



April 20, 2016

TO: Pennsylvania Bituminous Mining Operations

RE: Electrical Connection on Start-up Batteries for Diesel-Powered Equipment in Pennsylvania Bituminous Coal Mines

The Technical Advisory Committee on Diesel-Powered Equipment (TAC), as established under Section 424 of the Pennsylvania Bituminous Coal Mine Safety Act (Act), was created to evaluate and advise the Department regarding implementation of alternative technology or methods prior to approval by the Secretary.

At the July 8, 2015, TAC meeting, a question arose concerning the requirement for two-point battery connections on diesel start-up batteries. Subsequent to that meeting, the Department asked the TAC to look into the matter and issue a recommendation that could be considered for use by all mine operators in the Commonwealth. The TAC had discussions with both the DEP and stakeholders and conducted an investigation into the availability of batteries with two-point connections for diesel start-up batteries. The TAC concluded that an acceptable alternative to the two-point connection would be to install a second nut on the terminal that connects the terminal to the battery post. This would only apply to start-up batteries and not to batteries used to power equipment.

The Secretary approves this TAC recommendation for an alternative method of connecting battery terminals to battery posts on diesel start-up batteries. This alternative method does not compromise the level of protection afforded to the miners under the provisions of the Act.

If you have any questions on this approval, please contact me at cocarson@pa.gov or 724.404.3141.

Sincerely,

A handwritten signature in black ink that reads "Colvin C. Carson".

Colvin C. Carson
Director

Enclosure

cc: Pennsylvania Coal Alliance
United Mine Workers of America
Ron Bowersox, TAC
Paul Borchick, TAC

**Pennsylvania Technical Advisory Committee
On Diesel Powered Equipment**

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April 7, 2016

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

RE: TAC recommendation for Electrical Connection on Start-up Batteries on Diesel Powered Equipment in PA Underground Coal Mines

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

During the PA TAC meeting on July 8, 2015, Ron Vlassich from Rosebud Mining brought up the issue of the requirement for two point battery connection on battery powered mobile equipment. The question brought up was whether this requirement should be applied to start-up batteries on diesel powered equipment. This discussion was continued at the January 13, 2016 TAC meeting.

Investigation

The discussion between the TAC, DEP and stakeholders was basically focused on the difference between the battery powered equipment and diesel powered equipment. The diesel powered equipment uses a small, typically 12 volt battery to provide start up power to the diesel engine. The battery powered equipment uses a much larger battery (usually multiple batteries connected together) at higher voltage and amps that actually powers the piece of equipment.

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One stakeholder said that the diesel start-up battery is no different than the battery in a passenger car or utility tractor. Another pointed out that these type batteries have no means of providing a two point connection. By trying to make a modification to provide a two point connection, one attempted to drill the battery post to use a screw type fastener. What they found was that the fastener would not tighten due to the soft material used for the battery post, and they also pointed out that by drilling the post it removed material that compromised the battery design.

One solution that was discussed was to simply use a double nut connection on the terminal. This would help insure that the terminal could not loosen on the battery post. After further discussion regarding this option, all parties agreed that this double nut method should provide at least the same level of protection at the two point connections system for this smaller, lower voltage battery, and it was more practical than compromising the battery by drilling the post.

Recommendation

Our recommendation is based upon the discussions among the TAC, DEP and Stakeholders and the unavailability of a diesel start-up battery with a two point connection

The TAC recommends that an acceptable alternative to the two point connection on the diesel engine start-up battery would be to double nut the battery terminal where it attaches to the battery post. The TAC feels that this method does not compromise the same level of protection to the miners as provided by the PA Bituminous Coal Mine Act.

This TAC recommendation is limited to the diesel engine start-up battery connections on underground diesel powered equipment.



Paul Borchick



Ron Bowersox