Mine Safety and Health Administration

REGULATIONS V

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SAFETY & HEALTH >

## Petition - Docket No. M-2021-007-C

COMPLIANCE & ENFORCEMENT ✓

11/8/21 In the matter of:

Petition for Modification Mountain Coal Company,

TRAINING V

LLC West Elk Mine I.D. No. 05-03672 Docket No. M-2021-007-C

PROPOSED DECISION AND ORDER

On April 6, 2021, a petition was filed seeking a modification of the application of 30 Code of Federal Regulations (30 C.F.R.) § 75.507-1(a) to Petitioner's West Elk Mine located in Somerset, Gunnison County, Colorado. The Petitioner alleges that the alternative method outlined in the petition will at all times guarantee no less than the same measure of protection afforded by the standard. The petitioned standard, 30 Code of Federal Regulations (30 C.F.R.) § 75.507-1(a) states, in relevant part,

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**Q** Search

(a) All electric equipment, other than power-connection points, used in return air outby the last open crosscut in any coal mine shall be permissible except as provided in paragraphs (b) and (c) of this section.

Petitioner is requesting a modification of the standard to allow the use of unapproved Powered Air Purifying Respirators (PAPR), in return air outby the last open crosscut. Specifically, the petitioner is requesting to utilize the 3M VersafloTM TR-800 Intrinsically Safe PAPR.

The petitioner states that it currently uses the 3MTM AirstreamTM Headgear-Mounted PAPR System to provide additional protection for its miners against exposure to respirable coal mine dust. The PAPR provides a constant flow of air inside the helmet which helps provide respiratory protection and comfort in hot working environments. The approved 3MTM AirstreamTM system has been

used for more than 40 years by many mine operators to help protect their workers. Recently 3M indicated they have been facing multiple supply disruptions of key components for the Airstream product line.

Due to the supply disruptions, 3M discontinued production of the Airstream system and components on June 1, 2020. Currently, there are no replacement 3M PAPRs that meet applicable Mine Safety and Health Administration (MSHA) standards for permissibility relative to electronic equipment used in potentially explosive atmospheres of underground coal mines.

The petitioner proposes to use the 3M VersafloTMTR-800 Intrinsically Safe Powered Air Purifying Respirator motor/blower and battery which qualifies as intrinsically safe in the U.S., Canada and

any other country accepting the International Electrotechnical Commissions System (IECEx) for Certification to Standards Relating to Equipment for Use in Explosive Atmosphere. The TR-800 PAPR

has a blower that is UL-certified with an intrinsically safe (IS) rating of Division 1: IS Class I, II, III; Division 1 (includes Division 2) Groups C, D, E, F, G; T4 under the most current standard (UL 60079,

6th Edition, 2013); ATEX certified with an intrinsically safe (IS) rating of "ia". The TR -800 is

rated and marked with Ex ia I Ma, Ex ia IIB T4 Ga, Ex ia IIIC 135oC Da, -20oC < Ta <+55oC, under the current standard (IEC 60079). The 3M VersafloTM TR-800 PAPR is not MSHA approved as permissible and 3M is not pursuing approval. The petitioner states that the ANSI/ISA standards are an acceptable alternative to ACRI2001 and provide an equivalent level of protection. The petitioner proposes the following alternative method:

1. When not in operation, batteries for the PAPR will be charged on the surface or underground in intake air and not within 150 feet of a worked out area.

2. The batteries will be inspected and changed at the surface or underground in intake air.

3. The following battery charging products will be used: 3M TR-641N or 3M 4- station battery charger TR-644N.

4. The 3M Versaflo TR-800 will exclusively use the TR-830 battery pack.

5. Miners will be trained on how to safely use, care for and inspect PAPR units,

6. The above PAPR will be assessed for physical damage and integrity of the unit's case before each use. 7. The product will not be used if methane level is found to be at or above 1.0 percent. If the methane levels are higher than 1.0 percent the equipment will immediately be de-energized and

withdrawn from affected areas.

8. The product will not be used in continuous miner sections alongside proximity detection systems. 9. The mine has no designated miner's representative.

10. A copy of this Petition has been posted on the mine bulletin board. MSHA personnel conducted an investigation of the petition and filed a report of their findings with the Administrator for Mine Safety and Health Enforcement. After careful

Finding of Fact and Conclusion of Law

Review of the entire record, including the petition, and MSHA's investigative report, this Proposed Decision and Order is issued.

