



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

July 11, 2019

Jeremy Rohrbaugh, P.E.
Rohmac, Inc.
P.O. Box 335
Mt. Storm, WV 26739

Re: Rohmac Diesel Power Pack Model DP 138D

Dear Mr. Rohrbaugh:

Chapter 4 of the "Bituminous Coal Mine Safety Act" (the Act) provides for the use of diesel-powered equipment in underground bituminous coal mines. Section 424 of the act created a Technical Advisory Committee ("TAC") for the purpose of advising the Department regarding implementation of Chapter 4 and evaluation of alternative technology or methods for meeting the requirements of Chapter 4.

On January 8, 2019, Rohmac, Inc. submitted a request to the Technical Advisory Committee ("TAC") and Bureau of Mine Safety to have this piece of equipment inspected. On January 22, 2019, The DEP Bureau Director requested the TAC to review and comment on this request.

The TAC and DEP traveled to the Acosta Mine in Friedens, PA on April 24, 2019 to conduct their investigation and issued their report recommending temporary approval on April 26, 2019. Temporary approval was granted on May 3, 2019. Permanent approval was recommended at the TAC meeting on July 10, 2019.

Based on the recommendation of the TAC and the equipment approval staff, your request for approval is granted.

If you have any questions, please contact me at 724.404.3154.

Sincerely,

Richard A. Wagner, P.E.
Acting Director
Bureau of Mine Safety

cc: Ron Bowersox, TAC
Paul Borchick, TAC
Chas Washlack
Gary Barkley
Art Brower
John Antoon
Jim Ross



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

May 3, 2019

Jeremy Rohrbaugh, P.E.
Rohmac, Inc.
P.O. Box 335
Mt. Storm, WV 26739

Re: Temporary Approval – Rohmac Diesel Power Pack Model DP 138D

Dear Mr. Rohrbaugh:

This is in response to your letter dated April 15, 2019, requesting temporary approval for the Rohmac Diesel Power Pack Model DP 138D. The next Technical Advisory Committee on Diesel-Powered Equipment (TAC) meeting is scheduled for July 10, 2019, at which time the final approval for this equipment will be recommended by the TAC.

The TAC and the DEP traveled to the Acosta Mine in Friedens, PA on April 24, 2019, to evaluate this equipment. Subsequently, the TAC issued a recommendation dated May 6, 2019, to the Bureau recommending the approval of the equipment with the following stipulations:

- This recommendation is provided with the understanding that the General Specification Sheet (Attachment 1) be strictly adhered to.
- A Smoke Dot test will be conducted as part of every 100-hour maintenance inspection or more often if necessary. Any smoke dot test above a 3 will require the components to be replaced or regenerated (cleaned).
- Since the exhaust cooling chamber uses a fan to draw mine air into the chamber, the TAC recommends that the cooling chamber be inspected for combustible accumulations during every 100-hour maintenance inspection and cleaned if necessary.

Temporary approval is granted for this equipment to be used prior to the regular scheduled TAC meeting that is to be held on July 10, 2019.

Sincerely,

Colvin C. Carson
Director

Enclosure

cc: Ron Bowersox, TAC
Paul Borchick, TAC
Chas Washlack
Art Brower
Jeff Hamilton

Pennsylvania Technical Advisory Committee On Diesel Powered Equipment

Paul Borchick
(412) 736-9105 (Cell)

Email: paulborchick@gmail.com

Ron Bowersox
(724) 726-8987 (Home)
(724) 479-8692 (Office)

Email: umwarbowersox@yahoo.com

April 26, 2019

Colvin Carson, Director
Bureau of Mine Safety
Department of Environmental Protection
131 Broadview Road
New Stanton, PA 15672

RE: Rhomac Inc. Diesel Power Package - Model DP 138D utilizing a Deutz BF4M2012C diesel engine (MSHA ID 07-ENA-040003- Part 7) 138HP @ 2500 RPM with a Rhomac Model DEC 1202 emissions control system using an MSHA Approved DCL MINE-X Sootfilter ceramic DPM Filter Model 950NC-SA-050U-0G52-01 (93% Efficient) and DCL MINE-X Diesel Oxidation Catalyst Model 25000-EQ-010R-0082-01, a Rhomac Model DEC1202 Heat Exchanger, and a Protectoseal Model 674 Flame Arrestor.

