From: Sim Deshpande <sdeshpande@ramboll.com>
Subject: RE: Information Request - GA App. 29947 - VoltaGrid
To: Lagunas, Alexander <alexander.lagunas@dnr.ga.gov>
Cc: Korby Bracken <korby.bracken@voltagrid.com>; Scott Weaver <MSWeaver@ramboll.com>
Sent: December 18, 2025 4:38 PM (UTC+00:00)
Attached: Pages from volt-25-sanantonio.tx-eng#2-Report-2.pdf, App B - ATL-1 Emissions Calculations_12-17-2025_HCHO at 0.022 lb_hr.pdf, CO and Formaldehyde SAT-1 test summary.xlsx

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning, Alexander –

Please see our responses to your comments in blue.

1. The test data from the formaldehyde emissions for the J620 engines in Texas, as mentioned in the Notes of Table 2 of Appendix B. There is a concern that formaldehyde is underestimated as the recent AP-42 values for formaldehyde for a single engine is approximately 1.37 lb/hr and a final value of 0.069 lb/hr after the 95% efficiency, compared to the 0.015 lb/hr used. This is a significant difference. If the 0.015 lb/hr is not justifiable, the facility will be required to redo its potential emissions. Preliminary calculations indicate that the facility would be a major source of formaldehyde, requesting either a Title V application, a formaldehyde limit, or a performance test to verify the formaldehyde emission rate. In addition, modeling would be required, and possibly extensive modeling.

Based on this comment from the GA EPD, VoltaGrid requests that the formaldehyde emission rate for the Jenbacher J620 engines at the ATL-1 site be set at **0.022 lb/hr** (after addition of the safety factor) to give VoltaGrid more compliance margin than allowed in the previously requested limit of 0.015 lb/hr. See attached the revised Appendix B (*App B - ATL-1 Emissions Calculations_12-17-2025_HCHO at 0.022 lb_hr.pdf*) for reference.
Based on recent testing conducted on Jenbacher J620 engines at the VoltaGrid site in San Antonio (designated as SAT-1; *Pages from volt-25-sanantonio.tx-eng#2-Report-2.pdf*), we believe that a controlled emission rate of 0.022 lb/hr is defensible and allows VoltaGrid adequate compliance margin while maintaining the area source status of ATL-1 (facility-wide formaldehyde emissions <= 10 tons/year).
Six (6) J620 units were tested as part of the SAT-1 test program and their formaldehyde ppmvd and lb/MMBtu results are presented in the attached Excel file (*CO and Formaldehyde SAT-1 test summary.xlsx*). The maximum hourly formaldehyde emission rate from the units' testing is 0.015 lb/hr which is below the proposed ATL-1 formaldehyde emission rate of 0.022 lb/hr. VoltaGrid proposes to conduct performance testing to demonstrate compliance with this proposed emission rate.

2. Justification for the 5% safety factor for CO, inconsistent with the 20% for all other criteria pollutants.

Based on SAT-1 testing conducted on Jenbacher J620 engines, we believe that a post-control emission rate of 0.65 lb/hr (which includes a 5% safety factor) is defensible and allows VoltaGrid adequate compliance margin while maintaining the facility-wide annual CO emissions below the Title V threshold of 100 tons/year. The CO ppmvd and lb/MMBtu results for the 6 x J620 units that were tested as part of the SAT-1 test program are presented in the attached Excel file (*CO and Formaldehyde SAT-1 test summary.xlsx*). The maximum hourly CO emission rate from the units' testing is 0.313 lb/hr which is well below the proposed CO lb/hr emission rate of 0.65 lb/hr.[1] VoltaGrid proposes to conduct performance testing to demonstrate compliance with this proposed emission rate.

Please let me know if a call would be helpful to walk through these items. Thanks!

Kind regards
Sim Deshpande

Senior Managing Consultant

D +1-978-449-0304
M +1-508-314-0828
sdeshpande@ramboll.com

Ramboll
One Technology Park Drive
Westford, MA 01886
https://ramboll.com

Classification: Confidential

From: Lagunas, Alexander <alexander.lagunas@dnr.ga.gov>
Sent: Tuesday, December 16, 2025 3:27 PM
To: Sim Deshpande <sdeshpande@ramboll.com>
Cc: Korby Bracken <korby.bracken@voltagrid.com>; Scott Weaver <msweaver@ramboll.com>
Subject: Information Request - GA App. 29947 - VoltaGrid

Hello Sim,

I am requesting the following information.

1. The test data from the formaldehyde emissions for the J620 engines in Texas, as mentioned in the Notes of Table 2 of Appendix B. There is a concern that formaldehyde is underestimated as the recent AP-42 values for formaldehyde for a single engine is approximately 1.37 lb/hr and a final value of 0.069 lb/hr after the 95% efficiency, compared to the 0.015 lb/hr used. This is a significant difference. If the 0.015 lb/hr is not justifiable, the facility will be required to redo its potential emissions. Preliminary calculations indicate that the facility would be a major source of formaldehyde, requesting either a Title V application, a formaldehyde limit, or a performance test to verify the formaldehyde emission rate. In addition, modeling would be required, and possibly extensive modeling.

2. Justification for the 5% safety factor for CO, inconsistent with the 20% for all other criteria pollutants.

Alexander Lagunas
Environmental Engineer
Environmental Protection Division
O: (470) 524-0559

A division of the
GEORGIA DEPARTMENT OF NATURAL RESOURCES

[1] NOTE: Unit 2 showed an outlet (post-control) CO concentration of 22.39 ppmvd which appears to be suspect given that all other post-control CO concentration values were under 10 ppmvd. As such, that value has been removed from consideration for the proposed CO lb/hr limit for ATL-1.

STACK EMISSIONS STUDY
FOR THE
JENBACHER, J620, UNITS #2, 6, 7, 8, 9, & 10
PREPARED FOR
VOLTAGRID, LLC
AT THE
SAT-1 EGU
SAN ANTONIO, TEXAS
OCTOBER 7-10, 2025

Report Date: November 13, 2025



Corporate Headquarters
1600 W. Tacoma Street
Broken Arrow, OK 74012

AIR HYGIENE, INC.

(918) 307-8865 or (888) 461-8778
www.airhygiene.com

Remote Testing Offices
Chicago, IL
Shreveport, LA
Las Vegas, NV
Pittsburgh, PA
Fort Worth, TX
Salt Lake City, UT

STACK EMISSIONS STUDY
FOR THE
JENBACHER, J620, UNITS #2, 6, 7, 8, 9, & 10
PREPARED FOR
VOLTAGRID, LLC
AT THE
SAT-1 EGU
SAN ANTONIO, TEXAS
OCTOBER 7-10, 2025

Prepared and Reviewed by:

Darin Grimes
Sr. Testing Solutions Specialist

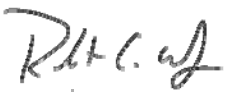
Gavin Dolsky, QI
Staff Engineer – Report Manager

I, _____
Rob White, QSTI
Project Manager
certify that this testing was conducted and this report was created in conformance with the requirements of ASTM D7036

(this page intentionally left blank)

CERTIFICATION OF INFORMATION

I certify under penalty of law that I believe the information provided in this document is true, accurate, and complete. To the best of my knowledge the source test report has been checked for completeness and the results are error-free, legible, and representative of the actual emissions measured during testing. I am aware that there are significant civil and criminal penalties, including the possibility of fine or imprisonment or both, for submitting false, inaccurate, or incomplete information.



Rob White, QSTI
Project Manager
Air Hygiene International, Inc.

November 13, 2025
Date

(this page intentionally left blank)

Table of Contents

1.0 INTRODUCTION 1

1.1 TEST PURPOSE AND OBJECTIVES 1

1.2 SUMMARY OF TEST PROGRAM 1

1.2.1 Participating Organizations 1
1.2.2 Industry 1
1.2.3 Plant Location 1
1.2.4 Equipment Tested 1
1.2.5 Emission Points 1
1.2.6 Emission Parameters Measured 2
1.2.7 Dates of Emission Test 2
1.2.8 Federal and State Certifications 2

1.3 KEY PERSONNEL 2

2.0 SUMMARY OF TEST RESULTS 2

3.0 SOURCE OPERATION 8

3.1 PROCESS DESCRIPTION 8

3.2 SAMPLING LOCATION 8

4.0 SAMPLING AND ANALYTICAL PROCEDURES 9

4.1 TEST METHODS 9

4.2 INSTRUMENT CONFIGURATION AND OPERATIONS FOR GAS ANALYSIS 10

APPENDICES

Appendix A Test Results and Calculations

Appendix B Emission Data Records

Appendix C Calibration Gas Certifications

Appendix D Quality Assurance and Quality Control Data

Appendix E Equipment Calibration Records

Stack Emissions Study
Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10
VoltaGrid, LLC
SAT-1 EGU
San Antonio, Texas
October 7-10, 2025

1.0 INTRODUCTION

Air Hygiene International, Inc. (Air Hygiene) has completed the Stack Emissions Study for nitrogen oxides (NOx), carbon monoxide (CO), total hydrocarbons/volatile organic compounds (THC/VOC), ammonia (NH_3), particulate matter (PM), formaldehyde (HCHO), flow, moisture (H_2O), carbon dioxide (CO_2), and oxygen (O_2) from the exhaust of the Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10 for VoltaGrid, LLC at the SAT-1 EGU near San Antonio, Texas. This report details the background, results, process description, and the sampling/analysis methodology of the stack sampling survey conducted on October 7-10, 2025.

1.1 TEST PURPOSE AND OBJECTIVES

The purpose of the test was to conduct an emission test to document levels of selected pollutants. The specific objective was to determine the emission concentration of NOx, CO, THC/VOC, NH_3, PM, HCHO, flow, H_2O, CO_2, and O_2 pre-catalyst and post-catalyst from the VoltaGrid, LLC's Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10.

1.2 SUMMARY OF TEST PROGRAM

The following list details pertinent information related to this specific project:

1.2.1 Participating Organizations
- VoltaGrid, LLC
- Air Hygiene

1.2.2 Industry
- Emissions Monitoring

1.2.3 Plant Location
- SAT-1 EGU near San Antonio, Texas
  - GPS Coordinates [Latitude 29.413879, Longitude -98.788164]
  - Physical Address: 14720 Omicron Drive, San Antonio, Texas 78245

1.2.4 Equipment Tested
- Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10

1.2.5 Emission Points
- Exhaust from the Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10
- For all gases, three sample points in the post-catalyst exhaust stack from the Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10, at 16.7, 50.0, and 83.3 percent of the diameter
- For all gases, one sample point near the center of the pre-catalyst duct from the Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10
- For all wet chemistry testing, 24 sampling points in the exhaust duct from the Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10

1.2.6 Emission Parameters Measured

- NOx
- CO
- THC/VOC
- NH_3
- PM
- HCHO
- Flow
- H_2O
- CO_2
- O_2

1.2.7 Dates of Emission Test

- October 7-10, 2025

1.2.8 Federal and State Certifications

- Stack Testing Accreditation Council AETB Certificate No. 3796.02
- International Standard ISO/IEC 17025:2005 Certificate No. 3796.01
- Texas NELAP Accreditation No. T104704523; Mobile Lab No. 1M104704523

1.3 KEY PERSONNEL

VoltaGrid, LLC:	Korby Bracken (korby.bracken@voltagrid.com)	307-630-1430
Air Hygiene:	Rob White (rwhite@airhygiene.com)	918-307-8865
Air Hygiene:	Joseph Childers	918-307-8865
Air Hygiene:	Jordan Frakes	918-307-8865
Air Hygiene:	Josh Frohrip	918-307-8865
Air Hygiene:	Stone Platner	918-307-8865
Air Hygiene:	Stephen Reed	918-307-8865
Air Hygiene:	Brian Shaw	918-307-8865

2.0 SUMMARY OF TEST RESULTS

Results from the sampling conducted on VoltaGrid, LLC's Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10 located at the SAT-1 EGU on October 7-10, 2025 are summarized in the following tables and relate only to the items tested.

