

Fayette County Health Center
100 New Salem Road, Room 167
Uniontown, PA 15401
April 9th, 2009

Bureau of Mine Safety

724-439-7469
Fax 724-439-7324

Mr. Arnemann Grender
Johnson Industries, Inc
101 Pine Fork
Pikeville, Kentucky 41501

RE: **Final Approval** of Johnson Industries Model SS rubber tired mantrip with a Deutz BF4L 2011 87 HP diesel engine (de-rated to 74hp) and an Engine Control System Silicon Carbide filter (ECS S/9) and Engine Control System Oxidation Catalyst (AZ 27) utilizing off-board regeneration.

Dear Mr. Grender:

On October 21, 2008, the Director of BMS requested the TAC to evaluate the diesel power package and to advise the Department regarding the TAC's recommendation as to whether the diesel power package meets the requirements of the Act. The Director also requested the TAC to evaluate the use of the ceramic filter as a flame arrestor, and for the TAC's recommendation on Johnson Industries request for an Alternate Test Procedure for CO testing.

On November 14, 2008 the TAC and BMS traveled to Rosebud Mining's Shop to inspect the equipment and evaluate the need for an Alternate Test Procedure for testing CO emissions. On November 25th, 2008 BMS conducted a follow-up inspection of the diesel powered mantrip.

On December 9, 2008, the Bureau of Mine Safety granted *temporary approval* of the Johnson Industries Model SS rubber tired mantrip contingent upon a 90 day trial period for further evaluation of the complete system and to allow for practical evaluation of the ceramic filter as a flame arrestor. The approval included other specific parameters for evaluation during this time period.

On February 26th, 2009 the TAC and BMS traveled to Toms Run Mine to complete the evaluation and review the records created during the 90 day test period.

The requested changes to the system and the operating procedures were reviewed and evaluated. These changes included:

- Addition of another temperature sensor in the swirl box, where the hottest surface temperature was detected, to monitor the temperature in the swirl box to identify a problem with the cooling fan or system. The sensor was attached to a cooling fan shut down gage mounted in the operator's compartment in order to show an alarm if the temperature in the box exceeded 270 degrees F.
- Examination of the exhaust cooling fan during every service interval and filter change to ensure it is in good operating condition and to record the condition on the checklist.
- Cleaning out the swirl box during every service interval and filter change to ensure that there is no accumulation of coal or combustible material in the box.

- o Including in the pre-op check list, the examination of the exhaust cooling fan intake for any obstructions and the condition of the swirl box to be free of damage or leaks.

The maintenance records and replacement parts used during the 90 day evaluation period were reviewed by the TAC. One replacement of the cooling fan was necessary during the evaluation period. The fan motor failed due to excessive heating of the motor after shut down. A timer was installed to allow additional run time of the fan after the engine is shut down. No other parts were replaced. Maintenance records showed that the engine and emissions control package performed within the limits as required by Section 418 of the Safety Act.

In addition to the testing that was conducted, the TAC's investigation and observations confirmed that the diesel power package is capable of meeting all requirements of Section 403 of Chapter 4 of the Act without reducing or compromising the level of health or safety afforded by the Act. The TAC recommends **final approval** of the above described diesel power package, **subject to the conditions listed above**. This recommendation is provided with the understanding that the General Specification Sheet (Attachment 1) be strictly adhered to.

The need for the Alternate Test procedure was shown during testing conducted on November 14, 2008 however, a TAC recommendation for approval of the Alternate Test is not necessary since the 90 second test is the standard as provided in Chapter 4, Sections 417 and 418 of the Act.

Based on the information provided and the TAC recommendation, the Department *approves* the Johnson Industries Model SS diesel powered mantrip with a Deutz BF4L 2011 74 HP diesel engine with an Engine Control System Silicon Carbide filter and Engine Control System oxidation catalyst.

The PA ventilation rate for this engine is 6,000 cfm. This diesel mantrip is strictly for use in intake aircourses outby the last permanent ventilation wall.

Should you have any questions regarding the process, contact my office at the above phone number.

Sincerely,

Joseph A. Scaffoni
Director
Bureau of Mine Safety

Enclosures

cc: Ron Bowersox/TAC
Paul Borchick/TAC

bcc: W. Bookshar

A. Martin
M. McCaffrey
S. Gaida
R. Ceschini
D. Walter
B. Pontani
D. Gramling
TAC file/C. Dunn

JAS/WBB/cd

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Model SS Rubber Tired Mantrip.doc*