Dear Mr. Carson:

Chapter 4 of the "Bituminous Coal Mine Safety Act" (the Act) provides for the use of diesel-powered equipment in underground bituminous coal mines. Section 424 of the act created a Technical Advisory Committee ("TAC") for the purpose of advising the Department regarding implementation of Chapter 4 and evaluation of alternative technology or methods for meeting the requirements of Chapter 4.

Background

On January 8, 2019 Rhomac Inc. submitted a request for evaluation of their Rhomac Inc. Diesel Power Package - Model DP 138D utilizing a Deutz BF4M2012C diesel engine (MSHA ID 07-ENA-040003- Part 7) 138HP @ 2500 RPM with a Rhomac Model DEC 1202 emissions control system using an MSHA Approved DCL MINE-X Sootfilter ceramic DPM Filter Model 950NC-SA-050U-0G52-01 (93% Efficient) and DCL MINE-X Diesel Oxidation Catalyst Model 25000-EQ-010R-0082-01, a Rhomac Model DEC1202 Heat Exchanger, and a Protectoseal Model 674 Flame Arrestor.

On April 24, 2019 the TAC and DEP traveled to Corsa Acosta Mine in Friedens, PA to conduct an investigation to provide a recommendation to the Director as to whether the referenced equipment meets requirements of Section 403 of the Act. The engine and emissions control package has not been previously approved under Section 403 of the Act.

The diesel power package includes the following items:

- Deutz BF4M2012C diesel engine (MSHA ID 07-ENA-040003- Part 7) 138HP @ 2500 RPM
- Rhomac Model DEC 1202 emissions control system using an MSHA Approved DCL MINE-X Sootfilter ceramic DPM Filter Model 950NC-SA-050U-0G52-01 (93% Efficient)
- DCL MINE-X Diesel Oxidation Catalyst Model 25000-EQ-010R-0082-01
- Rhomac Model DEC1202 Heat Exchanger
- Protectoseal Model 674 Flame Arrestor

More detailed information on the specifications of the diesel power package is included on the General Specification Sheet which is attached as Attachment 1.

Investigation

On April 24, 2019 the TAC and DEP traveled to Corsa Acosta Mine in Friedens, PA to inspect the equipment when it became available. The TAC evaluated the engine and exhaust emissions package.

Emissions testing of the engine and after-treatment system were performed, as well as exhaust gas temperature monitoring and stall test procedure. The results of the emission tests showed the engine was performing within MSHA's approval specifications. The CO measured on the treated side of the emissions control system was 17 ppm when measured during the stall test. The raw CO measured was 54 ppm during the stall test. The engine was brought up to operating temperature and the CO₂ was monitored to insure the engine was loaded properly for a repeatable and comparative stall test. The CO₂ measured at 8.0% for both tests.

Monitoring of the exhaust gas temperature produced a high exhaust gas temperature reading of 130° F at the exhaust exit, which is well below the 302° F allowed by Section 403 (b)(4) of the Act. The maximum surface temperature observed was 170° F on the lower part of the engine, which is below the 302° F allowed by Section 403 (b)(3) of the Act. A smoke dot test was conducted on the exhaust system at the exit of the exhaust tube and the result yielded a number around 1 on the smoke dot scale. Since the exhaust cooling chamber uses a fan to draw mine air into the chamber, the TAC recommends that the cooling chamber be inspected for combustible accumulations during every 100 hour maintenance inspection and cleaned if necessary.