All testing was conducted according to the approved testing protocol.

TABLE 2.1
SUMMARY OF JENBACHER, J620,
UNIT #2 RESULTS

Parameter	100% Load - In	100% Load - Out
Date (mm/dd/yy)	10/10/25	10/10/25
Start Time (hh:mm:ss)	9:20:16	9:20:20
End Time (hh:mm:ss)	12:37:46	12:37:50
Run Duration (min / run)	60	60
Bar. Pressure (in. Hg)	30.20	30.20
Amb. Temp. (°F)	79	79
Rel. Humidity (%)	61	61
Spec. Humidity (lb water / lb air)	0.012593	0.012593
Stack Moisture (% Method 320)	11.4	10.7
NOx (ppmvd)	123.93	0.91
NOx (lb/MMBtu)	0.261	0.002
CO (ppmvd)	269.35	22.39
CO (lb/MMBtu)	0.345	0.028
THC (as C_3H_8) (ppmvd)	258.62	0.03
THC (as C_3H_8) (lb/MMBtu)	0.520	0.000
CH_4 (ppmvd)	235.84	221.13
C_2H_6 (ppmvd)	3.00	6.75
VOC (as C_3H_8) (ppmvd)	19.79	0.00
VOC (as C_3H_8) (lb/MMBtu)	0.040	0.000
HCHO (ppmvd)	21.24	0.36
HCHO (lb/MMBtu)	0.029	0.000
Total PM/PM_{10} (mg)		3.02
Total PM/PM_{10} (g/dscf)		8.91E-05
Total PM/PM_{10} (gr/dscf)		1.38E-03
Total PM/PM_{10} (kg/hr)		0.05
Total PM/PM_{10} (lb/hr)		0.11
Total PM/PM_{10} (ton/year) at 8760 hr/year		0.50
Filterable PM_{10} (mg)		2.49
Filterable PM_{10} (g/dscf)		7.35E-05
Filterable PM_{10} (gr/dscf)		1.13E-03
Filterable PM_{10} (kg/hr)		0.04
Filterable PM_{10} (lb/hr)		0.09
Filterable PM_{10} (ton/year) at 8760 hr/year		0.41
Condensable PM (mg)		0.53
Condensable PM (g/dscf)		1.56E-05
Condensable PM (gr/dscf)		2.41E-04
Condensable PM (kg/hr)		0.01
Condensable PM (lb/hr)		0.02
Condensable PM (ton/year) at 8760 hr/year		0.09
NH_3 (ppmvd)	0.19	1.90
NH_3 (lb/MMBtu)	0.000	0.001
CO_2 (%vd)	6.11	5.82
O_2 (%vd)	10.56	10.44

TABLE 2.2
SUMMARY OF JENBACHER, J620,
UNIT #6 RESULTS

Parameter	100% Load - In	100% Load - Out
Date (mm/dd/yy)	10/09/25	10/09/25
Start Time (hh:mm:ss)	11:00:03	11:00:12
End Time (hh:mm:ss)	14:29:33	14:29:42
Run Duration (min / run)	60	60
Bar. Pressure (in. Hg)	30.17	30.17
Amb. Temp. (°F)	89	89
Rel. Humidity (%)	54	54
Spec. Humidity (lb water / lb air)	0.015490	0.015490
Stack Moisture (% Method 320)	10.9	11.0
NOx (ppmvd)	128.78	0.96
NOx (lb/MMBtu)	0.271	0.002
CO (ppmvd)	277.82	9.44
CO (lb/MMBtu)	0.356	0.012
THC (as C_3H_8) (ppmvd)	256.57	0.03
THC (as C_3H_8) (lb/MMBtu)	0.516	0.000
CH_4 (ppmvd)	235.48	234.80
C_2H_6 (ppmvd)	3.13	6.86
VOC (as C_3H_8) (ppmvd)	17.96	0.00
VOC (as C_3H_8) (lb/MMBtu)	0.036	0.000
HCHO (ppmvd)	22.42	0.33
HCHO (lb/MMBtu)	0.031	0.000
Total PM/PM_{10} (mg)		1.92
Total PM/PM_{10} (g/dscf)		5.89E-05
Total PM/PM_{10} (gr/dscf)		9.09E-04
Total PM/PM_{10} (kg/hr)		0.03
Total PM/PM_{10} (lb/hr)		0.07
Total PM/PM_{10} (ton/year) at 8760 hr/year		0.32
Filterable PM_{10} (mg)		1.26
Filterable PM_{10} (g/dscf)		3.82E-05
Filterable PM_{10} (gr/dscf)		5.90E-04
Filterable PM_{10} (kg/hr)		0.02
Filterable PM_{10} (lb/hr)		0.05
Filterable PM_{10} (ton/year) at 8760 hr/year		0.21
Condensable PM (mg)		0.67
Condensable PM (g/dscf)		2.07E-05
Condensable PM (gr/dscf)		3.20E-04
Condensable PM (kg/hr)		0.01
Condensable PM (lb/hr)		0.03
Condensable PM (ton/year) at 8760 hr/year		0.11
NH_3 (ppmvd)	0.39	0.99
NH_3 (lb/MMBtu)	0.000	0.001
CO_2 (%vd)	6.37	6.46
O_2 (%vd)	10.57	10.27

TABLE 2.3
SUMMARY OF JENBACHER, J620,
UNIT #7 RESULTS

Parameter	100% Load - In	100% Load - Out
Date (mm/dd/yy)	10/08/25	10/08/25
Start Time (hh:mm:ss)	14:10:00	14:10:07
End Time (hh:mm:ss)	17:29:30	17:29:37
Run Duration (min / run)	60	60
Bar. Pressure (in. Hg)	30.05	30.04
Amb. Temp. (°F)	93	93
Rel. Humidity (%)	43	43
Spec. Humidity (lb water / lb air)	0.014119	0.014123
Stack Moisture (% Method 320)	11.3	10.7
NOx (ppmvd)	120.32	0.83
NOx (lb/MMBtu)	0.254	0.002
CO (ppmvd)	279.91	9.73
CO (lb/MMBtu)	0.360	0.012
THC (as C_3H_8) (ppmvd)	253.26	0.04
THC (as C_3H_8) (lb/MMBtu)	0.512	0.000
CH_4 (ppmvd)	230.85	227.23
C_2H_6 (ppmvd)	2.44	6.62
VOC (as C_3H_8) (ppmvd)	19.98	0.00
VOC (as C_3H_8) (lb/MMBtu)	0.040	0.000
HCHO (ppmvd)	21.38	0.40
HCHO (lb/MMBtu)	0.030	0.001
Total PM/PM_{10} (mg)		7.34
Total PM/PM_{10} (g/dscf)		2.26E-04
Total PM/PM_{10} (gr/dscf)		3.49E-03
Total PM/PM_{10} (kg/hr)		0.12
Total PM/PM_{10} (lb/hr)		0.27
Total PM/PM_{10} (ton/year) at 8760 hr/year		1.20
Filterable PM_{10} (mg)		6.43
Filterable PM_{10} (g/dscf)		1.99E-04
Filterable PM_{10} (gr/dscf)		3.06E-03
Filterable PM_{10} (kg/hr)		0.11
Filterable PM_{10} (lb/hr)		0.24
Filterable PM_{10} (ton/year) at 8760 hr/year		1.05
Condensable PM (mg)		0.91
Condensable PM (g/dscf)		2.73E-05
Condensable PM (gr/dscf)		4.21E-04
Condensable PM (kg/hr)		0.02
Condensable PM (lb/hr)		0.03
Condensable PM (ton/year) at 8760 hr/year		0.15
NH_3 (ppmvd)	0.37	1.04
NH_3 (lb/MMBtu)	0.000	0.001
CO_2 (%vd)	5.66	5.52
O_2 (%vd)	10.61	10.41

TABLE 2.4
SUMMARY OF JENBACHER, J620,
UNIT #8 RESULTS

Parameter	100% Load - In	100% Load - Out
Date (mm/dd/yy)	10/08/25	10/08/25
Start Time (hh:mm:ss)	9:45:00	9:45:07
End Time (hh:mm:ss)	13:12:30	13:12:37
Run Duration (min / run)	60	60
Bar. Pressure (in. Hg)	30.12	30.04
Amb. Temp. (°F)	87	87
Rel. Humidity (%)	58	58
Spec. Humidity (lb water / lb air)	0.015673	0.015716
Stack Moisture (% Method 320)	11.7	11.2
NOx (ppmvd)	114.16	0.38
NOx (lb/MMBtu)	0.239	0.001
CO (ppmvd)	286.30	5.92
CO (lb/MMBtu)	0.365	0.007
THC (as C_3H_8) (ppmvd)	248.59	0.04
THC (as C_3H_8) (lb/MMBtu)	0.498	0.000
CH_4 (ppmvd)	225.94	222.69
C_2H_6 (ppmvd)	3.16	8.12
VOC (as C_3H_8) (ppmvd)	19.49	0.00
VOC (as C_3H_8) (lb/MMBtu)	0.039	0.000
HCHO (ppmvd)	23.84	0.42
HCHO (lb/MMBtu)	0.033	0.001
Total PM/PM_{10} (mg)		9.34
Total PM/PM_{10} (g/dscf)		2.97E-04
Total PM/PM_{10} (gr/dscf)		4.59E-03
Total PM/PM_{10} (kg/hr)		0.16
Total PM/PM_{10} (lb/hr)		0.35
Total PM/PM_{10} (ton/year) at 8760 hr/year		1.55
Filterable PM_{10} (mg)		6.89
Filterable PM_{10} (g/dscf)		2.19E-04
Filterable PM_{10} (gr/dscf)		3.38E-03
Filterable PM_{10} (kg/hr)		0.12
Filterable PM_{10} (lb/hr)		0.26
Filterable PM_{10} (ton/year) at 8760 hr/year		1.14
Condensable PM (mg)		2.46
Condensable PM (g/dscf)		7.83E-05
Condensable PM (gr/dscf)		1.21E-03
Condensable PM (kg/hr)		0.04
Condensable PM (lb/hr)		0.09
Condensable PM (ton/year) at 8760 hr/year		0.41
NH_3 (ppmvd)	0.39	2.38
NH_3 (lb/MMBtu)	0.000	0.002
CO_2 (%vd)	6.02	5.56
O_2 (%vd)	10.53	10.02

TABLE 2.5
SUMMARY OF JENBACHER, J620,
UNIT #9 RESULTS

Parameter	100% Load - In	100% Load - Out
Date (mm/dd/yy)	10/07/25	10/07/25
Start Time (hh:mm:ss)	12:00:06	12:00:05
End Time (hh:mm:ss)	15:29:36	15:29:35
Run Duration (min / run)	60	60
Bar. Pressure (in. Hg)	30.04	30.04
Amb. Temp. (°F)	92	92
Rel. Humidity (%)	46	46
Spec. Humidity (lb water / lb air)	0.014543	0.014543
Stack Moisture (% Method 320)	11.3	10.8
NOx (ppmvd)	110.78	0.69
NOx (lb/MMBtu)	0.238	0.001
CO (ppmvd)	275.51	8.41
CO (lb/MMBtu)	0.360	0.011
THC (as C_3H_8) (ppmvd)	270.24	0.04
THC (as C_3H_8) (lb/MMBtu)	0.555	0.000
CH_4 (ppmvd)	249.66	248.39
C_2H_6 (ppmvd)	2.12	6.94
VOC (as C_3H_8) (ppmvd)	18.46	0.00
VOC (as C_3H_8) (lb/MMBtu)	0.038	0.000
HCHO (ppmvd)	18.79	0.32
HCHO (lb/MMBtu)	0.026	0.000
Total PM/PM_{10} (mg)		4.37
Total PM/PM_{10} (g/dscf)		1.37E-04
Total PM/PM_{10} (gr/dscf)		2.12E-03
Total PM/PM_{10} (kg/hr)		0.07
Total PM/PM_{10} (lb/hr)		0.16
Total PM/PM_{10} (ton/year) at 8760 hr/year		0.72
Filterable PM_{10} (mg)		3.26
Filterable PM_{10} (g/dscf)		1.02E-04
Filterable PM_{10} (gr/dscf)		1.58E-03
Filterable PM_{10} (kg/hr)		0.06
Filterable PM_{10} (lb/hr)		0.12
Filterable PM_{10} (ton/year) at 8760 hr/year		0.54
Condensable PM (mg)		1.11
Condensable PM (g/dscf)		3.49E-05
Condensable PM (gr/dscf)		5.39E-04
Condensable PM (kg/hr)		0.02
Condensable PM (lb/hr)		0.04
Condensable PM (ton/year) at 8760 hr/year		0.18
NH_3 (ppmvd)	0.10	1.82
NH_3 (lb/MMBtu)	0.000	0.001
CO_2 (%vd)	5.87	5.96
O_2 (%vd)	10.78	10.58

