

**ENGINEERING ANALYSIS
WARRIOR MET COAL GAS, LLC
WELL 28-15-01
TUSCALOOSA COUNTY, ALABAMA
FACILITY NO. 413-0130
SYNTHETIC MINOR OPERATING PERMIT NO. X003**

On August 28, 2026, the Air Division received a complete Air Permit application from Warrior Met Coal Gas, LLC (Warrior Met Coal) for the proposed reduction to the existing synthetic minor emission limitations for nitrogen oxide (NO_x) and carbon monoxide (CO) on the four existing 684 hp Mesa GV22PU 4-stroke, rich-burn (4SRB), natural gas-fired RICE each equipped with NSCR/3-way catalyst (currently SMOP No. X002). The purpose of the proposed reduction to the existing synthetic minor emission limitations is to reduce the NO_x and CO emissions below the Title V major source threshold of 100 TPY for the one-mile radius aggregate facility emissions. This would allow Warrior Met Coal to install an engine at the existing RGGGS 28-04-04 Gob Well. This facility is currently a synthetic minor source under Title V regulations and a minor source under PSD regulations. After the proposed emission limit reductions, this facility would remain a synthetic minor source under Title V regulations and a minor source under PSD regulations. Warrior Met Coal would be issued Synthetic Minor Operating Permit (SMOP) No. X003 for the proposed reduction to the existing synthetic minor emission limits for NO_x and CO on the four existing 684 hp Mesa GV22PU 4SRB, natural gas-fired RICE each equipped with NSCR/3-way catalyst.

Facility Operations/Existing Equipment

Warrior Met Coal currently operates the following equipment at the facility:

Air Permit No. X001 - One 145 hp Caterpillar RICE Equipped with 3-way Catalyst

SMOP No. X002 - Four 684 hp Mesa RICE equipped with NSCR/3-way Catalyst

Warrior Met Coal utilizes the one 145 hp Caterpillar G3306 4SRB natural gas-fired RICE equipped with 3-way catalyst (Air Permit No. X001) to extract gas from Well 28-15-01 to power the four 684 hp Mesa GV22PU 4SRB natural gas-fired RICE equipped with NSCR/3-way catalyst (SMOP No. X002). The four 684 hp Mesa 4SRB natural gas-fired RICE power a series of servers to mine for cryptocurrency.

Cryptocurrency mining is the process by which transactions are officially entered on the blockchain and new cryptocurrency are launched into circulation. Miners use computers to find a cryptographic number that meets the cryptocurrency (Bitcoin) network's difficulty rules. The first miner to find a solution to the problem receives bitcoins as a reward, and the process begins again.

Proposed Modifications

Warrior Met Coal has requested to lower the existing synthetic minor emission limits of 1.0 g/hp-hr (1.51 lb/hr) for NO_x and 2.0 g/hp-hr (3.02 lb/hr) for CO down to 0.6 lb/hr for NO_x and 1.0 lb/hr for CO on each of the four existing 684 hp Mesa GV22PU 4SRB natural gas-fired RICE equipped with NSCR/3-way catalyst (proposed SMOP No. X003). The purpose of the proposed reduction to the existing synthetic minor emission limitations is to reduce the NO_x and CO emissions below the Title V major source threshold of 100 TPY for the one-mile radius aggregate facility emissions. This proposed modification of the existing SMOP would allow Warrior Met Coal to install an

engine at the existing RGGS 28-04-04 Gob Well without exceeding Title V major source thresholds.

Emissions

The pollutants of concern that would be emitted from the four existing RICE each equipped with a 3-way catalyst would be the products of combustion, which include NO_x, CO, volatile organic compounds (VOC), sulfur dioxide (SO₂), particulate matter (PM), particulate matter ≤ 10 microns (PM₁₀), particulate matter ≤ 2.5 microns (PM_{2.5}), particulate matter condensables (PM_{con}), and formaldehyde (CH₂O). Emissions of other criteria and hazardous air pollutants (HAP) were reviewed but determined to be insignificant. A facility-wide emissions summary and unit specific emissions calculations are included as Appendix A, and emissions calculations for the aggregated facilities are included as Appendix B.