The after-treatment system is fitted with an MSHA Approved DCL MINE-X Sootfilter ceramic DPM Filter Model 950NC-SA-050U-0G52-01 (93% Efficient). The engine and filter extrapolations show that the diesel power package will result in an average ambient concentration of .029 mg/m³ of diesel particulate matter when diluted by 100% of the MSHA approval plate ventilation rate for this engine, which is well below the 0.12 mg/m³ requirement of Section 403 (a)(1) the Act.

Since the DCL MINE-X Sootfilter ceramic DPM Filter Model 950NC-SA-050U-0G52-01 DPM Filter is a passively regenerated system, the results of the smoke dot test will determine when the components will be replaced. Any smoke dot test above a 3 will require the components to be replaced or regenerated (cleaned). Smoke dot tests will be conducted as part of every 100 hour maintenance inspection or more often if necessary.

In addition to the testing that was conducted, our investigation and our observations confirmed that the diesel power package is capable of meeting all the requirements of Section 403 of the Act.

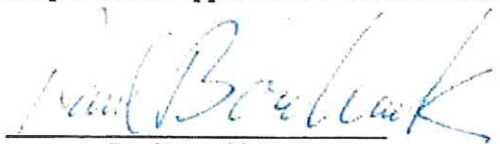
Recommendation

Our recommendation is based upon the data supplied by Rhomac Inc., the results of the tests conducted on April 24, 2019, as well as the data acquired and observations made by the TAC and DEP during our investigation. The Rhomac Inc. Diesel Power Package - Model DP 138D utilizing a Deutz BF4M2012C diesel engine (MSHA ID 07-ENA-040003- Part 7) 138HP @ 2500 RPM with a Rhomac Model DEC 1202 emissions control system using an MSHA Approved DCL MINE-X Sootfilter ceramic DPM Filter Model 950NC-SA-050U-0G52-01 (93% Efficient) and DCL MINE-X Diesel Oxidation Catalyst Model 25000-EQ-010R-0082-01, a Rhomac Model DEC1202 Heat Exchanger, and a Protectoseal Model 674 Flame Arrestor meets all requirements of Section 403 of Chapter 4 of the Pennsylvania Bituminous Coal Mine Safety Act.

As such, we are recommending approval of the above described diesel power package with the following stipulations:

- This recommendation is provided with the understanding that the General Specification Sheet (Attachment 1) be strictly adhered to.
- A Smoke Dot test will be conducted as part of every 100 hour maintenance inspection or more often if necessary. Any smoke dot test above a 3 will require the components to be replaced or regenerated (cleaned)
- Since the exhaust cooling chamber uses a fan to draw mine air into the chamber, the TAC recommends that the cooling chamber be inspected for combustible accumulations during every 100 hour maintenance inspection and cleaned if necessary.

If the Director should receive a request to use this equipment prior to the next scheduled TAC meeting, the TAC recommends temporary approval until the next regular scheduled TAC meeting on July 10, 2019 at which time permanent approval will be recommended.



Paul Borchick



Ron Bowersox

General Specification Sheet
EQUIPMENT MANUFACTURER ROHMAC INC MODEL DP 138D DATE 01/08/19

I. Engine			
Manufacturer	Deutz	Particulate Index (PI)	3000
Manufacturer Address	3883 Steve Reynolds Blvd Norcross, GA 30093		
Engine Model No.	BF4M2012C	Gaseous Ventilation Rate (CFM)	6500
Engine Serial No.	TBD	Raw DPM (gr/hr)	4.57
HP/RPM (rated)	138 / 2500	MSHA Part 7 Approval #	07-ENA040003
Low Idle (RPM)	800	MSHA Part 7 Ventilation Rate (CFM)	6500
Max. Dirty Intake Air Restriction H ² O	26	Type of Aspiration	Turbocharged
Max. Allowed Backpressure H ² O	30	Turbocharger Boost (psi)	21.8 max
High Idle (RPM)	2750	Fuel Delivery System	Direct Injection
Water-jacketed components	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Engine Cooling via	Coolant