TABLE 2.6
SUMMARY OF JENBACHER, J620,
UNIT #10 RESULTS

Parameter	100% Load - In	100% Load - Out
Date (mm/dd/yy)	10/09/25	10/09/25
Start Time (hh:mm:ss)	9:05:03	9:05:03
End Time (hh:mm:ss)	10:04:33	10:04:33
Run Duration (min / run)	60	60
Bar. Pressure (in. Hg)	30.13	30.13
Amb. Temp. (°F)	77	77
Rel. Humidity (%)	78	78
Spec. Humidity (lb water / lb air)	0.015443	0.015443
Stack Moisture (% Method 320)	11.6	11.0
NOx (ppmvd)	122.58	1.45
NOx (lb/MMBtu)	0.259	0.003
CO (ppmvd)	300.09	6.97
CO (lb/MMBtu)	0.386	0.008
THC (as C_3H_8) (ppmvd)	261.41	0.75
THC (as C_3H_8) (lb/MMBtu)	0.528	0.001
CH_4 (ppmvd)	238.15	233.82
C_2H_6 (ppmvd)	4.20	7.71
VOC (as C_3H_8) (ppmvd)	19.05	0.00
VOC (as C_3H_8) (lb/MMBtu)	0.038	0.000
HCHO (ppmvd)	17.76	0.41
HCHO (lb/MMBtu)	0.024	0.001
NH_3 (ppmvd)	0.41	2.32
NH_3 (lb/MMBtu)	0.000	0.002
CO_2 (%vd)	5.93	6.39
O_2 (%vd)	10.60	10.00

3.0 SOURCE OPERATION

3.1 PROCESS DESCRIPTION

The unit tested was a Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10. The engines are rated at 4,601 Hp, and are located at the facility near San Antonio, Texas.

The engine is restricted to combusting natural gas only. The engine exhausts to the atmosphere through an independent stack above grade level.

3.2 SAMPLING LOCATION

The outlet stack is vertical, circular, and measures 2.6 feet (ft) (31 inches) in diameter at the test ports which are approximately 42 ft above grade level with an exit elevation of approximately 45 ft above grade level. The test ports are located approximately 8.4 ft (100 inches) [3.2 dia] downstream and approximately 2.8 ft (33 inches) [1.1 dia] upstream from the nearest disturbances. All inlet sampling was conducted from a box mounted on the roof of the engine container, accessible via the vertical ladder, near the SCR box, sampling port is ½" internal thread. Air

Hygiene has field verified the measurable dimensions. Non-field verified dimensions are provided by VoltaGrid, LLC. All exhaust samples for gaseous emissions were continuously drawn from the exhaust system at the sample ports from three points in the stack at 16.7, 50, and 83.3 percent of the stack diameter. All gaseous testing pre-catalyst were conducted from a single point located approximately at the center. For PM testing, an initial velocity traverse was performed across the stack from 24 total points to confirm the absence of cyclonic flow. All PM sampling occurred from the same 24 points by leaving the probe at each for an equal amount of time.

4.0 SAMPLING AND ANALYTICAL PROCEDURES

4.1 TEST METHODS

The emission test on the Jenbacher, J620, Units #2, 6, 7, 8, 9, & 10 at the SAT-1 EGU was performed following United States Environmental Protection Agency (EPA) methods described by the Code of Federal Regulations (CFR). Table 4.1 outlines the specific methods performed on October 7-10, 2025.

TABLE 4.1
SUMMARY OF SAMPLING METHODS

Pollutant or Parameter	Sampling Method	Analysis Method
Sample Point Location	EPA Method 1	Equal Area Method
Stack Flow Rate	EPA Method 2	S-Type Pitot Tube
Oxygen	EPA Method 3A	Paramagnetic Cell
Carbon Dioxide	EPA Method 3A	Nondispersive Infrared Analyzer
Stack Moisture Content	EPA Method 4	Gravimetric Analysis
Particulate Matter	EPA Method 5	Front Half Filterables
Nitrogen Oxides	EPA Method 7E	Chemiluminescent Analyzer
Carbon Monoxide	EPA Method 10	Nondispersive Infrared Analyzer
Volatile Organic Compounds	EPA Method 18	Tedlar Bag
Total Hydrocarbons	EPA Method 25A	Flame Ionization Detector
Particulate Matter	EPA Method 202	Back Half Condensables
Ammonia, Formaldehyde, Nitrogen Oxides, Total Hydrocarbons, Methane, Ethane, Moisture	EPA Method 320	Fourier Transform Infrared

Table 1. VoltaGrid ATL-1 EGU Emission Summary

Project Emissions Summary: Annual Emissions (tpy - total) [1]													
Pollutant --->	**VOC**	**NO_X**	**CO**	**SO_2**	**PM**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**	**Single HAP**	**Total HAPs**
J620 Primary Engines	26.19	26.45	94.71	8.67	17.34	17.34	17.34	423,278	7.98	0.80	423,713	3.13	6.65
Temporary CATG3520 Engines	3.67	14.69	19.09	0.02	0.82	0.82	0.82	5,433	0.09	0.01	5,439	2.64	3.47
Black Start Emergency Engine	0.004	0.006	0.002	1.39E-04	0.005	0.005	0.005	41	0.06	0.00	43	4.86E-03	0.01
Fuel Gas Heaters	0.19	0.42	1.30	0.11	0.26	0.26	0.26	4,099	0.08	0.01	4,103	2.58E-03	0.07
Total Site-Wide Annual Emissions	**30.05**	**41.57**	**115.10**	**8.80**	**18.43**	**18.43**	**18.43**	**432,851**	**8.21**	**0.82**	**433,298**	**5.78**	**10.19**
Requested Site-wide Permit Limitations	**99.00**	**99.00**	**99.00**	**99.00**	**99.00**	**99.00**	**99.00**	--	--	--	**433,298**	**5.78**	**10.19**
New Source Review (NSR) Major Source Thresholds [2]	*100*	*100*	*250*	*250*	*250*	*250*	*250*	--	--	--	*100,000*	--	--
Below NSR Major Source Threshold?	YES	YES	YES	YES	YES	YES	YES	--	--	--	*NOTE 4*	--	--
Title V Major Source Threshold [3]	*100*	*100*	*100*	*100*	*100*	*100*	*100*	--	--	--	--	*10*	*25*
Below Title V Major Source Threshold?	YES	YES	YES	YES	YES	YES	YES	--	--	--	--	YES	YES

Notes:

1. Total facility-wide annual emissions include emissions from all engines and include all modes of operation (startup and steady state operation).
2. Major source New Source Review threshold is 250 tons/year per 40 CFR 52.21 and GAC Subject 391-3-1. The threshold for NOx and VOC, however, are lowered because Newton county is in maintenance for the 2008 ozone standard.
3. Title V major source threshold is 100 tons/year for any criteria pollutant (for sources located in attainment areas) or 10 tons/year for any single HAP or 25 tons/year for combined HAPs.
4. While the GHG emissions are above the major source threshold, USEPA's July 24, 2014 memo (https://www.epa.gov/sites/default/files/2015-08/documents/2014scotus.pdf) notes that PSD review cannot be triggered for GHGs alone.

Table 2. Engine Specifications and Vendor Emissions Data

Parameter	Units	Post-Control Emissions (100% Load)	Proposed Safety Factor	Post-Control Emissions (100% Load) with Safety Factor	Calculated Pre-Control Emissions	Control Device	Approx. Control Efficiency
Model	Jenbacher J620						
Number of Engines	33						
Generator Rating [1]	MWe	3.30					
MW to hp; 1 MW =	1341.0 hp						
Engine Power[1]	hp	4,425.373					
Brake-Specific Fuel Consumption[1]	BTU/hp-hr	5,657					
Heat Input Rate	MMBtu/hr	25.0343					
Natural Gas HHV [2]	Btu/scf	1,020					
Fuel Consumption[1]	scf/hr	0.025					
VOC[1]	lb/hr per engine	0.15	20%	0.18	3.60	Oxidation Catalyst	95%
NOx[1]	lb/hr per engine	0.15	20%	0.18	9.00	SCR	98%
CO[1]	lb/hr per engine	0.62	5%	0.65	13.02	Oxidation Catalyst	95%
$PM/PM_{10}/PM_{2.5}$[1]	lb/hr per engine	0.10	20%	0.12	0.12	N/A	0%
SO_2[1]	lb/hr per engine	0.05	20%	0.06	0.06	N/A	0%
CH_2O[1]	lb/hr per engine	0.018	20%	0.022	0.43	Oxidation Catalyst	95%

Notes:

1. Information provided by Jenbacher and VoltaGrid. CH2O emissions are based on test data for J620 engines at a comparable facility in Texas.
2. Natural gas HHV based on a typical value of 1,020 Btu/scf.

Table 3. Potential Emission Calculations - Criteria Pollutants and Greenhouse Gases

Engine Specifications	
Emission Units	GEN-1, GEN-2, GEN-3, GEN-4, GEN-5, GEN-6, GEN-7, GEN-8, GEN-9, GEN-10, GEN-11, GEN-12, GEN-13, GEN-14, GEN-15, GEN-16, GEN-17, GEN-18, GEN-19, GEN-20, GEN-21, GEN-22, GEN-23, GEN-24, GEN-25, GEN-26, GEN-27, GEN-28, GEN-29, GEN-30, GEN-31, GEN-32, GEN-33
Engine	Jenbacher J620
Fuel Type	Natural Gas
Engine Power[1]	4,425 HP
Heat Input[1]	25 MMBtu/hr/engine
Fuel Consumption[1]	5,657 BTU/hp-hr
Annual Hours of Operation	8,760 hr/yr/engine
Startup / Shutdown Events	
Number of Startups per Engine per Month	3 events/month/engine
Number of Startups per Engine per Year	36 events/year/engine
Duration of Startup Event	5 minutes/event/engine[2]
Total time spent in startup mode per engine per month	0.25 hours/month/engine
Total time spent in startup mode per engine per year	3 hours/year/engine
Total time spend in normal, steady state operations mode	8,757 hours/year/engine
Total Number of Engines at the site[3]	33 engines

Notes:

1. Engine data provided by manufacturer.
2. While VoltaGrid conservatively assumes 0% control for the entire startup duration, the oxidation catalyst (which is a passive control device) will begin oxidizing organics and CO as the engine exhaust heats up the catalyst bed (well before the end of the 5 min startup period).
3. For the purposes of potential emissions calculations, VoltaGrid has assumed that all 33 engines are operated at the same at the worst-case load.

