Approval and Certification Center

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From the Center Chief's Desk

It has been exciting to see the "tidal wave" of new safety related technologies that have emerged in the last few years. I am confident these products will revolutionize the safety and health of our nation's miners.

I recently signed approval letters for new conveyor belts that meet our Part 14 regulations for improved fire resistance. We are also conducting preliminary meetings with manufacturers regarding their approval applications for Part 7 portable refuge alternatives. The refuge alternative is a protected, secure space with an isolated atmosphere and integrated components that create a life-sustaining environment during mine emergencies.

The "flood gates are opening" with the introduction of several high-tech electronic instruments, particularly enhanced communications and tracking products. We have experienced a remarkable twentyfold increase in C&T approval applications compared to pre-2006 levels. We have also approved proximity detection systems that can aid in eliminating many of the mobile machinery accidents. Another new product, the coal dust explosibility meter (CDEM), determines the explosibility of a rock dust and coal dust mixture collected from an underground coal mine. During rock dust surveys, the CDEM gives immediate real time results and provides instant guidance regarding where additional rock dusting may be needed.

In this issue, we will update you on quality assurance equipment audit activities, communications and tracking, refuge alternatives, and diesel surface temperature controls.

Thanks in large part to the ingenuity of mining equipment manufacturers, it is a dynamic time for the dedicated A&CC employees to serve in the mining equipment approval business. It is our hope that the current "tsunami" of new technology development continues far into the future for the benefit of our most precious resources…the miners.

Have a great summer,

John

John P. Faini

A&CC: More, Better, Sooner for the Miners.

Equipment Audits

MSHA's Quality Assurance & Materials Testing Division (QA&MTD) recently began a new emphasis on auditing underground permissible equipment. Mining equipment specialists from QA&MTD have been contacting manufacturers and rebuilders of MSHA approved mining equipment to offer the opportunity to have our specialists perform pre-service inspections or audits of MSHA approved equipment. The audits can be performed at the original equipment manufacturing (OEM) facilities, equipment re-build facilities, and at the mine sites and are free of charge.

QA&MTD's audit team performs an in-depth inspection, covering 30CFR Parts 7, 18, and 75. They will examine X/P enclosures, motors, and lights, as well as electrical circuits and components such as fuses, overloads, and breakers, identifying the intrinsically safe circuits and components. The team will perform a permissibility check on the machine; and if power is available they will also check brakes, panic bars, and emergency stop switches.

The primary benefit offered by this program is that if a non-conformance with the approval or regulation is encountered, corrective action can then be accomplished at the manufacturer's site or rebuild shop prior to the equipment being placed into service. This would reduce the likelihood that the mine operator would be cited for a permissibility violation which would have to be subsequently addressed. The most important benefit is that it contributes to the ultimate goal of ensuring the safety of our nation's miners.

Please contact Ken Sproul at 304.547.2038 or sproul.kenneth@dol.gov for more information or questions.

Communications and Tracking Update

The Electrical Safety Division (ESD) continues to focus its approval efforts on evaluation of communication and tracking applications. Since January 2006, we have issued over 100 new or revised approvals for communication and tracking systems. We are currently investigating an additional 61 applications for this important technology. The MINER Act deadline of June 15, 2009, for mine operators to submit their emergency response plans has resulted in a last minute inrush of applications.

This unprecedented approval activity has resulted in a major improvement in the state of communication and tracking technology available to underground coal mines. In the last three years, we have seen leaky feeder systems modified to

increase their potential to survive an accident. We have witnessed radio frequency identification (RFID) tracking systems become available and deployed on a widespread basis. We have seen several node-based communication and tracking systems obtain MSHA approval and be introduced to underground mines. We are currently evaluating approval applications for medium frequency and through-the-earth technologies and hope that these systems will become commercially available in the near future.

We are extremely optimistic that these new communication and tracking technologies will result in a much safer environment for our miners.

For more information, visit: http://www.msha.gov/techsupp/commoandtracking.asp or contact Dave Chirdon at 304.547.2026 or chirdon.david@dol.gov

Part 7 Refuge Alternatives Application Assistance

The final rule of 30 CFR Parts 7 and 75 published in the Federal Register on December 31, 2008, establishes the testing and approval requirements for refuge alternatives in underground coal mines and the training of miners in their use. It implements Section 13 of the Mine Improvement and New Emergency Response (MINER) Act of 2006.

