

January 19, 2018

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

Re: **ITEM:** DIESEL ENGINE PACKAGE
MODEL: Duetz DPD 157D; **HP:** 157
APSID NO: 954935
APPROVAL NO. BOTE-DEES 3-18

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.

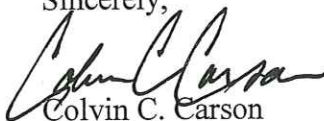
On November 8, 2017 submitted a request to the Technical Advisory Committee ("TAC") and Bureau of Mine Safety to have this piece of equipment inspected. On November 13, 2017, The DEP Bureau Director requested the TAC to review and comment on this request.

The TAC and DEP traveled to Rohmac on November 29, 2017 to conduct their investigation and issued their report recommending approval on December 29, 2017. Approval was granted at the TAC meeting on January 10, 2018.

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

If you have any questions on this request, please contact me at either cocarson@pa.gov or at 724.404.3154.

Sincerely,



Colvin C. Carson
Director

Enclosure(s)

cc: Ron Bowersox, TAC
Paul Borchick, TAC

**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

December 29, 2017

RECEIVED

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

JAN 10 2018
Bureau of Mine Safety
New Stanton

RE: Rhomac Inc. Model DP 157D Diesel Power Package utilizing a Deutz BF4M1013FC - 157 HP @ 2200RPM engine (MSHA Part 7 Approval # 07-ENA040007-1) with a DCL International, Inc. MINE-X Catalytic Converter, Model A60L9-ID-010R-0102 diesel oxidation catalyst, and a DCL International Inc. Model 950NC-SA-050-0G52-01 / CDTi-C18-0010UG5-21 DPM filter (93% efficient) or equivalent filter, and also utilizing a Protectoseal Model 674 flame arrestor, and a Rhomac Inc Model DEC1202 Heat Exchanger.

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 November 8, 2017, Rhomac Inc. submitted a request to the TAC and Bureau of Mine Safety for evaluation and approval pursuant to Chapter 4 of the Act for a Rhomac Inc. Model DP 157D Diesel Power Package utilizing a Deutz BF4M1013FC - 157 HP @ 2200RPM engine (MSHA Part 7 Approval # 07-ENA040007-1) with a DCL International, Inc. MINE-X Catalytic Converter, Model A60L9-ID-010R-0102 diesel oxidation catalyst, and a DCL International Inc. Model 950NC-SA-050-0G52-01 / CDTi-C18-0010UG5-21 DPM filter (93% efficient) or equivalent filter, and also utilizing a Protectoseal Model 674 flame arrestor, and a Rhomac Inc Model DEC1202 Heat Exchanger.

Recommendation

Our recommendation is based upon the data supplied by Rhomac, Inc., the results of the tests conducted on November 21, 2017, as well as the data acquired and observations made during our investigation. The TAC has determined that Rhomac Inc. Model DP 157D Diesel Power Package utilizing a Deutz BF4M1013FC - 157 HP @ 2200RPM engine (MSHA Part 7 Approval # 07-ENA040007-1) with a DCL International, Inc. MINE-X Catalytic Converter, Model A60L9-ID-010R-0102 diesel oxidation catalyst, and a DCL International Inc. Model 950NC-SA-050-0G52-01 / CDTi- C18-0010UG5-21 DPM filter (93% efficient) or equivalent filter, and also utilizing a Protectoseal Model 674 flame arrestor, and a Rhomac Inc Model DEC1202 Heat Exchanger 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. This recommendation is provided with the understanding that the General Specification Sheet (Attachment 1) be strictly adhered to.

Should the Director receive a request for temporary approval for use prior to the next TAC meeting, the TAC will recommend temporary approval until the next scheduled TAC meeting on January 10, 2018 at which time permanent approval will be recommended.



Paul Borchick



Ron Bowersox

General Specification Sheet

EQUIPMENT MANUFACTURER ROHMAC INC MODEL DP 157D DATE 11/08/17

I. Engine			
Manufacturer	Deutz	Particulate Index (PI)	3000
Manufacturer Address	3883 Steve Reynolds Blvd Norcross, GA 30093		
Engine Model No.	BF4M1013FC	Gaseous Ventilation Rate (CFM)	6500
Engine Serial No.	12033068	Raw DPM (gr/hr)	4.84
HP/RPM (rated)	157 / 2200	MSHA Part 7 Approval #	07-ENA040007-1
Low Idle (RPM)	650	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
High Idle (RPM)	2420	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. / CDTi-ECS		
Manufacturer Address	2 41 Bradwick Dr. Concord ON L4K 1K5 Canada / CDTi - 83 Commerce Valley Drive East, Thornhill, ON L3T 7T3 Canada		
Model Number	DCL - 950NC-SA-050U-0G52-01 / CDTi - C18-0010	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)	0.0307		
III. Catalyst			
Manufacturer	DCL International Inc. / CDTi-ECS		
Manufacturer Address	2 41 Bradwick Dr. Concord ON L4K 1K5 Canada / CDTi - 83 Commerce Valley Drive East, Thornhill, ON L3T 7T3 Canada		
System Name	MINE-X Catalytic Converter / Purifier AZ		
Model Number	A60L9-ID-010R-0102 / A16-0032		
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
--------------	-------	-----------------	---------------

DPM Calculation Sheet

Engine Deutz BF4M1013FC
MSHA Approval 07-ENA040007-1
Ventilation Rate 6500 cfm
DPM Emissions 4.84 g/hr
Filter Type DCL MINE-X Sootfilter Ceramic
Filter Efficiency 93 %

DPM Unit Conversion

$$\frac{\text{g/hr}}{4.84} * \frac{\text{hr/min}}{60} * \frac{\text{mg/g}}{1000} = 80.667 \text{ mg/min}$$

Ventilation Rate Unit Conversion

$$\frac{\text{cfm}}{6500} * \frac{\text{m}^3/\text{ft}^3}{0.0283} = 184.05 \text{ m}^3/\text{min}$$

Filtered DPM Emissions Calculation

$$\frac{\text{mg/min}}{80.667} * \frac{\text{min/m}^3}{184.05} * \frac{\text{filter eff}}{100} = 0.0307 \text{ mg/m}^3$$