Criteria Pollutant Emissions (Per Engine)

Pollutant	Hourly Emissions Assuming 1 event (5 mins) of Startup and Remainder of Steady State (SS) Operations			Hourly Emissions Assuming 1 hour of Steady State Operation[1]	Annual Emissions (per engine)		
	Startup (5 min in the hour with the startup)	Steady State Operation (55 mins in the hour with the startup)	Total Worst-Case Hourly Emissions [1]		Startup (36 events / year/engine)	Steady State (8757 hr/year/ engine)	Total[2]
	lb/startup event	lb/55 mins of SS Operation	lb/hr per engine	lb/hr per engine	tpy per engine	tpy per engine	tpy per engine
VOC	0.30	3.30	3.60	0.18	5.40E-03	0.79	0.79
NO_x	0.75	8.2	9.00	0.18	0.01	0.79	0.80
CO	1.09	11.94	13.02	0.65	0.02	2.9	2.87
$PM/PM_{10}/PM_{2.5}$	0.01	0.110	0.12	0.12	1.80E-04	0.53	0.53
SO_2	5.00E-03	0.055	0.060	0.06	9.00E-05	0.26	0.26

Notes:

1. Short-term (hourly) emissions are calculated assuming one 5-minute startup event occurs during an hour with the balance of time (55 mins) spent in steady state operation.
   Short-term (hourly) emissions are also calculated assuming the entire hour (60 mins) consists of steady state operations.
2. Annual emissions are calculated assuming 36, 5-minute startup events occur during a year for each engine.

Table 3. Potential Emission Calculations - Criteria Pollutants and Greenhouse Gases

Criteria Pollutant Emissions (Total for All 33 Engines)

Pollutant	Max. Hourly Emissions (total for all engines)	Annual Emissions (total for all engines)
	Total [1]	
	lb/hr - total	tpy - total
VOC	118.8	26.2
NO_x	297.0	26.5
CO	429.7	94.7
$PM/PM_{10}/PM_{2.5}$	4.0	17.3
SO_2	2.0	8.7

Notes:

1. Total emissions for all the engines proposed at the facility are calculated as follows:
   Short-term emissions (lb/hr - total) = Short-term emissions (lb/hr/engine) * (number of engines)
   Annual emissions (tpy - total) = Annual emissions (tpy per engine) * (number of engines)

Greenhouse Gas (GHG) Emissions

Pollutant	Emission Factor[1] (lb/MMBtu)
CO_2	116.98
CH_4	2.2E-03
N_2O	2.2E-04
CO_2e^2	117.10

Notes:

1. Per 40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas combustion. The emission factors were converted from kg/MMBtu to lb/MMBtu.

2. The carbon dioxide equivalent (CO_2e) emission factor is calculated as the sum of each GHG pollutant multiplied by its global warming potential.

Global warming potentials are based on 40 CFR 98, Subpart A, Table A-1:

CO_2: 1
CH_4: 28
N_2O: 265

Pollutant	Emission Factor [1]	Emissions per Engine/Generator		Total Emissions for all Engines/Generators	
		lb/hr	tpy	lb/hr	tpy
CO_2	116.98 lb/MMBtu	2,928	12,827	96,639	423,278
CH_4	0.0022 lb/MMBtu	0.055	0.24	1.82	8.0
N_2O	0.00022 lb/MMBtu	0.0055	0.024	0.182	0.80
CO_2e^2	117.10 lb/MMBtu	2,931	12,840	96,738	423,713

Notes:

1. Per 40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas combustion. The emission factors were converted from kg/MMBtu to lb/MMBtu.

2. The carbon dioxide equivalent (CO_2e) emission factor is calculated as the sum of each GHG pollutant multiplied by its global warming potential.

Global warming potentials are based on 40 CFR 98, Subpart A, Table A-1:

Table 4. Potential Emission Calculations - Hazardous and Toxic Air Pollutants

Engine Specifications	
Emission Units	GEN-1, GEN-2, GEN-3, GEN-4, GEN-5, GEN-6, GEN-7, GEN-8, GEN-9, GEN-10, GEN-11, GEN-12, GEN-13, GEN-14, GEN-15, GEN-16, GEN-17, GEN-18, GEN-19, GEN-20, GEN-21, GEN-22, GEN-23, GEN-24, GEN-25, GEN-26, GEN-27, GEN-28, GEN-29, GEN-30, GEN-31, GEN-32, GEN-33
Engine	Jenbacher J620
Fuel Type	Natural Gas
Engine Power[1]	4,425 HP
Heat Input[1]	25 MMBtu/hr/engine
Fuel Consumption[1]	5,657 BTU/hp-hr
Annual Hours of Operation	8,760 hr/yr/engine
Control Efficiency (Organic Air Toxics)	95% Based on the VOC control efficiency
Startup / Shutdown Events	
Number of Startups per Engine per Month	3 events/month/engine
Duration of Startup Event	5 minutes/event/engine[2]
Startup Events per Day	1 startup/day
Total time spent in startup mode per engine per month	0.25 hours/month/engine
Total time spent in startup mode per engine per year	3 hours/year/engine
Total time spent in normal operations mode	8,757 hours/year/engine
Total Number of Engines at the site[3]	33 engines

Notes:

1. Engine data provided by manufacturer.
2. While VoltaGrid conservatively assumes 0% control for the entire startup duration, the oxidation catalyst (which is a passive control device) will begin oxidizing organics and CO as the engine exhaust heats up the catalyst bed (well before the end of the 5 min startup period).
3. For the purposes of potential emissions calculations, VoltaGrid has assumed that all 33 engines are operated at the same at the worst-case load.

Table 4. Potential Emission Calculations - Hazardous and Toxic Air Pollutants

Toxic Air Pollutant Emissions

Pollutant	CAS Number	HAP	Emission Factor[1]	Startup Emissions (per engine)	Steady State Emissions (per engine)[2]	Emissions - Per Engine			Emissions - All Engines[6]		
						Hourly With One Startup Event in that Hour[3]	Daily With One Startup Event per Day [4]	Annual With 36 Startup Events per Year[5]	Hourly With One Startup Event in that Hour[3]	Daily With One Startup Event per Day [4]	Annual With 36 Startup Events per Year[5]
			lb/MMBtu	lb/startup event	lb/hr	lb/hr	lb/day	lb/year	lb/hr	lb/day	lb/year
Ammonia	7664417	--	5.0 ppmv	--	0.25	0.25	6.0	2,203.2	8.3	199	72,707
1,1,2,2-Tetrachloroethane	79-34-5	HAP	4.0E-05	8.3E-05	5.0E-05	1.3E-04	1.3E-03	0.4	4.3E-03	0.042	14.5
1,1,2-Trichloroethane	79-00-5	HAP	3.2E-05	6.6E-05	4.0E-05	1.0E-04	1.0E-03	0.3	3.4E-03	0.034	11.5
1,1-Dichloroethane	75-34-3	HAP	2.4E-05	4.9E-05	3.0E-05	7.6E-05	7.6E-04	0.3	2.5E-03	0.025	8.6
1,2,3-Trimethylbenzene	526-73-8	--	2.3E-05	4.8E-05	2.9E-05	7.4E-05	7.4E-04	0.3	2.5E-03	0.024	8.3
1,2,4-Trimethylbenzene	95-63-6	--	1.4E-05	3.0E-05	1.8E-05	4.6E-05	4.6E-04	0.2	1.5E-03	0.015	5.2
1,2-Dichloroethane	107-06-2	HAP	2.4E-05	4.9E-05	3.0E-05	7.6E-05	7.6E-04	0.3	2.5E-03	0.025	8.6
1,2-Dichloropropane	78-87-5	HAP	2.7E-05	5.6E-05	3.4E-05	8.7E-05	8.6E-04	0.3	2.9E-03	0.028	9.7
1,3,5-Trimethylbenzene	108-67-8	--	3.4E-05	7.1E-05	4.2E-05	1.1E-04	1.1E-03	0.4	3.6E-03	0.036	12.2
1,3-Butadiene	106-99-0	HAP	2.7E-04	5.6E-04	3.3E-04	8.6E-04	8.550E-03	2.9	0.028	0.28	96.745
1,3-Dichloropropene	542-75-6	HAP	2.6E-05	5.5E-05	3.3E-05	8.5E-05	8.5E-04	0.3	2.8E-03	0.028	9.6
2-Methylnaphthalene	91-57-6	HAP	3.3E-05	6.9E-05	4.2E-05	1.1E-04	1.1E-03	0.4	3.5E-03	0.035	12.0
2,2,4-Trimethylpentane	540-84-1	HAP	2.5E-04	5.2E-04	3.1E-04	8.1E-04	8.006E-03	2.7	0.027	0.26	90.585
Acenaphthene	83-32-9	HAP	1.3E-06	2.6E-06	1.6E-06	4.0E-06	4.0E-05	0.0	1.3E-04	1.3E-03	0.5
Acenaphthylene	208-96-8	HAP	5.5E-06	1.2E-05	6.9E-06	1.8E-05	1.8E-04	0.1	5.9E-04	5.8E-03	2.0
Acetaldehyde	75-07-0	HAP	8.4E-03	0.017	0.010	0.027	0.27	91.79	0.9	8.8	3,029.2
Acrolein	107-02-8	HAP	5.1E-03	0.011	6.434E-03	0.017	0.16	56.438	0.55	5.4	1,862.44
Benzene	71-43-2	HAP	4.4E-04	9.2E-04	5.5E-04	1.4E-03	0.014	4.8	0.047	0.46	159.430
Benzo(b)fluoranthene	205-99-2	HAP	1.7E-07	3.5E-07	2.1E-07	5.4E-07	5.3E-06	1.8E-03	1.8E-05	1.8E-04	0.1
Benzo(e)pyrene	192-97-2	HAP	4.2E-07	8.7E-07	5.2E-07	1.3E-06	1.3E-05	4.6E-03	4.4E-05	4.4E-04	0.2
Benzo(g,h,i)perylene	191-24-2	HAP	4.1E-07	8.6E-07	5.2E-07	1.3E-06	1.3E-05	4.5E-03	4.4E-05	4.4E-04	0.2
Biphenyl	92-52-4	HAP	2.1E-04	4.4E-04	2.7E-04	6.9E-04	6.789E-03	2.3	0.023	0.22	76.816
Butane	106-97-8	--	5.4E-04	1.1E-03	6.8E-04	1.7E-03	0.017	5.9	0.058	0.57	196.027
Butyr/Isobutyraldehyde	78-84-2	--	1.0E-04	2.1E-04	1.3E-04	3.3E-04	3.2E-03	1.1	0.011	0.11	36.597
Carbon Tetrachloride	56-23-5	HAP	3.7E-05	7.7E-05	4.6E-05	1.2E-04	1.2E-03	0.4	3.9E-03	0.039	13.3
Chlorobenzene	108-90-7	HAP	3.0E-05	6.3E-05	3.8E-05	9.8E-05	9.7E-04	0.3	3.2E-03	0.032	11.0
Chloroethane	75-00-3	HAP	1.9E-06	3.9E-06	2.3E-06	6.0E-06	6.0E-05	0.0	2.0E-04	2.0E-03	0.7
Chloroform	67-66-3	HAP	2.9E-05	5.9E-05	3.6E-05	9.2E-05	9.1E-04	0.3	3.0E-03	0.030	10.3
Chrysene	218-01-9	HAP	6.9E-07	1.4E-06	8.7E-07	2.2E-06	2.2E-05	7.6E-03	7.4E-05	7.3E-04	0.3
Cyclopentane	287-92-3	--	2.3E-04	4.7E-04	2.8E-04	7.3E-04	7.269E-03	2.5	0.024	0.24	82.252
Ethane	74-84-0	--	0.1	0.22	0.13	0.3	3.4	1,152.9	11	111	38,046
Ethylbenzene	100-41-4	HAP	4.0E-05	8.3E-05	5.0E-05	1.3E-04	1.3E-03	0.4	4.236E-03	0.042	14.385
Ethylene Dibromide	106-93-4	HAP	4.4E-05	9.2E-05	5.5E-05	1.4E-04	1.4E-03	0.5	4.7E-03	0.047	16.1
Fluoranthene	206-44-0	HAP	1.1E-06	2.3E-06	1.4E-06	3.6E-06	3.6E-05	0.0	1.2E-04	1.2E-03	0.4
Fluorene	86-73-7	HAP	5.7E-06	1.2E-05	7.1E-06	1.8E-05	1.8E-04	0.1	6.1E-04	6.0E-03	2.1
Formaldehyde	50-00-0	HAP	---	0.04	0.022	0.06	0.6	189.48	2	18	6,252.7
Methanol	67-56-1	HAP	2.5E-03	5.215E-03	3.1E-03	8.084E-03	0.08	27.450	0.27	2.6	905.85
Methylcyclohexane	108-87-2	--	1.2E-03	2.566E-03	1.5E-03	3.977E-03	0.04	13.505	0.13	1.3	445.68
Methylene Chloride	75-09-2	HAP	2.0E-05	4.2E-05	2.5E-05	6.5E-05	6.4E-04	0.2	2.1E-03	0.021	7.2
n-Hexane	110-54-3	HAP	1.1E-03	2.316E-03	1.4E-03	3.589E-03	0.036	12.188	0.12	1.2	402.20
n-Nonane	111-84-2	--	1.1E-04	2.3E-04	1.4E-04	3.6E-04	3.5E-03	1.2	0.012	0.12	39.858
n-Octane	111-65-9	--	3.5E-04	7.3E-04	4.4E-04	1.1E-03	0.011	3.9	0.037	0.37	127.182
n-Pentane	109-66-0	--	2.6E-03	5.42E-03	3.25E-03	8.41E-03	8.33E-02	28.548	0.28	2.7	942.09
Naphthalene	91-20-3	HAP	7.4E-05	1.6E-04	9.3E-05	2.4E-04	2.4E-03	0.8	7.939E-03	0.079	26.958
PAH	--	HAP	2.7E-05	5.6E-05	3.4E-05	8.7E-05	8.6E-04	0.3	2.9E-03	0.028	9.7
Perchloroethylene	127-18-4	HAP	2.5E-06	5.2E-06	3.1E-06	8.0E-06	7.9E-05	0.0	2.6E-04	2.6E-03	0.9
Phenanthrene	85-01-8	HAP	1.0E-05	2.2E-05	1.3E-05	3.4E-05	3.3E-04	0.1	1.1E-03	0.011	3.8
Phenol	108-95-2	HAP	2.4E-05	5.0E-05	3.0E-05	7.8E-05	7.7E-04	0.3	2.6E-03	0.025	8.7
Propane	74-98-6	--	4.19E-02	8.74E-02	5.24E-02	1.35E-01	1.34E+00	460.06	4.5	44	15,182.1
Pyrene	129-00-0	HAP	1.4E-06	2.8E-06	1.7E-06	4.4E-06	4.4E-05	0.0	1.5E-04	1.4E-03	0.5
Styrene	100-42-5	HAP	2.4E-05	4.9E-05	3.0E-05	7.6E-05	7.6E-04	0.3	2.5E-03	0.025	8.6
Toluene	108-88-3	HAP	4.1E-04	8.5E-04	5.1E-04	1.3E-03	0.013	4.5	0.044	0.43	147.836
Vinyl Chloride	75-01-4	HAP	1.5E-05	3.1E-05	1.9E-05	4.8E-05	4.8E-04	0.2	1.6E-03	0.016	5.4
Xylenes	1330-20-7	HAP	1.8E-04	3.8E-04	2.3E-04	5.9E-04	5.89E-03	2.0	0.02	0.19	66.67
Max. Single HAP											**6,252.7**
TOTAL HAPs				**0.1**	**0.046**	**0.12**	**1.2**	**403.3**	**3.9**	**38.8**	**13,307.9**