State Regulations

ADEM Admin. Code r. 335-3-4-.01, "Control of Particulate Emissions: Visible Emissions"

The existing units are each be subject to the State visible emission standard of ADEM Admin. Code r. 335-3-4-.01(1), which states that no air emission source may emit particulate of an opacity greater than 20% (as measured by a six-minute average) more than once during any 60-minute period and at no time shall emit particulate of an opacity greater than 40% (as measured by a six-minute average). They are expected to be able to comply with this standard because they are exclusively fired by natural gas.

ADEM Admin. Code r. 335-3-4-.03, "Control of Particulate Emissions: Fuel Burning Equipment"

Per Appendix A in ADEM Admin. Code Division 335-3, Tuscaloosa County is designated as a Class I County for PM emissions. However, although the four existing RICE are each fuel combustion sources, they are not subject to the particulate matter (as TSP) emission limitation of ADEM Admin. Code r. 335-3-4-.03(1), because they do not meet the definition of fuel burning equipment.

ADEM Admin. Code r. 335-3-5-.01, "Control of Sulfur Compound Emissions: Fuel Combustion"

Per Appendix B in ADEM Admin. Code div. 335-3, Tuscaloosa County is designated as a Category II County for SO₂ emissions. However, although the four existing RICE are each fuel combustion sources, they are not subject to any sulfur dioxide (SO₂) emission limitation of ADEM Admin. Code r. 335-3-5-.01(1) because they do not meet the definition of fuel burning equipment.

Federal Regulations

Title V

Based on location coordinates provided in the applications, this facility would be located within a one-mile radius of the 28-16-01 Gob Well (413-GW08), 28-10-02 Gob Well (413-GW09), and RGGS 28-04-04 Gob Well (413-GW12); therefore, the potential emissions of each facility would be aggregated together in accordance with the State's sensible grouping policy to determine Title V status. The facility is currently a synthetic minor source under Title V regulations, because the potential NO_x and CO emissions would each exceed the 100 TPY major source threshold without

the existing synthetic minor emission limits of 1.0 g/hp-hr for NO_x and 2.0 g/hp-hr for CO on each of the four existing 684 hp Mesa GV22PU 4SRB natural gas-fired RICE equipped with NSCR/3-way catalyst (existing SMOP No. X002).

Warrior Met Coal has requested to lower the existing synthetic minor emission limits of 1.0 g/hp-hr (1.51 lb/hr) for NO_x and 2.0 g/hp-hr (3.02 lb/hr) for CO down to 0.6 lb/hr for NO_x and 1.0 lb/hr for CO on each of the four existing 684 hp Mesa GV22PU 4SRB natural gas-fired RICE equipped with NSCR/3-way catalyst (proposed SMOP No. X003). The purpose of the proposed reduction to the existing synthetic minor emission limitations is to reduce the NO_x and CO emissions below the Title V major source threshold of 100 TPY for the one-mile radius aggregate facility emissions. This proposed synthetic minor emission limit reduction would allow Warrior Met Coal to install an engine at the existing RGGGS 28-04-04 Gob Well (413-GW12), without exceeding Title V major source thresholds.

After the proposed reduction of the existing NO_x and CO synthetic minor emission limits on the four existing RICE, and accounting for the one-mile radius aggregate facility emissions, this facility would remain a synthetic minor source under Title V regulations. The facility would remain an area source of Hazardous Air Pollutants (HAP) because the potential emissions of each individual hazardous air pollutant (HAP) would remain below 10 TPY, and the potential emissions of combined HAP would remain below 25 TPY.

