

UNITED STATES DEPARTMENT OF LABOR
OFFICE OF THE ASSISTANT SECRETARY
FOR MINE SAFETY AND HEALTH

In the Matter of:) PETITION FOR MODIFICATION
))
PARKWOOD RESOURCES, INC.,) CASE NOS. 2010-MSA-1
ROSEBUD MINING CO.) 2011-MSA-2
) 2011-MSA-11
) 2011-MSA-12

DECISION AND ORDER

This is a modification proceeding under § 101(c) of the Federal Mine Safety and Health Act of 1977 ("the Mine Act" or "the Act"), 30 U.S.C. § 811(c).¹ The Administrator for Coal Mine Safety and Health ("the Administrator") appeals the April 11, 2013, decision of Department of Labor Administrative Law Judge Michael P. Lesniak. The judge granted Parkwood Resources Inc.'s and Rosebud Mining Company's (collectively "Rosebud's") petitions for modification of the application of 30 C.F.R. §

Section 101(c) of the Act provides in pertinent part:

Upon petition by the operator or the representative of miners, the Secretary may modify the application of any mandatory safety standard to a coal or other mine if the Secretary determines that an alternative method of achieving the results of such standard exists which will at all times guarantee no less than the same measure of protection afforded the miners of such mine by such standard, or that the application of such standard to such mine will result in a diminution of safety to the miners in such mine.

¹ 30 U.S.C. § 811(c).

75.507-1(a)² and of 30 C.F.R. § 75.500(d)³ to allow the use of non-permissible electronic surveying equipment in or in by the last crosscut and in return air. Rosebud requests that the judge's decision be affirmed. For the reasons set forth herein, I affirm the judge's decision as modified and supplemented by the conditions set forth in this decision and order.

² 30 C.F.R. § 75.507-1(a) provides:

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.

³ 30 C.F.R. § 75.500 provides:

On and after March 30, 1971:

(a) All junction or distribution boxes used for making multiple power connections inby the last open crosscut shall be permissible;

(b) All handheld electric drills, blower and exhaust fans, electric pumps, and such other low horsepower electric face equipment as the Secretary may designate on or before May 30, 1970, which are taken into or used inby the last open crosscut of any coal mine shall be permissible;

(c) All electric face equipment which is taken into or used inby the last open crosscut of any coal mine classified under any provision of law as gassy prior to March 30, 1970, shall be permissible; and

(d) All other electric face equipment which is taken into or used inby the last crosscut of any coal mine, except a coal mine referred to in § 75.501, which has not been classified under any provision of law as a gassy mine prior to March 30, 1970, shall be permissible.

BACKGROUND

A. The Petitions for Modification

Rosebud filed largely identical petitions for modification of Section 75.507-1(a) and of Section 75.500(d) to allow the use of non-permissible surveying equipment in or in by the last open crosscut or in return air at 15 underground coal mines in Pennsylvania.⁴ The 15 mines are: Cherry Tree, Twin Rocks, Dutch Run, Tracy Lynne, Tom's Run, Penfield, Mine 78, Lowry, Logansport, Little Toby, Heilwood, Darmac No. 2, Clementine, Beaver Valley, and Brush Valley. The Cherry Tree Mine's petitions were designated as the lead petitions in the case.

The petitions request that Section 75.507-1(a) and Section 75.500(d) be modified to allow the use of battery-powered non-permissible surveying equipment in or inby the last crosscut and in return air under the following conditions:

1. All non-permissible battery powered surveying equipment to be used [in return or inby the last open crosscut] shall be examined prior to use to ensure the equipment is being maintained in a safe operating condition. In addition, the equipment will be examined at intervals not to exceed 7 days by a qualified person as defined in 30 C.F.R. § 75.153. Examination results shall be recorded in the weekly examination of electrical equipment book. These checks shall include:

⁴ Rosebud filed two petitions for each mine -- one seeking a modification of Section 75.507-1(a), and one seeking a modification of Section 75.500(d).

i. check the instrument for any physical damage and the integrity of the case;

ii. remove the battery and inspect for corrosion;

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

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

v. check the battery compartment cover to ensure that it is securely fastened.

2. 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 non-permissible surveying equipment in or inby the last open crosscut or in the return.

3. Non-permissible surveying equipment 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 non-permissible surveying equipment is being used, the equipment shall be de-energized immediately and the non-permissible electronic equipment withdrawn outby the last open crosscut.