MSHA investigators conducted an investigation of Mountain Coal Company, LLC, West Elk Mine on June 22-24, 2021. The investigation included an item-by-item review of the proposed petition for modification (PFM), equipment manufacture's user

instructions, 3M Versaflo TR-800 brochure and an on-site mine visit. During the on-site visit, the MSHA investigator verified the Petition for Modification (PFM) was posted on the mine's bulletin board and explained the PFM process and all stipulations to the miners and supervisors. The MSHA investigator did not observe any apparent electromagnetic interference or performance issues

between the 3M Versaflo TR-800, powered air-purifying respirators (PAPR) and the equipment provided for testing. The West Elk Mine is located at 5174 Highway 133, approximately three miles east of Somerset, Gunnison County, Colorado. Mountain Coal Company, LLC (MCC) is a typical Western Drift Mine, first

010-0, is mining in the SS 2 HG panel and is approximately 1,080 feet wide and 5,220 feet long. The continuous miner (CM) MMU 008-0 is mining in the SS 3 HG section. The West Elk Mine is operating three different shifts during the weekdays. Day shift is an eight hour downshift Monday through Friday. Swing shift is a 10 hour production shift Monday through Thursday and graveyard shift is a 10 hour production shift Tuesday through Friday. The weekend shift is 13 hour per day, maintenance/outby crew Friday through Sunday. The longwall and continuous miner sections typically produce four days per week on swing-shift and graveyard-shift, eight production shifts per week for each section. Mine production is approximately 12,000 tons per shift. Records indicate a raw coal production of 2,538,091 tons for CY 2020. The mine liberates approximately 1,661,013 cubic feet of methane in a 24 hour period. The mine currently employs approximately 237 employees and there are no designated miner's representatives. The granting of this petition would affect all underground miners at the mine. There were two hourly employees and three supervisors interviewed about the petition. Two miners favored the 3M Versaflo TR-800 because of the discontinuation of the 3M Airstream respirator.

opened in 1982 and currently owned by Arch Resources, Inc. The mine has six portals leading into the F seam portion of the mine. The mine has a total of four ventilation shafts that supply

ventilation into the B seam and E seam portions of the mine. One ventilation shaft provides exhausting ventilation to the E seam. The average seam thickness is 10 feet. The longwall miner, MMU

Two other interviewed miners had concerns that the Versaflo TR-800 belt would interfere with the miner's belt which carries the self-rescuer (SCSR), cap lamp battery, tools and other equipment. One interviewed miner had additional concerns about the potential breakage of the cap lamp attachment mounted on the top of the helmet. Mine management believes that the miner's concerns can be addressed by providing a pouch on the mine belt or providing a backpack. Mine management believes the cap lamp attachment is of substantial construction and has replacement cap lamp brackets available.

The petitioner alleges that the alternative method proposed in the petition will, at all times guarantee no less than the same measure of protection afforded by the standard. **Intrinsic Safety** 

Information regarding the UL listing for the 3M VersafloTM TR-800 PAPR was submitted to the MSHA Approval and Certification Center (A&CC). A review was requested for the use of the unapproved

PAPR in areas of the mines where permissibility is required. A&CC conducted the review and provided conclusions that the device is certified by UL according to the ANSI/UL 60079-11 standard. The

The UL certification material (drawings, certificate and text report) was found to support the conclusion that the VersafloTM TR- intrinsic safety requirements for mining equipment as found in the

UL certificate means that the unit is certified to be used in hazardous locations, has met the most onerous level of intrinsic safety protection and the level of protection is acceptable for use in mines susceptible to firedamp. Due to legal and regulatory constraints, the UL certificate alone is not accepted by MSHA as evidence that the PAPR is approved for use in U.S. mines.

Mining Explosion-Protected Equipment Approval Requirements versus those of International Standards-fault intrinsic safety as defined in the ANSI/UL 60079 standard would provide at least an equivalent level of safety as that provided by equipment approved to MSHA criteria.

Manufacturer

NIOSH researcher's in a paper titled "An Evaluation of the Relative Safety of U.S.