PSD

The facility operations are not one of the 28 listed major source categories, and the facility is located in an attainment area for all criteria pollutants; therefore, the major source threshold of concern is 250 TPY for criteria pollutants. Based on location coordinates provided in the applications, this facility would be located within a one-mile radius of the 28-16-01 Gob Well (413-GW08), 28-10-2 Gob Well (413-XXXX), and RGGGS 28-04-04 Gob Well (413-GW12); therefore, the potential emissions of each facility would be aggregated in accordance with the State's sensible grouping policy to determine PSD status. The facility is currently a minor source under PSD regulations because the aggregated uncontrolled potential emissions of each criteria pollutant would not exceed 250 TPY. The proposed reduction of the Title V NO_x and CO synthetic minor emission limits on the four existing RICE would not be necessary to remain below the 250 TPY major source threshold for each criteria pollutant under PSD regulations. After the proposed reduction of the existing Title V NO_x and CO synthetic minor emission limits on the four existing RICE, and accounting for the one-mile radius aggregate facility emissions, this facility would remain a minor source under PSD regulations.

NESHAP/MACT

40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ)

40 CFR Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ) applies to new and existing engines at area and major sources of HAP. The four existing RICE are each considered a new affected

source because they were each constructed¹ after June 12, 2006. According to 40 CFR §63.6590(c), any new stationary RICE located at an area source of HAP emissions must meet the requirements of the Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (Subpart JJJJ). No further requirements apply to the existing RICE under Subpart ZZZZ.

NSPS

40 CFR Part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE) (Subpart JJJJ) [Adopted by reference in ADEM Admin. Code r. 335-3-10-.02(88)]

40 CFR §60.4230(a)(5) states that stationary SI ICE are subject to this Subpart if construction commences after June 12, 2006. The four existing SI ICE were each constructed after June 12, 2006, they are each currently subject to this Subpart.

Emission Limitations

As specified in 40 CFR §60.4233(e) and Table 1 to Subpart JJJJ, each of the four proposed SI ICE are subject to a NO_x emission standard of 1.0 g/hp-hr or 82 ppmvd at 15% O₂, a CO emission standard of 2.0 g/hp-hr or 270 ppmvd at 15% O₂, and a VOC emission standard of 0.7 g/hp-hr or 60 ppmvd at 15% O₂. 40 CFR §60.4234, currently requires Warrior Met Coal to operate and maintain the four proposed SI ICE in a manner that meets these emission standards over the entire life of each engine. The four proposed SI ICE are EPA certified to meet the applicable emission standards of Subpart JJJJ. The catalysts are necessary to meet the applicable emission limits under Subpart JJJJ.

Compliance Requirements

To demonstrate compliance with the applicable emission limitations, Warrior Met Coal purchased engines certified to the emission standards. 40 CFR §60.4243(b) requires Warrior Met Coal to maintain each certified engine according to the manufacturer's emission-related written instructions. Warrior Met Coal must keep records of conducted maintenance on each of the existing engines to demonstrate compliance and must, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practices for minimizing emissions.

Testing Requirements

Each of the four proposed engines are certified. They do not have to undergo initial or subsequent compliance tests as long as Warrior Met Coal operates the engines according to the manufacturer's emission-related written instructions. However, if Warrior Met Coal does not operate and maintain each of the existing engines according to the manufacturer's emission-related written instructions, the existing engines would then be considered non-certified engines and Warrior Met Coal would be required to demonstrate compliance by performing initial and subsequent performance tests.

¹ According to the EPA and for the purpose of Subpart ZZZZ, construction means the on-site fabrication, erection, or installation of an affected source.

Notification, Reports, and Records

40 CFR §60.4245(a) requires that owners and operators of stationary SI ICE to keep records of all notifications submitted and all documentation supporting any notification. Records of all maintenance conducted on the existing engines must be maintained. All records required under this Subpart must be retained for at least five years from the date of generation of each record and be readily available for inspection upon request.

40 CFR Part 60, Subpart OOOO, Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015 (Subpart OOOO)

This facility is not subject to this Subpart because the installation of the existing compressor and four RICE did not occur after August 23, 2011, and on or before September 18, 2015, as specified in 40 CFR §60.5365.

40 CFR Part 60, Subpart OOOOa, Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After September 18, 2015 and On or Before December 6, 2022 (Subpart OOOOa)

The facility is not subject to this Subpart because the installation of the existing compressor and four RICE did not occur after September 18, 2015, and on or before December 6, 2022, as specified in 40 CFR §60.5365a.