Notes:

1. Toxics/HAP emission factors are based on AP-42. Chapter 3.2-2. Emission factor for formaldehyde are provided by the manufacturer.
2. All organic toxics are assumed to be controlled by 95% (consistent with the VOC and .
3. Short-term (hourly) emissions are calculated assuming one 5-minute startup event occurs during an hour.
4. Daily emissions are calculated assuming one 5-minute startup event occurs during a day.
5. Annual emissions are calculated assuming 36, 5-minute startup events occur during a year for each engine.
6. Total emissions for all the engines proposed at the facility are calculated as follows:
   Short-term emissions (lb/hr - total) = Short-term emissions (lb/hr/engine) * (number of engines)
   Annual emissions (tpy - total) = Annual emissions (tpy per engine) * (number of engines)
7. Ammonia slip data provided by the manufacturer. Peak ammonia emissions conservatively assume no startup events occur during the emission period.
   Ammonia emissions for each engine proposed at the facility are calculated as follows:
   Short term emissions (lb/hr/engine) = (NH3 Slip [ppmv] / 10^6) * (1 / Molar Vol. of Flue Gas [scf/lb-mol]) * MW of NH3 [lb/lb-mol] * Flue Gas Flow Rate [acfm] * 60 [min/hr]

   Annual emissions (tpy per engine) = Short term emissions (lb/hr/engine) * 8760 [hr/day] / 2000 [lb/ton]
   Short-term emissions (lb/hr - total) = Short-term emissions (lb/hr/engine) * (number of engines)
   Annual emissions (tpy - total) = Annual emissions (tpy per engine) * (number of engines)

Table 5. Potential Emission Calculations - Criteria Pollutants and GHGs from the Black Start Engine

Engine Specifications		
Emission Units	BS GEN-1	
Engine	MESA Solutions	
Fuel Type	Natural Gas	
Engine Power[1]	684	HPm
Heat Input[1]	4.7	MMBtu/hr/engine
Annual Hours of Operation	100	hr/yr/engine
Total Number of Black Start Engines at the site[1]	1	engine

Notes:

1. Engine data provided by manufacturer.

Criteria Pollutant Emissions (Per Engine)

Pollutant	lb/hr	Tons/year
VOC	0.09	0.004
NO_x	0.13	0.006
CO	0.03	0.002
$PM/PM_{10}/PM_{2.5}$	0.09	0.005
SO_2	2.8E-03	0.0001

Notes:

1. Emissions of VOC, CO and NOx are based on the following vendor emissions guarantees:

Pollutant	D2 (g/HP-hr)	D1 (g/HP-hr)	Max (lb/hour)	Control Efficiency	Vendor Emissions (lb/MMBtu)	AP-42 EF (Table 3.2-3) (lb/MMBtu)	Ratio of Vendor Emissions to AP-42 EF
VOC (NMHC)	0.059	0.04	0.09	>99%	0.0188	0.36	0.0524
NO_x	0.051	0.084	0.13	>99%	0.0267	2.27	0.0118
CO	0.015	0.02	0.03	>99%	0.0064	3.51	0.0018

2. Emissions of PM and SO2 are based on AP-42, Table 3.2-3 (Emission Factors for natural gas-fired four-stroke rich burn engines)

$PM/PM_{10}/PM_{2.5}$	1.94E-02	lb/MMBtu	(includes condensable emissions)
SO_2	5.88E-04	lb/MMBtu	

Greenhouse Gas (GHG) Emissions

Pollutant	Emissions per Engine/Generator	
	lb/hr	tpy
CO_2	816.3	40.8
CH_4	1.3	0.06
N_2O	0.1	0.003
CO_2e[2]	867	43

Notes:

1. Emissions of GHGs are based on the following vendor emissions guarantees:

Pollutant	D2 (g/HP-hr)	D1 (g/HP-hr)	Max (lb/hour)
CO_2	541.3	477.7	816.26
CH_4	0.832	0.556	1.25
N_2O	0.032	0.04	0.06

2. The carbon dioxide equivalent (CO_2e) emission factor is calculated as the sum of each GHG pollutant multiplied by its global warming potential.

Global warming potentials are based on 40 CFR 98, Subpart A, Table A-1:

CO_2: 1
CH_4: 28
N_2O: 265

Table 6. Potential Emission Calculations - Hazardous and Toxic Air Pollutants from the Black Start Engine

Engine Specifications		
Emission Units	BS GEN-1	
Engine	MESA Solutions	
Fuel Type	Natural Gas	
Engine Power[1]	684	HPm
Heat Input[1]	4.742	MMBtu/hr/engine
Annual Hours of Operation	100	hr/yr/engine
Total Number of Black Start Engines at the site[1]	1	engine

Notes:

1. Engine data provided by manufacturer.

Table 6. Potential Emission Calculations - Hazardous and Toxic Air Pollutants

Toxic Air Pollutant Emissions

Pollutant	CAS Number	HAP	Emission Factor[1]	Total Emissions	
				Hourly	Annual
			lb/MMBtu	lb/hr	lb/year
1,1,2,2-Tetrachloroethane	79-34-5	HAP	2.53E-05	1.20E-04	0.0
1,1,2-Trichloroethane	79-00-5	HAP	1.53E-05	7.26E-05	7.3E-03
1,1-Dichloroethane	75-34-3	HAP	1.13E-05	5.36E-05	5.4E-03
1,2,3-Trimethylbenzene	526-73-8	--	0.00E+00	0.00E+00	--
1,2,4-Trimethylbenzene	95-63-6	--	0.00E+00	0.00E+00	--
1,2-Dichloroethane	107-06-2	HAP	1.13E-05	5.36E-05	5.4E-03
1,2-Dichloropropane	78-87-5	HAP	1.30E-05	6.16E-05	6.2E-03
1,3,5-Trimethylbenzene	108-67-8	--	0.00E+00	0.00E+00	--
1,3-Butadiene	106-99-0	HAP	0.00E+00	0.00E+00	--
1,3-Dichloropropene	542-75-6	HAP	0.00E+00	0.00E+00	--
2-Methylnaphthalene	91-57-6	HAP	0.00E+00	0.00E+00	--
2,2,4-Trimethylpentane	540-84-1	HAP	0.00E+00	0.00E+00	--
Acenaphthene	83-32-9	HAP	0.00E+00	0.00E+00	--
Acenaphthylene	208-96-8	HAP	0.00E+00	0.00E+00	--
Acetaldehyde	75-07-0	HAP	2.79E-03	1.32E-02	1.3
Acrolein	107-02-8	HAP	2.63E-03	1.25E-02	1.2
Benzene	71-43-2	HAP	1.58E-03	7.49E-03	0.7
Benzo(b)fluoranthene	205-99-2	HAP	0.00E+00	0.00E+00	--
Benzo(e)pyrene	192-97-2	HAP	0.00E+00	0.00E+00	--
Benzo(g,h,i)perylene	191-24-2	HAP	0.00E+00	0.00E+00	--
Biphenyl	92-52-4	HAP	0.00E+00	0.00E+00	--
Butane	106-97-8	--	0.00E+00	0.00E+00	--
Butyr/Isobutyraldehyde	78-84-2	--	4.86E-05	2.30E-04	0.0
Carbon Tetrachloride	56-23-5	HAP	1.77E-05	8.39E-05	8.4E-03
Chlorobenzene	108-90-7	HAP	1.29E-05	6.12E-05	6.1E-03
Chloroethane	75-00-3	HAP	0.00E+00	0.00E+00	--
Chloroform	67-66-3	HAP	1.37E-05	6.50E-05	6.5E-03
Chrysene	218-01-9	HAP	0.00E+00	0.00E+00	--
Cyclopentane	287-92-3	--	0.00E+00	0.00E+00	--
Ethane	74-84-0	--	7.04E-02	3.34E-01	33.4
Ethylbenzene	100-41-4	HAP	2.48E-05	1.18E-04	0.0
Ethylene Dibromide	106-93-4	HAP	2.13E-05	1.01E-04	0.0
Fluoranthene	206-44-0	HAP	0.00E+00	0.00E+00	--
Fluorene	86-73-7	HAP	0.00E+00	0.00E+00	--
Formaldehyde	50-00-0	HAP	2.05E-02	9.72E-02	9.7
Methanol	67-56-1	HAP	3.06E-03	1.45E-02	1.5
Methylcyclohexane	108-87-2	--	0.00E+00	0.00E+00	--
Methylene Chloride	75-09-2	HAP	4.12E-05	1.95E-04	0.0
n-Hexane	110-54-3	HAP	0.00E+00	0.00E+00	--
n-Nonane	111-84-2	--	0.00E+00	0.00E+00	--
n-Octane	111-65-9	--	0.00E+00	0.00E+00	--
n-Pentane	109-66-0	--	0.00E+00	0.00E+00	--
Naphthalene	91-20-3	HAP	9.71E-05	4.60E-04	0.0
PAH	--	HAP	1.41E-04	6.69E-04	0.1
Perchloroethylene	127-18-4	HAP	0.00E+00	0.00E+00	--
Phenanthrene	85-01-8	HAP	0.00E+00	0.00E+00	--
Phenol	108-95-2	HAP	0.00E+00	0.00E+00	--
Propane	74-98-6	--	0.00E+00	0.00E+00	--
Pyrene	129-00-0	HAP	0.00E+00	0.00E+00	--
Styrene	100-42-5	HAP	1.19E-05	5.64E-05	5.6E-03
Toluene	108-88-3	HAP	5.58E-04	2.65E-03	0.3
Vinyl Chloride	75-01-4	HAP	7.18E-06	3.40E-05	3.4E-03
Xylenes	1330-20-7	HAP	1.95E-04	9.25E-04	0.1
Total HAPs (lb/year)					**15.07**