The VersafloTM TR-800 carries an ingress protection rating of IP64. This rating exceeds the minimum rating of IP54 required by the ANSI/UL and IEC standards for intrinsically safe mining equipment.

Model

On June 23, 2021, investigators traveled to the West Elk Mine to observe any potential electromagnetic interference between the 3M VersafloTM TR-800 PAPR and other electrical equipment typically worn, carried or operated by miners on the longwall section. Mining conditions on the sections were approximately 10 feet mining height and damp mine floor. The mine operator provided electrical equipment typically used in conjunction with the PAPR for testing. The 3M Versaflo TR-800 PAPR features a helmet with a full-face visor connected by a hose to a pack containing the pump motor,

filter and battery, which is attached to the miner's belt. The investigator first performed baseline functionality tests for electrical equipment, including the PAPR, by operating them individually.

longwall electrical equipment as identified in Table 1. Table 1

Investigators conducted testing by positioning an operating PAPR in various orientations and distances ranging from zero to 12 inches from the miner- worn electrical equipment and other

Investigators conducted testing by positioning an operating PAPR in various orientations and distances ranging from zero to 12 inches from the miner- worn electrical equipment and other longwall electrical equipment as identified in Table 1.

**Equipment Type** 

ANSI/UL standard.

**Electromagnetic Interference Investigation** 

2009M/Approval 18-Strobe Light Grace Industries, Inc. No

Interference

Strobe Light	Grace Industries, Inc.	A 1000007-0	No
Multi-Gas Detector	Altair 4X	BFE32-13/Approval 22A 130001-0	No
Mine Radio	Motorola	HT750/Approval-23 080007-0  Commonwealth PA  BFE98-09	No
Cap Lamp and Battery	Koehler	Wheat Lamp Patent 608503B2 Battery Model 114286/Approval BFE 117-08	No
Phone	Mine Site Technology	MP70 Approval LP0503AH BAK523450AHR	No
Methane Monitor	CSE	140B-LD	No
Shield Computer	Caterpillar	PMC R2 Serial Number: 0644 08206B	No
Bucyrus Shear	Electra	3000 Serial Number: 75662-SHEL-13	No
Shear Remote	Structured Mining Systems, Inc.	Model TX97X Serial Number: 241	No
Methane Sensor	Conspec	P2040AKP-CA	No
Oxygen Sensor	Conspec	P2031KD	No
Carbon Monoxide Sensor	Conspec	P2030KPF-50	No
Face Phone	Comtrol Loudmouth	Serial Number LM101	No
Lighting	KH Lighting	Model LX2L Serial Number:014688	No
onclusions  uring the investigation, the investigator did not observe any apparent electromagnetic interference or performance issues between the PAPR and the equipment provided by the mine operator, is listed in Table 1 above.  assed on the investigations discussed above, MSHA has determined that the VersafloTM TR-800 PAPR can be safely used in areas where permissible equipment is required if the mine operator collows all equipment manufacturer's recommendations and adheres to the requirements of the Terms and Conditions of the Proposed Decision and Order.  In the basis of the petition and Mountain Coal Company, LLC is granted a modification of the application of 30 C.F.R. § 75.507-1(a) to its West Elk Mine.			

## , PAPR units shall only be used for regular longwall mining operations and shall not be used in continuous miner sections alongside proximity detection systems. The petitioner is subject to the conditions of this Order: Terms and Conditions

C.F.R. § 75.507-1(a) in the West Elk Mine is hereby:

filter load alarm". Examination entries may be expunged after one year.

i. Check the equipment for any physical damage and the integrity of the case;

iii. Inspect the contact points to ensure a secure connection to the battery;

the last open crosscut or in areas where methane may enter the air current.

3M Charger Cradles TR-640 and one 3M 4-Station Battery Charger Base/Power Supply TR-944N.

operator shall keep a record of such training and provide such record to MSHA upon request.

iv. The batteries shall not be used, charged or stored in locations

where the manufacturer's recommended temperature limits

iv. Reinsert the battery and power up and shut down to ensure proper connections; and

v. Check the battery compartment cover or battery attachment to ensure that it is securely fastened.

initially inspected the equipment and determined that it is in compliance with all the terms and conditions of this Order.