4. Non-permissible surveying equipment shall not be used where float coal dust is in suspension.

5. Batteries contained in the surveying equipment must be "changed out" or "charged" in fresh air outby the last open crosscut.

6. Qualified personnel engaged in the use of surveying equipment shall be properly trained to recognize the hazards and limitations associated with the use of surveying equipment.

7. The non-permissible surveying equipment shall not be put into service until MSHA has initially inspected the equipment and determined that it is in compliance with all the above terms and conditions.

8. Within 60 days after the Proposed Decision and Order becomes final, [Rosebud] shall submit proposed revisions for its approved 30 C.F.R. Part 48 training plan to the Coal Mine Safety and Health District Manager. In addition to training regarding the requirements specified in item No. 1, these proposed revisions shall specify initial and refresher training regarding the terms and conditions stated in the Proposed Decision and Order.

September 15, 2011 Stipulations ("Sept. Stip.") at ¶ 15.

The petitions state that they would apply to the following types of battery-powered equipment as well as to "similar and equivalent equipment:"

1. A 6 volt Topcon Corporation ("Topcon") DT209L theodolite;
2. A 6 volt Topcon DT104L theodolite;
3. A 7.2 volt Topcon GTS-213 total station;
4. A 7.2 volt Topcon GPS-223 total station;
5. A 7.2 volt Topcon GPT-3003 W total station; and
6. A 7.2 volt Topcon GPT-3103 W total station.

See Sept. Stip. at ¶ 18.

B. MSHA Coal District 2's Reports of Investigation

In response to the petitions, MSHA Coal District 2 conducted investigations at the mines and issued investigative reports to MSHA's Chief of Coal Mine Safety and Health. District 2 recommended that the petitions require that the non-permissible equipment only be used until equivalent permissible equipment is approved by MSHA's Approval and Certification Center. *E.g.*, JX 2 at 3.⁵ The reports of investigation also recommended that all examinations of the non-permissible equipment be recorded in a

⁵ "JX" refers to Joint Exhibit; "RBX" refers to Rosebud Exhibit; "GX" refers to Administrator's Exhibit.

separate book, that the gas detector used to monitor for methane during the surveying remain with the non-permissible surveying equipment while it is energized, that the areas in or inby the last open crosscut or in the returns be examined for methane before the non-permissible equipment is brought into the area, that the cutting of coal cease in the air split to eliminate float coal dust in suspension, that surveyors begin surveys with fully charged batteries, and that replacement batteries not remain in the equipment cases during surveying in or inby the last open crosscut or in return air. See e.g., JX 2 at 4-7.

A. The Administrator's Proposed Decisions and Orders

The Administrator issued Proposed Decisions and Orders ("PDO"s) denying the petitions for modification. The Administrator concluded that Rosebud's proposed alternative method would not provide the same measure of protection to miners as the standards and that application of the standards does not result in a diminution of safety. E.g., JX 1, JX 3.

In determining that the proposed alternative method would not provide the same measure of protection to miners as the standards, the Administrator noted that MSHA's requirements for permissible or intrinsically safe equipment are intended to prevent mine explosions from methane accumulations, methane outbursts, or float coal dust by removing a potential fuel source. E.g., JX 1 at 5. He then noted that the electronic

surveying equipment is neither permissible nor intrinsically safe. *Id.* The Administrator concluded that each of Rosebud's proposed conditions was insufficient to compensate for the hazards of the non-permissible equipment. *Id.* at 5-7.

B. The Hearings and the Judge's Decision

Rosebud filed requests for hearings on the Administrator's determination that the proposed alternative method would not provide the same measure of protection to miners as the standards. The cases were consolidated and heard on September 13, 2011 through September 15, 2011, August 27, 2012 through August 29, 2012, and November 6, 2012. On April 11, 2013, the judge issued a decision and order.

The judge granted the petitions for modification, concluding that Rosebud's proposed alternative method, as modified and supplemented by additional conditions of use contained in his order, would at all times guarantee no less than the same measure of protection afforded by the mandatory safety standards. Dec. at 2, 14. He also found, taking into account both the advantages and disadvantages of the alternative method, that the modification would achieve a net gain in overall mine safety. Dec. at 2, 15. The judge imposed essentially the same conditions for use set forth in Rosebud's petitions for modification, except that he modified the requirement that batteries contained in the surveying equipment

be changed out or charged in fresh air outby the last open crosscut to require that they be changed out or charged in fresh air outside the mine. Dec. at 17 at ¶ 6. He also added the following conditions which he found would prevent the degradation of seals and would require Rosebud to take advantage of new technology:

1. Rosebud will maintain a separate log book for each piece of electronic surveying equipment. The log books will be kept in the mine office where the equipment is located and will be available for audit by MSHA inspectors. The log book will contain the date of manufacture and/or purchase of that particular theodolite or total station.

