator

1) AQ Facility ID No.: 00900021
 2) Facility Name: Xcel Energy - Granite City Generating Plant
 3) Small business? y/n? No.
 4) DQ Numbers (including all rolled) : 3924
 5) Date of each Application Received: 05/04/2012
 6) Final Permit No. 00900021-004
 7) Permit Staff Cassandra Meyer
 8) "Work completed" in which .xls file (i.e. unit 2b, unit 1a, biofuels)?

Total Points 0

<u>Application Type</u>	<u>DQ No.</u>	<u>Qty.</u>	<u>Points</u>	<u>Total Points</u>	<u>Details</u>
Administrative Amendment			1	0	
Minor Amendment			4	0	
Applicability Request			10	0	
Moderate Amendment			15	0	
Major Amendment			25	0	
Individual State Permit (not reissuance)			50	0	
Individual Part 70 Permit (not reissuance)			75	0	

Additional Points

Modeling Review			15	0
BACT Review			15	0
LAER Review			15	0
CAIR/Part 75 CEM analysis			10	0
NSPS Review			10	0
NESHAP Review			10	0
Case-by-case MACT Review			20	0
Netting			10	0
Limits to remain below threshold			10	0
Plantwide Applicability Limit (PAL)			20	0
AERA review			15	0
Variance request under 7000.7000			35	0
Confidentiality request under 7000.1300			2	0
<u>EAW review</u>				
Part 4410.4300, subparts 18, item A; and 29			15	0
Part 4410.4300, subparts 8, items A & B; 10, items A to C; 16, items A & D; 17, items A to C & E to G; and 18, items B & C			35	0
Part 4410.4300, subparts 4; 5 items A & B; 13; 15; 16, items B & C; and 17 item D			70	0
			Add'l Points	0

NOTES:

This is a Title V reissuance. There are no application fees or additional points to be charged.