otes:

1. Toxics/HAP emission factors are based on AP-42. Chapter 3.2-3.

Table 7. Fuel Gas Heaters Potential Emissions Calculations

Inputs		
Description	**Value**	**Units**
Natural Gas Firing Rate	4	MMBtu/hr
High Heating Value (HHV)	1,020	Btu/ft^3
Quantity	2	heaters
Hours of Operation	8,760	hr/yr

Emission Factors				
Pollutant		**Value**	**Units**	Source
CO		0.04	lb/MMBtu	(1)
NO_X		0.01	lb/MMBtu	(1)
VOC		0.0055	lb/MMBtu	(1)
PM		0.01	lb/MMBtu	(2)
PM_{10}		0.01	lb/MMBtu	(2)
$PM_{2.5}$		0.01	lb/MMBtu	(2)
SO_2		0.003	lb/MMBtu	(1)
Pb		0.0005	lb/10^6 ft^3	(3)
Benzene	71-43-2	0.0021	lb/10^6 ft^3	(3)
Dichlorobenzene	95-50-1	0.0012	lb/10^6 ft^3	(3)
Formaldehyde	50-00-0	0.075	lb/10^6 ft^3	(3)
n-hexane	110-54-3	1.8	lb/10^6 ft^3	(3)
Naphthalene	91-20-3	0.00061	lb/10^6 ft^3	(3)
2-Methylnaphthale	91-57-6	0.0000240	lb/10^6 ft^3	(3)
Toluene	108-88-3	0.0034	lb/10^6 ft^3	(3)
Arsenic	7440382	0.0002	lb/10^6 ft^3	(3)
Barium	7440393	0.0044	lb/10^6 ft^3	(3)
Beryllium Compou	7440417	0.000012	lb/10^6 ft^3	(3)
Cadmium Compou	7440439	0.0011	lb/10^6 ft^3	(3)
Chromium	7440473	0.0014	lb/10^6 ft^3	(3)
Cobalt	7440484	0.000084	lb/10^6 ft^3	(3)
Copper	7440508	0.00085	lb/10^6 ft^3	(3)
Manganese	7439965	0.00038	lb/10^6 ft^3	(3)
Mercury	7439976	0.00026	lb/10^6 ft^3	(3)
Nickel	7440020	0.0021	lb/10^6 ft^3	(3)
Selenium	7782492	0.000024	lb/10^6 ft^3	(3)
Zinc		0.029	lb/10^6 ft^3	(3)
Total HAPs		1.92E+00	lb/10^6 ft^3	(3)
CO_2		116.98	lb/MMBtu	(4)
CH_4		0.002	lb/MMBtu	(4)
N_2O		0.0002	lb/MMBtu	(4)
CO_2e		117.10	lb/MMBtu	(4)

Pollutant	Emissions Per Heater		Total Emissions [7]	
Name	**lb/hr [5]**	**tpy [6]**	**lb/hr**	**tpy**
CO	0.15	0.65	0.30	1.30
NO_X	0.05	0.21	0.10	0.42
VOC	0.02	0.10	0.04	0.19
PM	0.03	0.13	0.06	0.26
PM_{10}	0.03	0.13	0.06	0.26
$PM_{2.5}$	0.03	0.13	0.06	0.26
SO_2	0.01	0.05	0.02	0.11
Pb	1.96E-06	8.59E-06	3.92E-06	1.72E-05
Benzene	8.24E-06	3.61E-05	1.65E-05	7.21E-05
Dichlorobenzene	4.71E-06	2.06E-05	9.41E-06	4.12E-05
Formaldehyde	2.94E-04	1.29E-03	5.88E-04	2.58E-03
n-hexane	7.06E-03	3.09E-02	1.41E-02	6.18E-02
Naphthalene	2.39E-06	1.05E-05	4.78E-06	2.10E-05
2-Methylnaphthalene	9.41E-08	4.12E-07	1.88E-07	8.24E-07
Toluene	1.33E-05	5.84E-05	2.67E-05	1.17E-04
Arsenic	7.84E-07	3.44E-06	1.57E-06	6.87E-06
Barium	1.73E-05	7.56E-05	3.45E-05	1.51E-04
Beryllium	4.71E-08	2.06E-07	9.41E-08	4.12E-07
Cadmium	4.31E-06	1.89E-05	8.63E-06	3.78E-05
Chromium	5.49E-06	2.40E-05	1.10E-05	4.81E-05
Cobalt	3.29E-07	1.44E-06	6.59E-07	2.89E-06
Copper	3.33E-06	1.46E-05	6.67E-06	2.92E-05
Manganese	1.49E-06	6.53E-06	2.98E-06	1.31E-05
Mercury	1.02E-06	4.47E-06	2.04E-06	8.93E-06
Nickel	8.24E-06	3.61E-05	1.65E-05	7.21E-05
Selenium	9.41E-08	4.12E-07	1.88E-07	8.24E-07
Zinc	1.14E-04	4.98E-04	2.27E-04	9.96E-04
Total HAPs	7.54E-03	3.30E-02	0.02	0.07
CO_2	467.91	2,049.44	935.82	4098.88
CH_4	0.01	0.04	0.02	0.08
N_2O	0.00	0.00	0.00	0.01
CO_2e	468.39	2,051.55	936.78	4,103.09

NOTES:

1. Algas SDI vendor guarantee:

Pollutant	lb/mmscf	lb/mmbtu	Source
SO_2	--	0.0030	Vendor Guarantee
NO_X	--	0.0121	
VOC	--	0.0055	
CO	--	0.0370	

2. Emission factors obtained from AP-42, Section 1.4, Natural Gas Combustion (July 1998). As per footnote "c" to AP-42 Table 1.4-2, all PM is assumed to be less than 1.0 micrometer in diameter. Therefore, PM = PM_{10} = $PM_{2.5}$ = PM-CON + PM-FIL. Where needed, emission factors were converted using the HHV, as shown below.

Pollutant	lb/mmscf	lb/mmbtu	Source
PM-CON	5.7	0.0056	Vendor Guarantee (similar to AP-42)
PM-FIL	1.9	0.0019	

3. Emission factors for HAPs and TAPs are based on AP-42, Section 1.4, Natural Gas Combustion (July 1998), Table 1.4-3 and 1.4-4.
4. Greenhouse gas emissions are based on 40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas combustion. The emission factors were converted from kg/MMBtu to lb/MMBtu. The carbon dioxide equivalent (CO2e) emission factor is calculated as the sum of each GHG pollutant multiplied by its global warming potential. Global warming potentials are based on 40 CFR 98, Subpart A, Table A-1:

	GWP
CO_2	1
CH_4	28
N_2O	265

5. Short-term emissions/unit (lb/hr) = emission factor (lb/MMBtu) x heat input (MMBtu/hr)
   Short-term emissions/unit (lb/hr) = emission factor (lb/MMscf) x heat input (MMscf/hr)
6. Annual emissions/unit (tpy) = Short-term emissions/unit (lb/hr) x 8,760 hr/year x ton/ 2,000 lb
7. Short-term emissions - total (lb/hr) = Short-term emissions/unit (lb/hr) x number of units
   Annual emissions - total (tpy) = Annual emissions/unit (tpy) x number of units

Table 8. Toxic Air Pollutant Screening Evaluation

Toxic Air Pollutant Emissions		Facility-Wide Emissions	Minimum Emission Rate (MER)	Review Required?
Pollutant	**CAS Number**	**lb/year**	**lb/year**	**(Model / No)**
1,1,2,2-Tetrachloroethane	79-34-5	18	414	No
1,1,2-Trichloroethane	79-00-5	14	1,521	No
1,1-Dichloroethane	75-34-3	11	46,334	No
1,2-Dichloroethane	107-06-2	11	94	No
1,2-Dichloropropane	78-87-5	12	973	No
1,3-Butadiene	106-99-0	119	7	Model
1,3-Dichloropropene	542-75-6	12	487	No
Acetaldehyde	75-07-0	3,737	1,107	Model
Acrolein	107-02-8	2,298	85	Model
Ammonia	7664417	72,707	24,333	Model
Arsenic	7440382	0	0	No
Barium	7440393	0	58	No
Benzene	71-43-2	197	32	Model
Beryllium Compounds	7440417	0	1	No
Biphenyl	92-52-4	95	117	No
Cadmium Compounds	7440439	0	1	No
Carbon Tetrachloride	56-23-5	16	162	No
Chlorobenzene	108-90-7	14	40,542	No
Chloroethane	75-00-3	1	2,433,300	No
Chloroform	67-66-3	13	106	No
Chromium	7440473	0	58	No
Cobalt	7440484	0	12	No
Copper	7440508	0	117	No
Dichlorobenzene	95-50-1	0	17,375	No
Ethylbenzene	100-41-4	18	243,330	No
Ethylene Dibromide	106-93-4	20	4	Model
Formaldehyde	50-00-0	11,554	22	Model
Manganese	7439965	0	12	No
Mercury	7439976	0	73	No
Methanol	67-56-1	1,118	30,127	No
Methylcyclohexane	108-87-2	550	231,767	No
Methylene Chloride	75-09-2	9	5,183	No
Naphthalene	91-20-3	33	730	No
n-Hexane	110-54-3	620	170,331	No
Nickel	7440020	0	39	No
n-Pentane	109-66-0	1,162	341,858	No
Perchloroethylene	127-18-4	1	78,553	No
Phenol	108-95-2	11	2,200	No
Propane	74-98-6	18,721	208,600	No
Selenium	7782492	0	23	No
Styrene	100-42-5	11	243,330	No
Toluene	108-88-3	183	1,216,650	No
Vinyl Chloride	75-01-4	7	56	No
Xylenes	1330-20-7	82	24,333	No