40 CFR Part 60, Subpart OOOOb, Standards of Performance for Crude Oil and Natural Gas facilities for which Construction, Modification or Reconstruction Commenced After December 6, 2022 (Subpart OOOOb)

40 CFR §60.5365b(a) states that each well affected facility, which is a single well that conducts a well completion operation is an affected source under this Subpart. 40 CFR §60.5370b states Warrior Met Coal must be in compliance with the standards of this Subpart upon startup of the well and must, at all times, maintain and operate the affected facility in a manner consistent with good air pollution control practices for minimizing emissions.

Each affected well facility is required to meet the VOC emissions reduction as specified in 40 CFR §60.5375b(a). However, in accordance with 40 CFR §60.5375b(a)(1)(iii)(A), because this well was not hydraulically fracked, Warrior Met Coal is not required to have a separator on-site. Warrior Met Coal is required to maintain a log for each well completion operation on a daily basis for the duration of the well completion operation and must contain the records specified in 40 CFR §60.5420b(c)(1)(iii).

Initial compliance with the fugitive equipment components requirements are outlined in 40 CFR §60.5410b(k). In accordance with 40 CFR §60.5410b(k), Warrior Met Coal is required to: (1) develop a fugitive emissions monitoring plan as required by 40 CFR §60.5397b(b), (c), and (d); (2) conduct an initial monitoring survey as required by 40 CFR §60.5397b(e) and (f)(4); (3) repair each identified source of fugitive emissions for each affected facility as required in 40 CFR §60.5397b(h); (4) comply with the initial annual reporting requirements as specified in 40 CFR §60.5420b(b)(1) and (9); and (5) maintain the records as specified in 40 CFR §60.5420b(c)(14);

Continuous compliance with the fugitive equipment components requirements are outlined in 40 CFR §60.5415b(l). In accordance with 40 CFR §60.5415b(l), Warrior Met Coal is required to: (1) conduct periodic monitoring surveys as required by 40 CFR §60.5397b(e) and (g); (2) repair each identified source of fugitive emissions as required by 40 CFR §60.5397b(h); (3) submit annual reports for fugitive emissions as required in 40 CFR §60.5397b(h); and (4) maintain records as specified in 40 CFR §60.5420b(c)(14).

In accordance with 40 CFR §60.5420b(b), the initial annual report is due no later than 90 days after the end of the initial compliance period as determined by 40 CFR §60.5410b(k) (March 15, 2027). Subsequent annual reports are due no later than the same date each year as the initial annual report. Warrior Met Coal must submit annual reports in accordance with the procedures specified in 40 CFR §60.5420b(b)(1) and (9) (March 15th of each year). In accordance with 40 CFR §60.5420b(b), Warrior Met Coal may submit one report for multiple affected facilities provided the report contains all the information required as specified in 40 CFR §60.5420b(b)(1) through (14).

Monitoring Requirements

To monitor requirements with the fugitive emissions component requirements under Subpart OOOOb, Warrior Met Coal must develop a fugitive emissions monitoring plan as required by 40 CFR §60.5397b(b), (c), and (d), monitor fugitive emissions components as required by 40 CFR §60.5397b(e), conduct an initial monitoring survey as required by 40 CFR §60.5397b(f)(3), must conduct periodic monitoring surveys as required by 40 CFR §60.5397b(g), maintain records as specified by 40 CFR §60.5420b(c)(14), repair each identified source of fugitive emissions for each affected facility as required by 40 CFR §60.5397b(h).

Each of the four existing 684 hp Mesa GV22PU 4SRB natural gas-fired RICE equipped with NSCR/3-way catalyst (Proposed X003) are certified. Therefore, under Subpart JJJJ, they do not have to undergo initial or subsequent compliance tests as long as Warrior Met Coal operates each engine according to the manufacturer's emission-related written instructions. However, to ensure compliance with the proposed synthetic minor emission limits 0.6 lb/hr for NO_x and 1.0 lb/hr for CO on each of the four existing 684 hp Mesa GV22PU 4SRB natural gas-fired RICE equipped with NSCR/3-way catalyst (proposed SMOP No. X003), Warrior Met Coal would be required to conduct a compliance test every 60 months, starting 60 months after the initial operation of these units.