2. Rosebud shall replace or retire from service any electronic surveying instrument that was acquired prior to December 31, 2001 within one year of this Order becoming final. Rosebud shall replace or retire from service any electronic surveying instrument that was acquired between January 1, 2002 and December 31, 2007 within two years of this Order becoming final. Within three years of the date that this Order becomes final, Rosebud shall replace or retire from service any theodolite that was acquired more than five years prior to the date that this Order became final. After five years, Rosebud will maintain a cycle of purchasing new electronic surveying equipment whereby theodolites will be no older than five years from date of manufacture and total stations will be no older than 10 years from date of manufacture.

3. Rosebud is to ensure that all surveying contractors hired by Rosebud are using relatively new electronic equipment, i.e. theodolites no older than five years from date of manufacture and total stations no older than 10 years of manufacture.

4. Rosebud will service all electronic surveying equipment according to the manufacturer's recommendations. Dates of service will be recorded in

the equipment's log book and a description of the work performed.

Dec. at 16-18 at ¶¶ 1, 10, 11, 12.

The judge found that the use of the electronic surveying equipment, when subject to the conditions of use, "does not pose a significant risk of ignition due to methane." Dec. at 4-5. In so finding, the judge relied on the opinion of Rosebud expert witness Noah Ryder, Vice President of Delta Q Consultants ("Delta Q"), that the electronic surveying equipment has a low potential for ignition because it is solid state electronics, there is no-heat generating part of the equipment, and the battery voltage of the equipment is similar to other electronic equipment that the Administrator has approved for use under specific conditions. Dec. at 5-6. Relying on the results of Ryder's dust swab test and Ryder's testimony that it would be difficult to see if there were an explosive amount of float coal dust in suspension, the judge also found that the risk of coal dust ignition from using the equipment "is practically non-existent." Dec. at 6.

In granting the petitions, the judge declined to give weight to manufacturer warnings that the equipment should not be used in an explosive or dusty environment or in underground coal mines. Dec. at 5-6, 14. The judge concluded that the warnings have "little probative value" because neither MSHA, nor Topcon's

global project manager, was able to provide "a rational basis for their inclusion." Dec. at 4.

The judge also found that granting the petitions would result in a net gain in miner safety. Dec. at 15. The judge found that greater surveying accuracy from electronic surveying equipment leads to miner safety. Dec. at 15. He also found that electronic surveying equipment is more safe because surveyors are no longer trained to use mechanical equipment. *Id.*

In granting the petitions, the judge relied on the Administrator's acknowledgement that the Administrator has granted petitions for modification for non-intrinsically safe equipment, but only when the devices in question are unavailable. Dec. at 6. The judge accepted Rosebud expert witness Ryder's testimony that the petitioned-for electronic surveying equipment is less hazardous than most of the electronic equipment MSHA has approved in petitions for modification. Dec. at 7.

The judge also found that there is no viable alternative to the use of electronic surveying equipment. *Id.* The judge determined that the evidence was overwhelming that the only available mechanical surveying equipment is in used condition. Dec. at 8-9. He also found that the availability of parts for calibration and repair of mechanical equipment is almost non-

existent. Dec. at 9, 11. The judge found that it is unsafe to use equipment that is not properly calibrated or repaired. Dec. at 15.

In finding that new mechanical surveying equipment is not available, the judge accepted the testimony of Rosebud expert witness Gary Hartsog, President of Alpha Engineering Consulting ("Alpha Engineering"), that a currently-available new mechanical theodolite manufactured by Qualitest is not of acceptable quality. Dec. at 9-11. Rejecting the Administrator's position that Hartsog's testimony should not be given weight because Alpha Engineering has filed a petition for modification requesting to use non-permissible surveying equipment, the judge found Hartsog to be a credible witness. Dec. at 11.

Finally, in determining to grant the petitions, the judge found that MSHA has tacitly approved the use of non-permissible electronic surveying equipment by failing to cite Rosebud even though it has been using the equipment in all areas of its mines over the past 20 years. Dec. at 13.