TR-800 PAPR is being used, the equipment shall be de-energized immediately and withdrawn outby the last open crosscut.

iii. The battery must not be exposed to water or allowed to get wet. This does not preclude incidental exposure of sealed battery packs.

maintained in a safe operating condition.

ii. Remove the battery and inspect for corrosion;

These examinations shall include

equipment.

plans.

ORDER

1. Affected mine employees must be trained in the proper use and maintenance of the Versaflo TR-800 PAPR unit in accordance with established manufacturer's guidelines. This training shall emphasize the importance of adhering to the g distances to prevent interference between the PAPR and other electrical equipment. This training shall alert the affected employees that the Versaflo TR-800 PAPR is not approved under 30 CFR Part 18 and must be de-energized when methane is detected in concentrations of 1.0 percent or more and shall also include the proper method to de-energize the PAPR.

2. Regarding safe operating distances to prevent electromagnetic interference between the PAPR unit and other electrical equipment. The operator shall perform testing for electromagnetic

Wherefore, pursuant to the authority delegated by the Secretary of Labor to the Administrator for Mine Safety and Health Enforcement and pursuant to Section 101(c) of the Federal Mine Safety

3. The Versaflo TR-800 PAPR, battery packs and all associated wiring and connections shall be inspected before use to determine if there is any damage to the units that would negatively impact intrinsic safety. If any defects are found, the PAPR shall be removed from service. 4. The operator will maintain a separate logbook for the 3M VersafloTM TR-800 PAPR that shall be kept with the equipment, or in a location with other mine record books and shall be made

interference between the PAPR unit and any other additional types of electrical equipment, placed in service at this mine, which have not been previously tested.

GRANTED, for the operator who may use the 3M VersafloTM TR-800 Powered Air Purifying Respirators (PAPR), in return air outby the last open crosscut. In accordance

and Health Act of 1977, 30 U.S.C. § 811(c), it is ordered that Mountain Coal Company, LLC's Petition for Modification of the application of 30

5. All 3M VersafloTM TR-800 PAPRs to be used in return air outby the last open crosscut, shall be physically examined prior to initial use and each unit will be assigned a unique identification number. Each unit shall be examined by the person to operate the equipment prior to taking the equipment underground to ensure the equipment is being used according to the original equipment manufacturer's recommendations and

available to MSHA upon request. The equipment shall be examined at least weekly by a qualified person as defined in 30 CFR 75.512-1 and the examination results recorded in the logbook. Since

float coal dust is removed by the air filter prior to reaching the motor, the PAPR user shall conduct regular examinations of the filter and perform periodic testing for proper operation of the "high

vi. For equipment utilizing lithium type cells, ensure that lithium cells and/or packs are not damaged or swelled in size. 6. The operator is to ensure that all Versaflo TR-800 PAPR units are serviced according to the manufacturer's recommendations. Dates of service will be recorded in the equipment's log book and shall include a description of the work performed.

7. The Versaflo TR-800 PAPR units that will be used in return air outby the last open crosscut or in areas where methane may enter the air current, shall not be put into service until MSHA has

9. All hand-held methane detectors shall be MSHA-approved and maintained in permissible and proper operating condition as defined by 30 C.F.R. § 75.320. All methane detectors must provide visual and audible warnings when methane is detected at or above 1.0 percent. 10. A qualified person as defined in existing 30 C.F.R. § 75.151 shall continuously monitor for methane immediately before and during the use of the 3M VersafloTM TR-800 PAPR in return air outby

8. Prior to energizing the 3M VersafloTM TR-800 PAPR in return air outby the last open crosscut, methane tests must be made in accordance with 30 C.F.R. § 75.323(a).

replaced on that shift. The following maintenance and use conditions shall apply to equipment containing lithium-type batteries: i. Always correctly use and maintain the lithium-ion battery packs. The 3M TR-830 Battery Pack must not be disassembled or modified by anyone other than permitted by the manufacturer of the

ii. The 3M TR-830 Battery Pack must only be charged in an area free of combustible material, readily monitored and located on the surface of the mine. The 3M TR-830 Battery Pack is to be charged

by either: 1. 3M Battery Charger Kit TR-641N which includes one 3M Charger Cradle TR-640 and one 3M Power Supply TR-941N, or, 2. 3M 4-Station Battery Charger Kit TR-644N which includes four