Table 9. VoltaGrid Modeled Stack Parameters and Emission Rates

Stack Parameters

Modeled Source	Primary Engines	Black Start Engine	Fuel Gas Heaters	
Parameter	**J620**	**GV22PU**	**SH400-LN**	**Units**
Count	33	1	2	#
Stack Height	18.9	3.18	4.1	m
Stack Diameter	0.76	0.10	0.36	m
Temperature	682	950	400	°F
Exhaust Flow Rate (Actual)	21,068	1,169	1,358	acfm
Exit Velocity	21.8	68.0	6.5	m/s
SCREEN3 Modeled Concentration @ 1 g/s	**10.54**	**493.70**	**515.60**	**µg/m^3**

Toxic Air Pollutants (TAPs)

Emission Source	Pollutant	CAS Number	Averaging Period	Total Emissions (33 Primary Engines, 1 Black Start Engine, and 2 Fuel Gas Heaters)		MGLC [2]
				(lb/hr) [1]	(g/s) [1]	µg/m^3
Primary Engines (J620)	1,3-Butadiene	106-99-0	Annual / Short-term	1.18E-02	1.48E-03	0.02
	Acetaldehyde	75-07-0	Annual / Short-term	3.68E-01	4.64E-02	0.49
	Acrolein	107-02-8	Annual / Short-term	2.26E-01	2.85E-02	0.30
	Ammonia	7664417	Annual / Short-term	8.30E+00	1.05E+00	11.02
	Benzene	71-43-2	Annual / Short-term	1.94E-02	2.44E-03	0.03
	Ethylene Dibromide	106-93-4	Annual / Short-term	1.95E-03	2.46E-04	0.00
	Formaldehyde	50-00-0	Annual / Short-term	7.60E-01	9.57E-02	1.01
Black Start Engine	1,3-Butadiene	106-99-0	Annual	0.00E+00	0.00E+00	0.00
	Acetaldehyde	75-07-0	Annual	1.51E-04	1.90E-05	0.01
	Acrolein	107-02-8	Annual	1.42E-04	1.79E-05	0.01
	Ammonia	7664417	Annual			
	Benzene	71-43-2	Annual	8.55E-05	1.08E-05	0.01
	Ethylene Dibromide	106-93-4	Annual	1.15E-06	1.45E-07	0.00
	Formaldehyde	50-00-0	Annual	1.11E-03	1.40E-04	0.07
Black Start Engine	1,3-Butadiene	106-99-0	Short-Term	0.00E+00	0.00E+00	0.00
	Acetaldehyde	75-07-0	Short-Term	1.32E-02	1.67E-03	0.82
	Acrolein	107-02-8	Short-Term	1.25E-02	1.57E-03	0.78
	Ammonia	7664417	Short-Term			
	Benzene	71-43-2	Short-Term	7.49E-03	9.44E-04	0.47
	Ethylene Dibromide	106-93-4	Short-Term	1.01E-04	1.27E-05	0.01
	Formaldehyde	50-00-0	Short-Term	9.72E-02	1.22E-02	6.05
Fuel Gas Heaters	1,3-Butadiene	106-99-0	Annual / Short-term			
	Acetaldehyde	75-07-0	Annual / Short-term			
	Acrolein	107-02-8	Annual / Short-term			
	Ammonia	7664417	Annual / Short-term			
	Benzene	71-43-2	Annual / Short-term	1.65E-05	2.08E-06	0.00
	Ethylene Dibromide	106-93-4	Annual / Short-term			
	Formaldehyde	50-00-0	Annual / Short-term	5.88E-04	7.41E-05	0.04

Notes:

1. Annual emissions for each emission unit included at the site converted to lb/hr and the lb/hr were converted to g/s.
2. The Maximum Ground Level Concentration (MGLC) is based on scaling the SCREEN3 results (at 1 g/s) proportionally to the total emission rate of the primary engines, the fuel gas heaters and the black start engine.

   The temporary engines will be in operation only for two months (April 2026 and May 2026) and as such will not be included in the Toxics Screening Modeling due to their temporary nature.

Table 10. VoltaGrid SCREEN3 Results

Toxic Air Pollutants (TAPs)

Pollutant	CAS Number	Ambient Acceptable Concentrations (AAC) (µg/m^3)			SCREEN3 Results (µg/m^3)				Exceeds an AAC?
		15-minute	long-term and averaging period		MGLC - Short Term	MGLC - Long Term	15-minute	long-term	
1,3-Butadiene	106-99-0	1100	0.03	Annual	0.0156	0.02	0.02	0.00	No
Acetaldehyde	75-07-0	4500	4.55	Annual	1.31	0.50	1.73	0.04	No
Acrolein	107-02-8	23	0.35	Annual	1.08	0.31	1.42	0.02	No
Ammonia	7664417	2400	100	Annual	11.02	11.02	14.55	0.88	No
Benzene	71-43-2	1600	0.13	Annual	0.49	0.03	0.65	0.00	No
Ethylene Dibromide	106-93-4	23050	0.02	Annual	0.01	0.00	0.01	0.00	No
Formaldehyde	50-00-0	245	0.09	Annual	7.09	1.12	9.36	0.09	No

Notes:
Pursuant to the *Georgia Guideline for Ambient Impact Assessment of TAPs*, maximum 1-hour average concentrations are converted to the appropriate averaging times in accordance with the table below.

averaging time	multiplier
15 minutes	1.32
24 hours	0.4
annual	0.08

Table 3. Potential Emission Calculations - Criteria Pollutants and Greenhouse Gases (Temporary Engines CAT G3520)

Engine Specifications	
Emission Units (Temporary - no more than 2 months on site for the commissioning period)	TEMPGEN-1, TEMPGEN-2, TEMPGEN-3, TEMPGEN-4, TEMPGEN-5
Engine	Caterpillar G3520
Fuel Type	Natural Gas
Engine Power[1]	3,628 BHP
Heat Input[1]	23.0 MMBtu/hr/engine
Fuel Consumption[1]	6,340 BTU/bhp-hr
Operating Schedule	
April-2026	2 units will be running to meet 1 MW contracted demand and provide N+1 availability
May-2026	3 units will be running to meet 4 MW contracted demand and provide N+2 availability
April-2026	2 engines
May-2026	3 engines
Total Engines	5 engines
April 2026 hours of operation (total for 2 engines)	1,440 hr/month (2 units)
May 2026 hours of operation (total for 3 engines)	2,232 hr/month (3 units)

Notes:

1. Engine data provided by manufacturer.
2. For the purposes of potential emissions calculations, VoltaGrid has assumed that all 5 temporary engines are operated at the same time at the worst-case load for the three months that they are onsite.

Criteria Pollutant Emissions (Per Engine)

Pollutant	Short-Term Emissions			Total Emissions		
	lb/hr per engine	lb/hr (2 engines in April 2026)	lb/hr (3 engines in May 2026)	tons/month (2 engines in April 2026)	tons/month (3 engines in May 2026)	tons/2 months (all 5 engines)
VOC	2.00	4.00	6.00	1.44	2.23	3.67
NO_x	8.00	16.00	24.00	5.76	8.93	14.69
CO	10.40	20.80	31.19	7.49	11.60	19.09
$PM/PM_{10}/PM_{2.5}$	0.45	0.89	1.34	0.32	0.50	0.82
SO_2	0.01	0.03	0.04	0.01	0.02	0.02

Notes:

1. Short-term (hourly) emissions are calculated assuming that each of the five temporary engines operates at 100% load for the entire hour. The emission factors for NOx, CO, VOC, HCHO, and CO2 are based on manufacturer's data:

NOx	1.00	g/bhp-hr	0.002	lb/bhp-hr
CO	1.30	g/bhp-hr	0.003	lb/bhp-hr
VOC	0.25	g/bhp-hr	0.001	lb/bhp-hr
Formaldehyde (HCHO)	0.18	g/bhp-hr	0.0004	lb/bhp-hr
CO2	370.00	g/bhp-hr	0.816	lb/bhp-hr

2. Emission factors for SO2 and PM/PM10/PM2.5 are based on AP-42, Table 3.2-3. *UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES*

$PM/PM_{10}/PM_{2.5}$	1.94E-02	lb/MMBtu
SO_2	5.88E-04	lb/MMBtu

3. Total emissions for all the tempoary engines proposed at the facility are calculated as follows:
   Short-term emissions (lb/hr - total) = Short-term emissions (lb/hr/engine) * (number of engines)
   Annual emissions (tpy - total) = Annual emissions (tpy per engine) * (number of engines)

Table 3. Potential Emission Calculations - Criteria Pollutants and

Greenhouse Gas (GHG) Emissions

Pollutant [1], [2]	Emission Factor[1, 2]	Emission Factor
	Value	Units
CO_2	0.82	lb/bhp-hr
CH_4	2.2E-03	lb/MMBtu
N_2O	2.2E-04	lb/MMBtu

Notes:

1. Emission factor of CO2 based on vendor data.
2. Emission factors of CH4 and N2O based on 40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas combustion. The emission factors were converted from kg/MMBtu to lb/MMBtu.

Pollutant	Emission Factor	Emissions per Engine/Gen	Total Emissions		
		lb/hr	tons/month (2 engines in April 2026)	tons/month (3 engines in May 2026)	tons/2 months (all 5 engines)
CO_2	0.82 lb/bhp-hr	2,959	2,131	3,303	5,433
CH_4	0.0022 lb/MMBtu	0.051	0.04	0.06	0.09
N_2O	0.00022 lb/MMBtu	0.0051	3.65E-03	5.66E-03	0.01
CO_2e[1]				--	5,439

Notes:

1. The carbon dioxide equivalent (CO_2e) emission factor is calculated as the sum of each GHG pollutant multiplied by its global warming potential.

Global warming potentials are based on 40 CFR 98, Subpart A, Table A-1:

CO_2: 1
CH_4: 28
N_2O: 265

Table 4. Potential Emission Calculations - Hazardous and Toxic Air Pollutants (Temporary Engines CAT G3520)

Engine Specifications	
Emission Units	TEMPGEN-1, TEMPGEN-2, TEMPGEN-3, TEMPGEN-4, TEMPGEN-5
Engine	Caterpillar G3520
Fuel Type	Natural Gas
Engine Power[1]	3,628 BHP
Heat Input[1]	23.0 MMBtu/hr/engine
Fuel Consumption[1]	6,340 BTU/bhp-hr
Operating Schedule	
April-2026	2 units will be running to meet 1MW contracted demand and provide n+1 availability
May-2026	3 units will be running to meet 4MW contracted demand and provide n+1 availability
April-2026	2 engines
May-2026	3 engines
Total Engines	5 engines
April 2026 hours of operation (total for 2 engines)	1,440 hr/month (2 units)
May 2026 hours of operation (total for 3 engines)	2,232 hr/month (3 units)

Notes:

1. Engine data provided by manufacturer.
2. While the calculations conservatively assume 0% control during the entire startup duration, the oxidation catalyst (which is a passive control device) will begin oxidizing organics and CO as the engine exhaust heats up the catalyst bed (well before the end of the 20 min startup period).
3. For the purposes of potential emissions calculations, VoltaGrid has assumed that all 34 engines are operated at the same at the worst-case load.