DISCUSSION

A. Standard of Review

Section 101(c) of the Mine Act provides that hearings on petitions for modification are subject to Section 554 of the Administrative Procedure Act ("APA"). 30 U.S.C. § 811(c). In turn, Section 554 of the APA states that the agency shall

provide for a hearing and issue a decision in accordance with Sections 556 and 557 of the APA. 5 U.S.C. § 554(c)(2). Section 557(b) of the APA states that "[o]n appeal from review of the presiding employee's initial decision" -- here the judge's decision -- "the agency has all the powers which it would have in making the initial decision except as it may limit the issues on notice or by rule." 5 U.S.C. § 557(b). This language has been interpreted to mean that the agency has *de novo* review of the judge's decision. See, e.g., *Vinland Fireworks Co., Inc. v. Bureau of Alcohol, Tobacco, Firearms & Explosives*, 544 F.3d 509, 514 (3d Cir. 2008). Under this standard, I may conduct an independent review of the evidence, and am not required to accept the judge's credibility determinations. *Kay v. Federal Communications Commission*, 396 F.3d 1184, 1189 (D.C. Cir.), cert. denied, 546 U.S. 871 (2005) ("The law is settled that [under Section 557(b) of the APA] an agency is not required to adopt the credibility determinations of an administrative law judge.")

B. The Legal Standard for Granting Petitions

Section 101(c) of the Mine Act authorizes the Secretary to modify the application of any mandatory safety standard "if the Secretary determines that an alternative method of achieving the result of such standard exists which will at all times guarantee no less than the same measure of protection afforded the miners

of such mine by such standard, or that the application of such standard to such mine will result in a diminution of safety to the miners in such mine." 30 U.S.C. § 811(c). The United States Court of Appeals for the District of Columbia Circuit has set forth the legal standard required in evaluating petitions for modification based on a proposed "alternative method":

[T]his provision calls for a two-step analysis of any proposed modification. The first step, corresponding to section 101(c)'s "result" clause, requires the Assistant Secretary to find that the proposed alternative method will promote the same safety goals as the original standard with no less than the same degree of success. The second step, keyed to section 101(c)'s "same measure of protection" requirement, contemplates a more global inquiry into the net safety effect of the modification. Taking into account both advantages and disadvantages of the alternative method, including effects unrelated to the goals of the original standard, the Assistant Secretary must consider how the modification will affect overall mine safety.

United Mine Workers of America, Int'l Union v. MSHA, 928 F.2d 1200, 1202 (D.C. Cir. 1991) (emphasis in original); see also *International Union, UMWA v. MSHA*, 920 F.2d 960, 963 (D.C. Cir. 1990). The party seeking the modification has the burden of proof. 30 C.F.R. § 44.30(b).

ANALYSIS

Having reviewed the entire record including the judge's decision and order, I find that the record establishes that Rosebud's proposed alternative method, including the modifications and additional conditions in the judge's decision

and order, as modified and supplemented by the conditions in this decision and order, promotes the same safety goals as Section 75.507-1(a) and Section 75.500(d) with no less than the same degree of safety. I also find that the record establishes that the overall effect of the proposed alternative method, including the modifications and additional conditions in the judge's decision and order, as modified and supplemented by the conditions in this decision and order, will achieve at least a net least equivalence in overall mine safety.

A. Methane, Coal Dust, and Permissibility Requirements In Underground Coal Mines

Underground coal mines are assumed to liberate methane. Methane liberates from the coal face, the ribs, the mine floor, the seals, and the roof. Tr. I at 98, 191, 389-90.⁶ Methane is explosive when mixed with oxygen at concentrations of between roughly five and fifteen percent. Tr. I at 271; Tr. II at 108. The Cherry Tree Mine, whose petitions Rosebud designated as the lead petitions in this case (Tr. I at 260), is a gassy mine and has been on a 15-day spot inspection. Tr. I at 390.

All underground coal mines contain coal dust, which is combustible. Tr. II at 307. An ignition of coal dust can result in a fire. Tr. II at 370. An ignition of coal dust in

⁶ "Tr. I" refers to the transcript of the hearing in September 2011. "Tr. II" refers to the transcript of the hearings in August and November 2012.

suspension can result in an explosion. Tr. II at 204. Coal dust is generated when coal is being cut at the face. See Tr. I at 79. Accumulations of float coal dust can be rapidly placed in suspension by air movement. See e.g., 76 Fed. Reg. 35968-01, 35970-71 (June 21, 2011). Coal dust can also enter non-permissible electronic equipment and cause the equipment to overheat and ignite methane. Tr. II at 307; 285-6.