Air Quality Impact

This facility is located in Tuscaloosa County, an attainment area for all criteria pollutants. It is not located within 100 km of the Sipsey Wilderness Area, the nearest Class I Area. The proposed reduction to the existing NO_x and CO synthetic minor emission limitations on each of the four existing RICE would not be expected to have a significant impact on this area.

Public Participation

In accordance with ADEM Admin. Code r. 335-3-15-.05, the Air Division will initiate a 15-day public comment period in order to solicit public input regarding the Department's preliminary determination to issue Warrior Met Coal SMOP No. 413-0130-X003 for the updated NO_x and CO

synthetic minor emission limits on each of the four 684 hp Mesa RICE equipped with NSCR/3-way catalyst.

Recommendations

Based on the above analysis, upon receipt of the payment of fees and the resolution of any comments received during the 15-day public comment period, I recommend SMOP No. 413-0130-X003 be issued to Warrior Met Coal for to lower the existing synthetic minor emission limits of 1.0 g/hp-hr (1.51 lb/hr) for NO_x and 2.0 g/hp-hr (3.02 lb/hr) for CO down to 0.6 lb/hr for NO_x and 1.0 lb/hr for CO on each of the four existing 684 hp Mesa GV22PU 4SRB natural gas-fired RICE equipped with NSCR/3-way catalyst. I also recommend the cover letter transmitting this permit indicates that SMOP No. X002 would be void upon the issuance of SMOP No. X003.



Brandon Cranford
Chemical Branch
Air Division

September 28, 2026

Date

413-0130 125 09-28-2026 SMOPEA BRC SMOP X003

Appendix A
Facility-Wide Emissions
Warrior Met Coal Gas, LLC
Facility No. 413-0130

Facility-Wide Potential Uncontrolled Emissions (TPY)

Unit No.	Description	Potential Emissions @ 8760 hr/yr								
		PM	PM-CON	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂	CH ₂ O
X001*	145 hp Caterpillar w/CC	0.02	0.02	0.02	0.02	17.34	17.34	0.31	0.001	0.030
SMOP X002	(4) 684Mesa w/CC	0.91	0.95	0.91	0.91	392.62	340.76	7.18	0.060	1.970
EXISTING TOTAL		0.93	0.97	0.93	0.93	409.96	358.10	7.49	0.06	2.000
minus SMOP X002	(4) 684Mesa w/CC	-0.91	-0.95	-0.91	-0.91	-392.62	-340.76	-7.18	-0.06	-1.97
add SMOP X003	(4) 684Mesa w/CC	0.91	0.95	0.91	0.91	392.62	340.76	7.18	0.06	1.97
Proposed Totals @ 500 hr/yr		0.93	0.97	0.93	0.93	409.96	358.10	7.49	0.06	2.00

*NESHAP ZZZZ Engine

Appendix A
Facility-Wide Emissions
Warrior Met Coal Gas, LLC
Facility No. 413-0130

Facility-Wide Potential Controlled Emissions (TPY)

Unit No.	Description	Potential Emissions @ 8760 hr/yr									
		PM	PM-CON	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂	CH ₂ O	
X001*	145 hp Caterpillar w/CC	0.02	0.02	0.02	0.02	17.34	17.34	0.31	0.001	0.030	
SMOP X002	(4) 684Mesa w/CC ²	0.91	0.95	0.91	0.91	26.44	52.92	18.56	0.060	1.970	
EXISTING TOTAL		0.93	0.97	0.93	0.93	43.78	70.26	18.87	0.06	2.000	
minus SMOP X002	(4) 684Mesa w/CC ²	-0.91	-0.95	-0.91	-0.91	-26.44	-52.92	-18.56	-0.06	-1.97	
add SMOP X003	(4) 684Mesa w/CC ^{3,4}	0.91	0.95	0.91	0.91	10.52	0.01	18.56	0.06	1.97	
Proposed Totals @ 500 hr/yr		0.93	0.97	0.93	0.93	27.86	17.35	18.87	0.06	2.00	

*NESHAP ZZZZ Engine

²NSPS Allowable (TPY)