12. Use only 3M TR-830 Battery Pack, which meets lithium battery safety standard UL 1642 or IEC 62133, in the 3M VersafloTM TR-800 PAPR. The battery pack must be "changed out" in intake air

outby the last open crosscut. Before each shift when the 3M VersafloTM TR-800 PAPR is to be used, all batteries for the equipment must be charged sufficiently so that they are not expected to be

11. The 3M VersafloTM TR-800 PAPR shall not be used if methane is detected in concentrations at or above 1.0 percent methane. When 1.0 percent or more of methane is detected while the Versaflo

are exceeded. The batteries must not be placed in direct sunlight or used or stored near a source of heat. v. The battery must not be used at the end of its life cycle (e.g. when there is a performance decrease of greater than 20% in battery operated equipment). The battery must be disposed of properly. 13. Personnel engaged in the use of the 3M VersafloTM TR-800 PAPR shall be properly trained to recognize the hazards and limitations associated with the use of the equipment in areas where

methane could be present. Additionally, personnel shall be trained regarding proper procedures for donning Self Contained Self Rescuers (SCSRs) during a mine emergency while wearing the

14. Within 60 days after this Order becomes final, the operator shall submit proposed revisions for its approved 30 C.F.R. Part 48 training plans to the Mine Safety and Health Enforcement District

Manager. These proposed revisions shall specify initial and refresher training regarding the terms and conditions stated in this Decision and Order. When training is conducted on the terms and

conditions in this Order, an MSHA Certificate of Training (Form 5000-23) shall be completed. Comments shall be included on the Certificate of Training indicating that the training received was for

Versaflo TR-800 PAPR. The mine operator shall submit revisions to update the Mine Emergency Evacuation and Firefighting Program of Instruction under 30 C.F.R. 75.1502.

use of the 3M VersafloTM TR-800 PAPR. 15. All personnel who will be involved with or affected by the use of the Versaflo TR-800 PAPR shall receive training in accordance with 30 C.F.R. § 48.7 on the requirements of this Order within 60 days of the date this Order becomes final. Such training must be completed before any Versaflo TR-800 PAPR can be used in return air outby the last open crosscut or in areas where methane may enter the air current. The operator shall keep a record of such training and provide such record to MSHA upon request.

16. The operator shall provide annual retraining to all personnel who will be involved with or affected by the use of the Versaflo TR-800 PAPR in accordance with 30 C.F.R. § 48.8. The operator shall

train new miners on the requirements of this Order in accordance with 30 C.F.R. § 48.5, and shall train experienced miners on the requirements of this Order in accordance with 30 C.F.R. § 48.6. The

17. The operator shall post this Order in unobstructed locations on the bulletin boards and/or in other conspicuous places where notices to miners are ordinarily posted, for a period of not less than 60 consecutive days. 18. Unless specifically mentioned herein, nothing in this Order changes or supersedes the requirements otherwise imposed by the Mine Act, other mandatory standards or regulations, or approved

and Health Enforcement, 201 12th Street South, Arlington, Virginia 22202. If a hearing is requested, the request shall contain a concise summary of position on the issues of fact or law desired to be raised by the party requesting the hearing, including specific objections to the proposed decision. A party other than the Petitioner who has requested a hearing may also comment upon all issues of fact or law presented in the petition and any party to this action requesting a hearing may indicate a desired hearing site. If no request for a hearing is filed within 30 days after service thereof, the Decision and Order will become final and must be posted by the

Any party to this action desiring a hearing on this matter must file in accordance with 30 C.F.R. § 44.14 within 30 days. The request for hearing must be filed with the Administrator for Mine Safety

The petitioner shall include the above terms and conditions in the initial and annual refresher training as required in its approved Part 48 training plans to ensure that miners are aware of the

Regional Administrator for Mine Safety and Health Enforcement

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stipulations contained in this petition.

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Fatality Database

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Mountain Coal Company,

Mr. Timothy Fraser,

Safety Manager

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operator on the mine bulletin board at the mine. David L. Weaver Certificate of Service I hereby certify that a copy of this proposed decision was served personally or mailed, postage paid, or provided by other electronic means this 8th day of November, 2021, to:

Mine Safety and Health Specialist cc: Mr. Bill York-Feirn, Chief Inspector, Division of Reclamation, Mining and Safety, Mine Safety and Training Program,

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