II. Particulate Filter			
Manufacturer	DCL International Inc.		
Manufacturer Address	2 41 Bradwick Dr. Concord ON L4K 1K5 Canada		
Model Number	950NC-SA-050U-0G52-01	System Type	Ceramic
MSHA Efficiency Rating	93	MSHA Approved	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Treated DPM mg/m ³ when diluted w/100% Part 7 ventilation rate (show calc on separate sheet)	0.029		

III. Catalyst	
Manufacturer	DCL International Inc.
Manufacturer Address	2 41 Bradwick Dr. Concord ON L4K 1K5 Canada
System Name	MINE-X Catalytic Converter
Model Number	A0019-1D-010R-0102-01 25000-EQ-010R-0082-01

IV. Flame Arrestor			
Manufacturer	Protectoseal		
Manufacturer Address	225 W. Foster Avenue, Bensenville, IL 60106		
System Name	End-of-Line Circular Plate Flame Arrestor		
Model Number	674	MESG	0.025"

V. Heat Exchanger			
Manufacturer	ROHMAC INC	Model or Part #	DEC 1202

VI. Fire Suppression System			
Manufacturer	ANSUL	Model or Part #	Checkfire SCN

47-11-11-11-11



Office (304) 259-2201 • Fax (304) 259-2217

ROHMAC, INC.

P. O. Box 335 • Mt. Storm, West Virginia 26739

15 April 2019

Mr. Art Brower
Pennsylvania Department of Environmental Protection
Fayette County Health Center
100 New Salem Road, Room 167
Uniontown, PA 15401

Subject: Temporary use approval request for Rohmac Diesel Power Pack Model
DP 138D

Dear Mr. Brower,

ROHMAC INC is requesting a temporary approval for our Model DP 138D Diesel Power Pack, as part of a S280D Scoop, for use in bituminous underground coal mines in the Commonwealth of Pennsylvania until such time as the TAC meets and the BOTE-DEES approval is finalized. The APS ID for this approval request is 984261

If you have any questions or need any additional information for the approval please contact me at (304) 259-2201 x-233 (office) or (301) 616-7351 (cell).

Sincerely,

A handwritten signature in black ink, appearing to read 'Jeremy Rohrbaugh', is written over a light blue horizontal line.

Jeremy Rohrbaugh
Rohmac, Inc.
Sales Engineer



Office (304) 259-2201 • Fax (304) 259-2217

ROHMAC, INC.

P. O. Box 335 • Mt. Storm, West Virginia 26739

8 January 2019

Technical Advisory Committee on Diesel Powered Equipment

Paul Borchick, Ron Bowersox

% Bureau of Deep Mine Safety
Pennsylvania Department of Environmental Protection, New Stanton Office
131 Broadview Road
New Stanton, PA 15672

Subject: TAC Recommendation request for DP 138D Power Package

Gentlemen,


Rohmac Inc. is requesting a BOTE-DEES approval recommendation for our a model DPD 138D diesel power package for use in bituminous underground coal mines in the Commonwealth of Pennsylvania. The Diesel Power Package will consist of the following:

- Deutz BF42012C engine MSHA ID 07-ENA040003 rated at 138 hp @ 2500 rpm
- ROHMAC INC Model DEC 1202 Emissions Control System
- DCL MINE-X Sootfilter 950NC-SA-050U-0G52-01
- DCL MINE-X Catalytic Converter A60L9-ID-010R-0102-01

Attached to this letter, please find a general specification sheet, the MSHA lug curve for the engine listed, MSHA Emissions test data, DPM reduction extrapolation of the emission control system, OEM engine spec sheet, and the 90 second emission test procedure as required by Sections 417 and 418 of the PA Bituminous Coal Mining Safety Laws.

If you have any questions or need any additional information for the approval recommendation, contact me at (304) 259-2201 x-233 or jeremyrohrbaugh@rohmacinc.com.

Sincerely,



Jeremy Rohrbaugh, P.E.

Rohmac Inc.