³Warrior Met Coal has requested a limit of 0.60 lb/hr to lower the Facility-wide NOx emissions

⁴Warrior Met Coal has requested a limit of 1.00 lb/hr to lower the Facility-wide CO emissions

Appendix A
Facility-Wide Emissions
Warrior Met Coal Gas, LLC
Facility No. 413-0130

Facility-Wide Uncontrolled Potential Emissions (TPY) (1-Mile Radius)

Facility No.	Facility Name	Potential Emissions @ 8760 hr/yr								
		PM	PM-CON	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂	CH ₂ O
413-0130	28-15-01	0.93	0.97	0.93	0.93	409.96	358.10	7.51	0.060	2.000
413-GW08	28-16-01 (well head only)									
413-GW09	28-10-02	0.015	0.02	0.015	0.015	46.87	28.25	0.22	0.001	0.030
413-GW12	28-04-04 (well head only)									
EXISTING TOTAL		0.93	0.97	0.93	0.93	456.83	386.35	7.73	0.06	2.03

Facility-Wide Controlled Potential Emissions (TPY) (1-Mile Radius)

Facility No.	Facility Name	Potential Emissions @ 8760 hr/yr								
		PM	PM-CON	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂	CH ₂ O
413-0130	28-15-01	0.93	0.97	0.93	0.93	11.22	34.86	18.87	0.060	2.000
413-GW08	28-16-01 (well head only)									
413-GW09	28-10-02	0.015	0.02	0.015	0.015	15.60	28.25	0.22	0.001	0.030
413-GW12	28-04-04 (well head only)									
EXISTING TOTAL		0.93	0.97	0.93	0.93	26.82	63.11	19.09	0.06	2.03

**APPENDIX A
WARRIOR MET COAL GAS, LLC
WELL 28-15-01
FACILITY NO. 413-0130
CALCULATION**

Proposed X003 – Four 684 hp Mesa GV22PU 4-Stroke Rich-Burn Natural Gas-Fired Reciprocating Internal Combustion Engines Equipped with NSCR/3-Way Catalyst

Operating Parameters:

Manufacturer: Mesa
Model: GV22PU
Ignition Type: Spark Ignition
Operating Capacity: 684 hp
Maximum Heat Input: 5.48 MMBtu
Hours of Operation: 8760 hr/yr
Fuel Source: Natural Gas

Control Device Efficiency:

NO_x: 99%
CO: 99%
VOC: 99%

40 CFR Part 60, Subpart JJJJ Emission Limitations:

NO_x: 1.0 g/hp-hr (1.51 lb/hr)
CO: 2.0 g/hp-hr (3.02 lb/hr)
VOC: 0.7 g/hp-hr (1.06 lb/hr)

Note: Potential Emissions based on a EPA default assumption of 500 hrs of operation while classified as an emergency engine per EPA 9-6-1995 Memorandum.

Potential Uncontrolled Emissions (8760 hours per year)

NO_x (Based on Manufacturer's Data)

22.41 lb	8760 hr	T	=	98.16 TPY x 4 =	392.62 TPY
hr	yr	2000 lb			

CO (Based on Manufacturer's Data)

19.45 lb	8760 hr	T	=	85.19 TPY x 4 =	340.76 TPY
hr	yr	2000 lb			

VOC (Based on Manufacturer's Data)

0.41 lb/hr	8760 hr	T	=	1.80 TPY x 4 =	7.18 TPY
hr	yr	2000 lb			

PM, PM₁₀, PM_{2.5} (based on AP-42 emission factors Section 3.2 Table 3.2-3)

0.00950 lb	5.48 MMBtu	=	0.05 lb	8760 hr	T	=	0.23 TPY x 4 =	0.91 TPY
MMBtu	hr		hr	yr	2000 lb			

PM_{con} (condensable only) (based on AP-42 emission factors Section 3.2, Table 3.2-3)

0.00991 lb	5.48 MMBtu	=	0.05 lb	8760 hr	T	=	0.24 TPY x 4 =	0.95 TPY
MMBtu	hr		hr	yr	2000 lb			

