



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF MINE SAFETY

976

November 17, 2011

Mr. Jeremy Rohrbaugh
Rhomac, Inc.
P O Box 335
Mt. Storm, WV 26739

RE: Engine and emissions control package evaluation under Sections 403, 417 and 418 of the Act for a Deutz D2011 L02I (MSHA ID 07-ENA040010 Part 7) 30hp@2800rpm Engine with Rhomac DEC1202 emissions control system using an CleanAIR Permit Model FPA060W4CN - DPM filter and a CleanAIR Assure Model CWD0466BCCN diesel oxidation catalyst in a Rhomac Microtraxx Model MT3434 diesel track loader.

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 April 26, 2011 Rhomac, Inc. submitted a request to the TAC and Bureau of Mine Safety (BMS) for approval for a Rhomac Microtraxx Model MT3434 diesel track loader using a Deutz D2011 L02I (MSHA ID 07-ENA040010 Part 7) 30hp@2800rpm Engine with Rhomac DEC1202 emissions control system using an CleanAIR Permit Model FPA060W4CN - DPM filter and a CleanAIR Assure Model CWD0466BCCN diesel oxidation catalyst. The engine and emissions control package has not been previously approved under Section 403 of the Act.

On April 29, 2011 the Director of BMS requested the TAC to evaluate the Microtraxx Model MT3434 diesel track loader using a Deutz D2011 L02I (MSHA ID 07-ENA040010 Part 7) 30hp@2800rpm Engine with Rhomac DEC1202 emissions control system using an CleanAIR Permit Model FPA060W4CN - DPM filter and a CleanAIR Assure Model CWD0466BCCN diesel oxidation catalyst and to advise the Department regarding the TAC's recommendation as to whether the referenced equipment meets requirements of Section 403 of the Act.

The diesel power package includes the following items:

- Deutz D2011 L02I (MSHA ID 07-ENA040010 Part 7) 30hp@2800rpm Engine
- Rhomac Model DEC1202 emissions control system:
 - o CleanAIR Permit Model FPA060W4CN - DPM filter (89% efficient)
 - o CleanAIR Assure Model CWD0466BCCN diesel oxidation catalyst
 - o Protectoseal Model F674 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.

On October 6, 2011 the TAC and DEP traveled to Rhomac, Inc. in Mount Storm, WV 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.

Monitoring of the exhaust gas temperature produced a high exhaust gas temperature reading of 118° F, which is well below the 302° F allowed by Section 403 (b)(4) of the Act. The maximum surface temperature observed was 230° F on the exhaust manifold after conducting all the CO testing. A smoke dot test was conducted and the result was a 1.

The after-treatment system is fitted with a CleanAIR Permit Model FPA060W4CN - DPM filter. The filter is rated by MSHA at an 87 % efficiency rating. The engine and filter extrapolations show that the diesel power package will result in an average ambient concentration of .10554 mg/m3 of diesel particulate matter when diluted by 100% of the MSHA approval plate ventilation rate for this engine, which is below the .12 mg/m3 requirement of Section 403 (a)(1) the Act.

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.

The TAC requested Rhomac to add a more visible warning light for the fire suppression system, since this is a remote controlled machine where the operator may not always be able to see the warning light mounted on the rear of the machine. The addition of a strobe light on the top of the machine visible in all directions was agreed to by Rhomac.

Our recommendation is based upon the data supplied by Rhomac, the results of the tests conducted on October 6, 2011, as well as the data acquired and observations made during our investigation. The TAC has determined that the Deutz D2011 L02I (MSHA ID 07-ENA040010 Part 7) 30hp@2800rpm Engine with Rhomac DEC1202 emissions control system using a CleanAIR Permit Model FPA060W4CN - DPM filter and a CleanAIR Assure Model CWD0466BCCN diesel oxidation catalyst 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.

The TAC issued a final recommendation approving the equipment on October 10, 2011.

If you have any questions on this request, please contact Alan Martin at alamartin@pa.gov or at 724-439-7461.

Sincerely,



Joseph A. Scaffoni
Director
Bureau of Mine Safety

cc: Bowersox
Borchick

Enclosure(s)

JAS/ALM/cd

bcc: Martin
Antoon
Gaida
Elias (web)
Dunn/TAC file

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF MINE SAFETY

November 22, 2011

Jeremy Rohrbaugh
Rohmac Inc.
PO Box 335
Mt. Storm, VA 26739

Re: **ITEM:** CRAWLER MOUNTED DIESEL LOADER
MODEL: MT3434; **VOLTAGE:** VDC 12; **HP:** 30.2 HP @ 2800 RPM
APSID NO: 748136
APPROVAL OF BOTE-D 196-11

ENGINE MFG: DEUTZ **MODEL:** 2011L02I
BOTE-DEES NO. 197-11 **PA VENTILATION RATE:** 1,500 CFM

Dear Mr. Rohrbaugh:

We have completed our evaluation of the equipment noted above, and approve its use in Rosebud bituminous underground coal mines of Pennsylvania. The equipment meets the legal requirements of the *Pennsylvania Bituminous Coal Mine Act*.

Pennsylvania approval number **BOTE-D 196-11** has been assigned to the equipment. This number must appear conspicuously on the outside of the subject equipment on a 2" x 4" rust-resistant metal plate, or any other Bureau acceptable material. The approval plate should read "Commonwealth of Pennsylvania" and "Approval No. **BOTE-D 196-11**." The plate and lettering should be resistant to removal by abrasion.

If you want to make changes or alterations on this equipment, a written request outlining the proposed changes, together with any related prints or drawings, must be submitted to this office for approval. If you have any questions, please contact me at the above telephone number.

Sincerely,

Joseph A. Scaffoni
Director
Bureau of Mine Safety

Fayette County Health Center | 100 New Salem Road, Room 167 | Uniontown, PA 15401

724.439.7469 | Fax 724.439.7324

www.depweb.state.pa.us