The areas of a mine in or inby the last open crosscut and in the return air course are more likely to have an explosive environment. Section 75.507-1(a) and Section 75.500(d) therefore require that electric equipment taken in or inby the last open crosscut or in the return air course be "permissible."

MSHA's Approval and Certification Center approves electric equipment as permissible. Tr. I at 277; Tr. II at 246-48. One category of equipment that is approved by MSHA as permissible is "intrinsically safe equipment." Intrinsically safe equipment is equipment that is incapable of releasing enough electrical or thermal energy, under normal or abnormal conditions, to cause an ignition of a flammable mixture of methane. Tr. II at 248; March 28, 2013 Stipulations ("March Stip.") ¶ 25. MSHA determines if equipment is intrinsically safe through testing and evaluation. Tr. I at 274, Gov't Ex. II-1 at 1-2.

Rosebud concedes that the electronic surveying equipment it seeks to use is not intrinsically safe and is capable of

releasing enough energy to cause an ignition. Tr. II at 254-55; RBX-30 at 17. See also Tr. II at 261-63, 269, 271. It is undisputed that mechanical surveying equipment poses no risk, or virtually no risk, of ignition. Dec. at 5; Tr. I at 277, 310.

B. Surveying In Underground Coal Mines

Mine operators are required to prepare accurate maps of the underground workings of mines. Sept. Stip. ¶ 13; Tr. I at 44, 82, 351. Surveying of the underground workings of mines occurs regularly and often on a daily basis. Tr. I at 33; Sept. Stip. ¶ 13. Surveying crews often consist of two or more persons. Tr. I at 233-34; Tr. II at 514; Sept. Stip. ¶ 24.

Accurate surveying is important to miner safety to prevent the intersection of abandoned mines, to prevent the intersection of sealed areas, to ensure that pillars are the right size, and to prevent intersecting gas wells. Tr. I at 41-49; Tr. II at 522-23.

Section 224 of Pennsylvania's Bituminous Coal Mine Safety Act requires that operators provide mine maps of a minimum distance error rate of 1-foot-in-10,000 feet and a minimum angle error of less than one minute. The Pennsylvania Act also requires surveyors to verify the accuracy of the mine map by using a check or closed loop survey. Tr. I at 145-56; Sept. Stip. ¶ 14; RBX-8, 9.

The majority of underground mine surveying can be performed outby the last open crosscut and without going into return air. Tr. I at 101, 130. Occasionally, however, such as when an entry has been dropped, surveyors must go in or inby the last open crosscut. Tr. I at 121. Surveyors must also go into return air to do the check or closed loop survey required by Pennsylvania law and to put in directional spads. Tr. I at 59, 60, 121, 362. See also, Tr. I at 122. Rosebud expert witness Alpha Engineering President Hartsog estimated that 2 to 3 percent of a surveyor's time must be spent in or inby the last open crosscut and approximately 12 percent of a surveyor's time must be spent in return air. Tr. II at 45.

C. Surveying Equipment

Theodolites, also known as transits, are surveying instruments that measure horizontal and vertical angles. See March Stip. at ¶ 2. When surveyors use theodolites they also need to use tapes or chains to measure distances. Tr. II at 442-43. When using mechanical theodolites, surveyors look through optical sight gazes containing grids, and interpolate the angle measurements. Tr. I at 65. Electronic theodolites display digital readings of the angle measurements on a screen. Total stations are surveying instruments consisting of an electronic theodolite used to measure horizontal and vertical

angles and an electronic distance meter used to measure distance. See March Stip. at ¶ 3.

Electronic surveying equipment was introduced in the late 1970's or early 1980's. Tr. I at 170. Electronic total stations were introduced around 1988 or 1989. *Id.* In approximately 1979, Hewlett Packard sought and obtained approval as permissible a piece of electronic surveying equipment. Tr. II at 302. No permissible electronic surveying equipment, however, is currently commercially available.

It is undisputed that electronic surveying equipment is more accurate than mechanical surveying equipment and that electronic surveying equipment is more efficient than mechanical surveying equipment. Tr. I at 66, 73-76, 147, 160. Electronic surveying is the current engineering standard. Tr. I at 66.