SO₂ (based on AP-42 emission factors Section 3.2; Table 3.2-3)

0.00059 lb	5.48 MMBtu	=	0.003 lb	8760 hr	T	=	0.01 TPY x 4 =	0.06 TPY
MMBtu	hr		hr	yr	2000 lb			

CH₂O (Formaldehyde) (Based on AP-42 Data Table 3.4-3)

0.02050 lb	5.48 MMBtu	=	0.112 lb	8760 hr	T	=	0.492 TPY x 4 =	1.97 TPY
MMBtu	hr		hr	yr	2000 lb			

APPENDIX A
WARRIOR MET COAL GAS, LLC
WELL 28-15-01
FACILITY NO. 413-0130
CALCULATION

Proposed X003 – Four 684 hp Mesa GV22PU 4-Stroke Rich-Burn Natural Gas-Fired Reciprocating Internal Combustion Engines Equipped with NSCR/3-Way Catalyst

Operating Parameters:

Manufacturer: Mesa
Model: GV22PU
Ignition Type: Spark Ignition
Operating Capacity: 684 hp
Maximum Heat Input: 5.48 MMBtu
Hours of Operation: 8760 hr/yr
Fuel Source: Natural Gas

Control Device Efficiency:

NO_x: 99%
CO: 99%
VOC: 99%

40 CFR Part 60, Subpart JJJJ Emission Limitations:

NO_x: 1.0 g/hp-hr (1.51 lb/hr)
CO: 2.0 g/hp-hr (3.02 lb/hr)
VOC: 0.7 g/hp-hr (1.06 lb/hr)

Note: Potential Emissions based on a EPA default assumption of 500 hrs of operation while classified as an emergency engine per EPA 9-6-1995 Memorandum.

Potential Controlled Emissions (8760-hours per year)

NO_x (based on control device manufacturer's data)

0.02 lb	8760 hr	T		=		0.09 TPY	x 4 =	0.35 TPY
hr	yr	2000 lb						

NO_x (based on Warrior Met Coal's requested emission limit)

0.60 lb	8760 hr	T		=		2.63 TPY	x 4 =	10.51 TPY
hr	yr	2000 lb						

CO (based on control device manufacturer's data)

0.02 lb	8760 hr	T		=		0.09 TPY	x 4 =	0.35 TPY
hr	yr	2000 lb						

CO (based on Warrior Met Coal's requested emission limit)

1.00 lb	8760 hr	T		=		4.38 TPY	x 4 =	17.52 TPY
hr	yr	2000 lb						

VOC (based on EPA Certificate of Conformity)

1.06 lb/hr	8760 hr	T		=		4.64 TPY	x 4 =	18.57 TPY
hr	yr	2000 lb						

VOC (based on EPA Certificate of Conformity)

1.06 lb/hr	8760 hr	T		=		4.64 TPY	x 4 =	18.57 TPY
hr	yr	2000 lb						

PM, PM₁₀, PM_{2.5} (based on AP-42 emission factors Section 3.2 Table 3.2-3)

0.00950 lb	5.48 MMBtu		=	0.05 lb	8760 hr	T		=		0.23 TPY	x 4 =	0.91 TPY
MMBtu	hr			hr	yr	2000 lb						

PM_{con} (condensable only) (based on AP-42 emission factors Section 3.2, Table 3.2-3)

0.00991 lb	5.48 MMBtu		=	0.05 lb	8760 hr	T		=		0.24 TPY	x 4 =	0.95 TPY
MMBtu	hr			hr	yr	2000 lb						

SO₂ (based on AP-42 emission factors Section 3.2, Table 3.2-3)

0.00059 lb	5.48 MMBtu		=	0.003 lb	8760 hr	T		=		0.01 TPY	x 4 =	0.06 TPY
MMBtu	hr			hr	yr	2000 lb						

CH₂O (Formaldehyde) (Based on AP-42 Data Table 3.4-3)

0.02050 lb	5.48 MMBtu		=	0.112 lb	8760 hr	T		=		0.492 TPY	x 4 =	1.97 TPY
MMBtu	hr			hr	yr	2000 lb						