Table 4. Potential Emission Calculations - Hazardous and Toxic Air Pollutants (Temporary Engines CAT G3520)

Toxic Air Pollutant Emissions

Pollutant	CAS Number	HAP	Emission Factor[1] lb/MMBtu	Short-Term Emissions			Total Emissions		
				lb/hr per engine	lb/hr (2 engines in April 2026)	lb/hr (3 engines in May 2026)	tons/month (2 engines in April 2026)	tons/month (3 engines in May 2026)	tons/2 months (all 5 engines)
1,1,2,2-Tetrachloroethane	79-34-5	HAP	4.0E-05	9.20E-04	1.84E-03	2.76E-03	6.6E-04	1.027E-03	1.7E-03
1,1,2-Trichloroethane	79-00-5	HAP	3.2E-05	7.31E-04	1.46E-03	2.19E-03	5.3E-04	8.163E-04	1.3E-03
1,1-Dichloroethane	75-34-3	HAP	2.4E-05	5.43E-04	1.09E-03	1.63E-03	3.9E-04	6.058E-04	1.0E-03
1,2,3-Trimethylbenzene	526-73-8	--	2.3E-05	5.29E-04	1.06E-03	1.59E-03	3.8E-04	5.904E-04	9.7E-04
1,2,4-Trimethylbenzene	95-63-6	--	1.4E-05	3.29E-04	6.58E-04	9.87E-04	2.4E-04	3.671E-04	6.0E-04
1,2-Dichloroethane	107-06-2	HAP	2.4E-05	5.43E-04	1.09E-03	1.63E-03	3.9E-04	6.058E-04	1.0E-03
1,2-Dichloropropane	78-87-5	HAP	2.7E-05	6.19E-04	1.24E-03	1.86E-03	4.5E-04	6.905E-04	1.1E-03
1,3,5-Trimethylbenzene	108-67-8	--	3.4E-05	7.77E-04	1.55E-03	2.33E-03	5.6E-04	8.676E-04	1.4E-03
1,3-Butadiene	106-99-0	HAP	2.7E-04	6.14E-03	1.23E-02	1.84E-02	4.4E-03	6.854E-03	0.0
1,3-Dichloropropene	542-75-6	HAP	2.6E-05	6.07E-04	1.21E-03	1.82E-03	4.4E-04	6.777E-04	1.1E-03
2-Methylnaphthalene	91-57-6	HAP	3.3E-05	7.64E-04	1.53E-03	2.29E-03	5.5E-04	8.522E-04	1.4E-03
2,2,4-Trimethylpentane	540-84-1	HAP	2.5E-04	5.75E-03	1.15E-02	1.73E-02	4.1E-03	6.417E-03	0.0
Acenaphthene	83-32-9	HAP	1.3E-06	2.88E-05	5.75E-05	8.63E-05	2.1E-05	3.209E-05	5.3E-05
Acenaphthylene	208-96-8	HAP	5.5E-06	1.27E-04	2.54E-04	3.82E-04	9.2E-05	1.420E-04	2.3E-04
Acetaldehyde	75-07-0	HAP	8.4E-03	1.92E-01	3.85E-01	5.77E-01	0.1	0.215	0.4
Acrolein	107-02-8	HAP	5.1E-03	1.18E-01	2.36E-01	3.55E-01	0.1	0.132	0.2
Benzene	71-43-2	HAP	4.4E-04	1.01E-02	2.02E-02	3.04E-02	7.3E-03	0.011	0.0
Benzo(b)fluoranthene	205-99-2	HAP	1.7E-07	3.82E-06	7.64E-06	1.15E-05	2.7E-06	4.261E-06	7.0E-06
Benzo(e)pyrene	192-97-2	HAP	4.2E-07	9.55E-06	1.91E-05	2.86E-05	6.9E-06	1.065E-05	1.8E-05
Benzo(g,h,i)perylene	191-24-2	HAP	4.1E-07	9.52E-06	1.90E-05	2.86E-05	6.9E-06	1.063E-05	1.7E-05
Biphenyl	92-52-4	HAP	2.1E-04	4.88E-03	9.75E-03	1.46E-02	3.5E-03	5.442E-03	9.0E-03
Butane	106-97-8	--	5.4E-04	1.24E-02	2.49E-02	3.73E-02	9.0E-03	0.014	0.0
Butyr/Isobutyraldehyde	78-84-2	--	1.0E-04	2.32E-03	4.65E-03	6.97E-03	1.7E-03	2.593E-03	4.3E-03
Carbon Tetrachloride	56-23-5	HAP	3.7E-05	8.44E-04	1.69E-03	2.53E-03	6.1E-04	9.421E-04	1.5E-03
Chlorobenzene	108-90-7	HAP	3.0E-05	6.99E-04	1.40E-03	2.10E-03	5.0E-04	7.804E-04	1.3E-03
Chloroethane	75-00-3	HAP	1.9E-06	4.30E-05	8.60E-05	1.29E-04	3.1E-05	4.800E-05	7.9E-05
Chloroform	67-66-3	HAP	2.9E-05	6.56E-04	1.31E-03	1.97E-03	4.7E-04	7.316E-04	1.2E-03
Chrysene	218-01-9	HAP	6.9E-07	1.59E-05	3.19E-05	4.78E-05	1.1E-05	1.779E-05	2.9E-05
Cyclopentane	287-92-3	--	2.3E-04	5.22E-03	1.04E-02	1.57E-02	3.8E-03	5.827E-03	0.0
Ethane	74-84-0	--	0.1	2.42E+00	4.83E+00	7.25E+00	1.7	2.695	4.4
Ethylbenzene	100-41-4	HAP	4.0E-05	9.13E-04	1.83E-03	2.74E-03	6.6E-04	1.019E-03	1.7E-03
Ethylene Dibromide	106-93-4	HAP	4.4E-05	1.02E-03	2.04E-03	3.06E-03	7.3E-04	1.137E-03	1.9E-03
Fluoranthene	206-44-0	HAP	1.1E-06	2.55E-05	5.11E-05	7.66E-05	1.8E-05	2.849E-05	4.7E-05
Fluorene	86-73-7	HAP	5.7E-06	1.30E-04	2.61E-04	3.91E-04	9.4E-05	1.455E-04	2.4E-04
Formaldehyde	50-00-0	HAP	3.97E-04 lb/bhp-hr	1.44E+00	2.88E+00	4.32E+00	1.0	1.607	2.6
Methanol	67-56-1	HAP	2.5E-03	5.75E-02	1.15E-01	1.73E-01	0.0	0.064	0.1
Methylcyclohexane	108-87-2	--	1.2E-03	2.83E-02	5.66E-02	8.49E-02	0.0	0.032	0.1
Methylene Chloride	75-09-2	HAP	2.0E-05	4.60E-04	9.20E-04	1.38E-03	3.3E-04	5.134E-04	8.4E-04
n-Hexane	110-54-3	HAP	1.1E-03	2.55E-02	5.11E-02	7.66E-02	0.0	0.028	0.0
n-Nonane	111-84-2	--	1.1E-04	2.53E-03	5.06E-03	7.59E-03	1.8E-03	2.824E-03	4.6E-03
n-Octane	111-65-9	--	3.5E-04	8.07E-03	1.61E-02	2.42E-02	5.8E-03	0.009	0.0
n-Pentane	109-66-0	--	2.6E-03	5.98E-02	1.20E-01	1.79E-01	0.0	0.067	0.1
Naphthalene	91-20-3	HAP	7.4E-05	1.71E-03	3.42E-03	5.13E-03	1.2E-03	1.910E-03	3.1E-03
PAH	--	HAP	2.7E-05	6.19E-04	1.24E-03	1.86E-03	4.5E-04	6.905E-04	1.1E-03
Perchloroethylene	127-18-4	HAP	2.5E-06	5.70E-05	1.14E-04	1.71E-04	4.1E-05	6.366E-05	1.0E-04
Phenanthrene	85-01-8	HAP	1.0E-05	2.39E-04	4.78E-04	7.18E-04	1.7E-04	2.670E-04	4.4E-04
Phenol	108-95-2	HAP	2.4E-05	5.52E-04	1.10E-03	1.66E-03	4.0E-04	6.161E-04	1.0E-03
Propane	74-98-6	--	4.19E-02	9.64E-01	1.93E+00	2.89E+00	0.7	1.076	1.8
Pyrene	129-00-0	HAP	1.4E-06	3.13E-05	6.26E-05	9.38E-05	2.3E-05	3.491E-05	5.7E-05
Styrene	100-42-5	HAP	2.4E-05	5.43E-04	1.09E-03	1.63E-03	3.9E-04	6.058E-04	1.0E-03
Toluene	108-88-3	HAP	4.1E-04	9.38E-03	1.88E-02	2.82E-02	6.8E-03	0.010	0.0
Vinyl Chloride	75-01-4	HAP	1.5E-05	3.43E-04	6.85E-04	1.03E-03	2.5E-04	3.825E-04	6.3E-04
Xylenes	1330-20-7	HAP	1.8E-04	4.23E-03	8.46E-03	1.27E-02	3.0E-03	4.723E-03	7.8E-03
Max. Single HAP									**2.6**
TOTAL HAPs				**1.89**	**3.8**	**5.7**	**1.4**	**2.1**	**3.5**

otes:

1. Toxics/HAP emission factors are based on AP-42. Chapter 3.2-2. Emission factor for formaldehyde are provided by the manufacturer.
2. Formaldehyde is controlled by 95% per vendor specification. To be conservative, all other toxics are assumed to be controlled by 90%.
3. Short-term (hourly) emissions are calculated assuming one 20-minute startup event occurs during an hour.
4. Daily emissions are calculated assuming one 20-minute startup event occurs during a day.
5. Annual emissions are calculated assuming thirty-six 20-minute startup events occur during a year.
6. Total emissions for all the engines proposed at the facility are calculated as follows:
   Short-term emissions (lb/hr - total) = Short-term emissions (lb/hr/engine) * (number of engines)
   Annual emissions (tpy - total) = Annual emissions (tpy per engine) * (number of engines)
7. NO_2 emissions are assumed 10% of NO_x emissions.
8. Ammonia slip data provided by the manufacturer. Peak ammonia emissions conservatively assume no startup events occur during the emission period.
   Ammonia emissions for each engine proposed at the facility are calculated as follows:
   Short term emissions (lb/hr/engine) = (NH3 Slip [ppmv] / 10^6) * (1 / Molar Vol. of Flue Gas [scf/lb-mol]) * MW of NH3 [lb/lb-mol] * Flue Gas Flow Rate [acfm] * 60 [min/hr]

   Annual emissions (tpy per engine) = Short term emissions (lb/hr/engine) * 8760 [hr/day] / 2000 [lb/ton]
   Short-term emissions (lb/hr - total) = Short-term emissions (lb/hr/engine) * (number of engines)
   Annual emissions (tpy - total) = Annual emissions (tpy per engine) * (number of engines)

Unit #	In (PPMVD)	Out (PPMVD)	Percent Control (%)	In (lb/MMBtu)	Out (lb/MMBtu)	J620 Max Heat Input at 100% Load (MMBtu/hr)	Emission Rate post-control (lb/hr)
2	21.21	0.36	98.30%	0.029	0.00049	25.0	0.012
6	22.42	0.33	98.53%	0.031	0.00046	25.0	0.011
7	21.38	0.40	98.13%	0.030	0.00056	25.0	0.014
8	23.84	0.42	98.24%	0.033	0.00058	25.0	0.015
9	18.79	0.32	98.30%	0.026	0.00044	25.0	0.011
10	17.76	0.41	97.69%	0.024	0.00055	25.0	0.014

Max lb/hr	0.015
Min lb/hr	0.011
Average lb/hr	0.014
Proposed Limit for ATL-1 (lb/hr)	**0.022**

Unit #	In (PPMVD)	Out (PPMVD)	Percent Control (%)	In (lb/MMBtu)	Out (lb/MMBtu)	J620 Max Heat Input at 100% Load (MMBtu/hr)	Emission Rate post-control (lb/hr)
2	269.35	22.39	91.69%	0.345	0.02868	25.0	0.718
6	277.82	9.44	96.60%	0.356	0.01210	25.0	0.303
7	279.91	9.73	96.52%	0.36	0.01251	25.0	0.313
8	286.3	5.92	97.93%	0.365	0.00755	25.0	0.189
9	275.51	8.41	96.95%	0.36	0.01099	25.0	0.275
10	300.09	6.97	97.68%	0.386	0.00897	25.0	0.224

Max lb/hr	0.313
Min lb/hr	0.189
Average lb/hr	0.261
Proposed Limit for ATL-1 (lb/hr)	**0.651**