The rule sets forth specific provisions for the maintenance of trapped miners in emergency situations through the use of refuge alternatives. Typically, refuge alternatives are hard shelled chambers, inflatable shelters, and borehole systems that supply breathable air. To accommodate future technological advances, the rule allows for flexibility in construction as long as certain performance standards are met.

Under the final rule, new Subpart L of Part 7 requires that an applicant or a third-party test the refuge alternative or component. The applicant, usually a manufacturer, provides the required information and test results to the Applied Engineering Division (AED) of MSHA's A&CC to demonstrate that the refuge alternative or component meets the applicable technical requirements and test criteria. MSHA will issue an approval for a refuge alternative or one of its components based on the Agency's evaluation of the information and test results submitted with the approval application. The MSHA approval under Part 7 assures operators and miners that the refuge alternative can be used safely and effectively in underground coal mines and that the components can be used safely with each other. Subpart L defines the criteria by which refuge alternatives and their component systems will be approved.

A&CC has developed and provided information and is offering assistance in the approval process. Additional information can be found at these sites:

http://www.msha.gov/REGS/FEDREG/FINAL/2008finl/E8-30669.pdf is a PDF document of the final rule for refuge alternatives. It contains the CFR Part 7, Subpart L, the additions to CFR Part 75, and the preamble to the rule.

http://www.msha.gov/TECHSUPP/ACC/application/application.htm details the application procedures for refuge alternatives, structural components, breathable air components, air monitoring components, and harmful gas removal component approvals. Examples and a comprehensive checklist are provided for each refuge alternative or component.

http://www.msha.gov/REGS/COMPLIAN/Guides/RefugeAlternatives.pdf provides answers to questions posed by manufacturers, mine operators, and state and federal enforcement agencies.

The AED is available for pre-application meetings to discuss and assist applicants in the approval procedure. The ESD is available for consultations and meetings if an intrinsically safe evaluation or an explosion-proof certification is required.

For consultations or to schedule a meeting, contact: Michael Getto, AED, at 304.547.2303 or getto.michael@dol.gov or Kevin Dolinar, ESD, at 304.547.2014 or dolinar.kevin@dol.gov .

New Technology Surface Temperature Control for Out-by Diesel Equipment

The exposed surfaces of exhaust system components on engines used in diesel powered machines can reach temperatures exceeding 1000 degrees F. This is a fire hazard representing an ignition source for many combustible materials found on machines and in underground mines. Some mines are required to use diesel machines with surface-temperature-controlled components in out-by areas of their mines. In lieu of using Part 36 approved diesel machines, which utilize water cooled exhaust system components, these mines use machines that have insulated coverings on exhaust components to control surface temperature. Some mines reported serious problems with this method of surface temperature control. Covering engine exhaust manifolds, turbochargers, and exhaust piping with insulation resulted in premature failure of these components. Castings cracked and welds failed, and the resulting exhaust gas leaks into the insulation increased fire risk. The insulation was non-combustible, but the diesel particulate matter captured in the insulation fibers was combustible. Insulating turbo-chargers significantly reduced their life: seals and bearings would fail, posing fire and other safety hazards. Over time, protective coverings on insulation degraded due to spray washing of machines, age, and other factors, thus allowing the resulting exposed insulation fibers to become a wick which could absorb flammable liquids increasing fire risk.

Two western underground coal mines, working cooperatively with MSHA personnel from CMS&H HQ and District 9, A&CC, and the Solicitors office, evaluated and tested various insulation coverings and methods to control the surface temperature on their out-by machines without success. After these failed attempts, a new acceptable concept was found. Using this concept, water cooled systems were developed which controlled all hot exhaust system components for a variety of diesel engines. Use of these systems does not adversely affect engine performance and is allowed under their MSHA Part 7 Subpart E engine approvals. MSHA witnessed tests of these systems and found them to effectively control surface temperature to less than 302 degrees F for out-by applications.

For more information or questions, please contact Bob Setren, at 304.547.2070 or setren.robert@dol.gov.

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Individuals can submit a suggestion to the Slogan of the Month Contest at: http://www.msha.gov/techsupp/safetycontests/safetycontests.htm)