The weight of the evidence is that Pennsylvania's 1-foot-in-10,000-feet accuracy requirement, as well as Pennsylvania's minimum angle requirement, can be achieved with mechanical surveying equipment, although it may take more than one attempt. Rosebud expert witness Brad Cole, Project and Safety Director for CME Engineering, acknowledged that a surveyor using mechanical equipment can achieve both Pennsylvania's closure error requirement and its minimum angle error requirement, although he testified that it may take multiple attempts. Tr. I at 145. Rosebud expert witness and mining engineer David

Cobaugh, Alpha Engineering President Hartsog, and MSHA roof control specialist and former surveyor Randy Caramellino testified similarly. See Tr. I at 74-5 (Cobaugh); Tr. I at 239 (Hartsog); Tr. I at 362-63 (Caramellino). Rosebud mining engineer Cobaugh explained that to comply with the Pennsylvania requirement using mechanical surveying equipment, a surveyor might have to do a second survey twenty percent of the time. Tr. I at 74.⁷

The weight of the evidence in the record before me is that viable new mechanical surveying equipment is not commercially available, although some viable used mechanical surveying equipment is available. Rosebud surveying manager and expert witness Michael Groff testified that new mechanical surveying equipment is not available, but that one can purchase used or refurbished mechanical transits and survey chains. Tr. I at 123, 130. MSHA Coal Division of Safety Petition Coordinator John Arrington testified that refurbished mechanical equipment

⁷ Although finding that mechanical equipment can meet the Pennsylvania 1-foot-in-10,000 feet accuracy requirement, the judge found that the requirement is not always attainable, citing to evidence that a test performed by Applegate Services Inc. ("Applegate") using a mechanical surveying instrument did not meet Pennsylvania's 1-foot-in-10,000 feet accuracy requirement. Dec. at 8 citing (Tr. I at 380; ALJ 1 (Sept. Stip.) at ¶ 21). See also, RBX-8, 9. The evidence indicates, however, that Applegate ran a single trial loop test with the mechanical instrument. Tr. II at 510. As stated, the evidence establishes that more than one attempt with mechanical equipment may be necessary to achieve the Pennsylvania requirement. Tr. I at 74.

is still available. Tr. I at 414. Although acknowledging that he has not tried to purchase mechanical surveying equipment, former surveyor Caramellino testified that mechanical surveying equipment is not currently manufactured but that he is aware of websites that sell remainder or refurbished equipment. Tr. I at 363.

While the evidence establishes that used mechanical surveying equipment is available, the weight of the record evidence is that viable used mechanical surveying instruments may be difficult to find. Alpha Engineering President Hartsog testified that the availability of used mechanical equipment is "spotty and questionable." Tr. II at 230. He testified that a woman in his office regularly searches for used mechanical equipment on eBay and that is the only place, other than garage sales, where he knows to look for equipment. Tr. II at 230. Hartsog testified that Alpha Engineering tries to pick up a piece of mechanical equipment "now and again" if it looks like a good piece. *Id.* Rosebud mining engineer Cobaugh testified that although he has not done an extensive search on eBay, mechanical equipment he has seen has been recommended as a "collector's item." Tr. I at 71-2.

The weight of the evidence is also that it is difficult to obtain spare parts for used mechanical surveying equipment and that mechanical surveying equipment is difficult to maintain.

Rosebud mining engineer Cobaugh testified that there is limited availability of spare parts. Tr. I at 77, 100. He also testified that it is difficult to maintain mechanical equipment. Tr. II at 214. Alpha Engineering President Hartsog likewise testified that the availability of parts for calibration and repair is almost nonexistent. Tr. II at 230.

Based on internet websites advertising new mechanical surveying equipment, MSHA Coal Petition Coordinator Arrington testified that new mechanical theodolites are available for purchase. Tr. II at 236-8. Arrington testified, based on his review of the manual for a new mechanical theodolite manufactured by Qualitest, that the instrument has the same degree of accuracy as Topcon equipment. Tr. II at 239-40. MSHA also found a website advertising new mechanical equipment manufactured by Towa Sokki Limited. Tr. II at 425-29, 442, 476.

After Arrington testified, the proceedings before the judge recessed, and Alpha Engineering President Hartsog contacted Qualitest and inspected and tested a six second Theo 2 Qualitest mechanical theodolite. Tr. II at 416, 419-21. Hartsog, whose testimony the judge credited (Dec. at 11), testified that he performed a closing horizon test with the instrument and that the results were unacceptable. *Id.* at 420. He also testified that the "general feel" of the instrument was not what he wanted to use underground, and that the tribrach was completely

different from what he was used to. In addition, he testified that the angle reading mechanism had more estimation than he was comfortable with. *Id.* at 421.⁸

The Administrator asserts that the judge erred in accepting Hartsog's testimony that the Qualitest equipment was unacceptable because Hartsog acknowledged that he has an interest in the outcome of this litigation because Alpha Engineering has a pending petition for modification seeking to use non-permissible electronic surveying equipment. *Obj.* at 46 (*citing* *Tr. II* at 484-90). I agree with the Administrator that Hartsog's opinion concerning the viability of the Qualitest instrument may be entitled to reduced weight because Alpha Engineering has a pending petition for modification seeking to use non-permissible electronic surveying equipment. *Tr. II* at 486. Nonetheless, there is no record evidence that Qualitest (or Towa Sokki Limited) has an established reputation as a manufacturer of mechanical surveying equipment for use in

⁸ Rosebud entered into evidence the deposition testimony of Arah Behzadi, the owner and president of Qualitest, USA, a distributor of the Qualitest product. RBX-32-16. Behzadi testified that Qualitest equipment is manufactured in China by a company that he believes has been in business for 30 years. *Id.* at 14, 17. Behzadi testified that there have been no sales of the instrument in the United States and that the only two invoices he could find were for a sale in 2012 to a customer in the United Arab Emirates and for a sale in 2008 to a customer in Haiti. *Id.* at 16, 20. He testified that the equipment is serviced in Canada. *Id.* at 19.

underground mines. There is also no record evidence from any surveyor who has used a Qualitest mechanical surveying instrument (or a Towa Sokii mechanical surveying instrument) that the instrument is of acceptable quality to use in an underground coal mine.⁹ I therefore cannot find on this record that new mechanical surveying equipment that is appropriate for use in underground coal mines is commercially available.¹⁰

Because accurate surveying is an essential and important part of mining that must be performed on a regular basis, I conclude that Rosebud should not be required to rely on used surveying equipment whose availability is spotty and for which maintenance and repair is difficult, if there are conditions under which electronic surveying equipment can be used which will at all times guarantee no less than the same measure of protection afforded by the standards and will result in an overall gain or at least equivalence in mine safety. If a piece of mechanical surveying breaks or needs repairs, Rosebud may not

⁹ Owner and President of Qualitest USA Behazdi testified that the mechanical equipment was used in cold countries like Russia, but testified he did not know if they were used in underground environments. RBX-32 at 25, 28.

¹⁰ If it is determined that Qualitest, Towa Sokii or other new commercially available mechanical surveying equipment is viable for use in underground coal mines then, as explained below, under the terms of this decision and order, non-permissible electronic surveying equipment may no longer be used in or inby the last open crosscut or in return air.

be able to procure a viable replacement instrument, or have the instrument repaired, within a reasonable amount of time.

It is undisputed that the Administrator has granted petitions for modification for non-permissible diagnostic and testing equipment when alternative equipment is not available and he has found that there are conditions under which the equipment can be used which will at all times guarantee no less than the same measure of protection afforded by the standards. Tr. II at 237; RBX-16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27. The spotty availability of viable used mechanical equipment and the difficulty of maintaining and repairing the equipment provide a similar reason for granting the petitions in this case.¹¹

¹¹ Although Rosebud acknowledges that it has used electronic surveying equipment in or inby the last open crosscut and in return air over the last twenty years in violation of the standards, I reject the judge's finding that MSHA has tacitly approved of that use. See Dec. at 13 (citing Tr. II at 216-28, Transcript of February 8, 2013 conference call at 5-6). There is no evidence that MSHA was aware of Rosebud's violative conduct and, as the Administrator points out, MSHA has cited other operators for using non-permissible electronic surveying equipment. See Obj. at 47-48 (citing Citation No. 7056500 issued November 1, 2010 for a violation at the Quecreek #1 Mine). I take judicial notice of additional citations that MSHA has issued for using impermissible electronic surveying equipment. See Citation Nos. 8022402 and 8022403 issued October 14, 2009 for violations at the Sentinel Mine, and Citation No. 7018205 issued September 4, 2013 for a violation at the Bailey Mine.

D. The Electronic Surveying Instruments' Ignition Potential

1. Expert Witness Testimony

I credit the testimony of the Administrator's expert witness MSHA electrical engineer Chad Huntley that the Topcon electronic equipment is not intrinsically safe and has an ignition potential that mechanical equipment does not. Tr. II at 261-63, 266-68. Huntley performed a visual examination of the equipment at Rosebud's office, and reviewed available Topcon material and scientific literature. Tr. II at 252, 258-261; GX-II-2. When Rosebud would not allow Huntley to take apart the instruments, MSHA purchased the three battery packs used in the instruments. Tr. II at 252, 275. Huntley then reversed engineered and tested the battery packs. Tr. at II at 252, 264-66; GX-II-2.

Huntley credibly testified that two of the battery packs did not meet MSHA's intrinsic safety requirements because they had a potential for sparking. Tr. II at 261. See also, GX II-2 at 2. Huntley also credibly testified that the third pack met MSHA's intrinsic safety requirements from a spark ignition standpoint, but that there was significant downstream inductance when the third battery pack was connected to the two theodolites it powered, causing the unit powered by the battery pack to not

be intrinsically safe. Tr. II at 261-63. See also, GX-II at 23-34. Huntley explained that, as a result, enough energy could be stored to cause sparking capable of igniting methane if there were a break in the circuit, either from disconnecting the battery pack or from a break in an internal conductor. Tr. II at 262-63.

Huntley also credibly testified that there are other flagged components on the equipment that MSHA would have to examine to determine if the equipment is otherwise intrinsically safe. He explained that under fault conditions, low-value resistors scattered throughout the equipment could cause overheating and a potential to ignite methane or dust if the equipment was not dust resistant. Tr. II at 285-6.

Rosebud expert witness Vice President of Delta Q Ryder acknowledged that the Topcon electronic surveying equipment poses a greater hazard for ignition than intrinsically safe equipment poses. Tr. II at 203. Based on information gathered during examination and testing, Ryder opined that the ignition risk of the electronic surveying total stations is low, and estimated it to be five percent or less in the presence of an explosive level of methane. Tr. II at 120-21. Ryder based that conclusion on his determination that the devices were relatively well-sealed and the fact that there are no actively sparking components. Tr. II at 121-22. He testified that a battery

would have to become disconnected or an inside component would have to break for sparking to occur. *Id.*

Based on peer-reviewed articles categorizing the strength of ignition sources and a comparison of the typical voltage of the units and their heat generation, Ryder also opined that the relative ignition risk of the electronic surveying equipment is equal to, or in some cases less than, the ignition risk of other pieces of non-permissible electronic equipment that MSHA has permitted operators to use in by the last open crosscut under certain conditions, including cable fault detectors, laptop computers, point temperature probes, volt/amp meters, IR devices, electronic tachometers, and pressure/flow meters. RBX-30 at 17-18, 21; Tr. II at 116-120.

Ryder explained that, for the most part, the voltage in the non-permissible testing and diagnostic equipment that the Administrator has allowed operators to use in or in by the last open crosscut under certain conditions is higher than the voltage in the electronic surveying equipment. Tr. II at 116-17, 120. He also testified that laptop computers require fans for cooling and bring external air into the equipment. He explained that there is no heat generating source or fan within the electronic surveying equipment. Tr. II at 218-9.

I accept Ryder's testimony that the voltage in some of the non-permissible testing and diagnostic equipment that the

Administrator has allowed operators to use in or inby the last open crosscut under certain conditions is higher than the voltage in the electronic surveying equipment. I also accept Ryder's testimony that under normal conditions there is no heat generating source within the electronic equipment.

In addition, I accept Ryder's testimony that the electronic surveying instruments have less potential for ignition than some other types of electronic equipment because they are solid-state electronics and lack physical switches, reducing the likelihood of sparking. See Tr. II at 88. Ryder's testimony on this point was corroborated by the Administrator's expert witness Huntley who testified that with solid-state electronics, "on the circuit board level, or inside the circuit board level" there normally is not sparking, unless there are faults with the equipment.

Tr. II at 531.

However, I do not accept Ryder's opinion that the instruments are well-sealed against gas and dust and have only a five percent or less probability of ignition in the presence of methane.¹² Ryder based that conclusion, in part, on the results

¹² The judge misstates the testimony when he describes the Administrator's expert witness MSHA electrical engineer Huntley as opining that the probability of both the methane detector failing and the electronic surveying equipment igniting is one in ten thousand. Dec. at 4 (citing Tr. II at 330). Huntley calculated the one-in-ten-thousand probability based on Ryder's testimony that the probability of ignition in the presence of an

of water immersion and dust swab tests he performed on the instruments. See e.g., Tr. II at 121; RBX-30 at 12, 13, 18. The results of those tests are suspect for several reasons.¹³

As the Administrator points out, Ryder performed the tests on three Sokkia instruments and one Topcon instrument, none of which are the specific instruments that Rosebud identified in its petitions. See Tr. II at 81. Although Ryder's report indicates that Delta Q inspected the specific models of electronic surveying equipment identified in Rosebud's petitions and determined that "they were substantially the same" as the instruments Delta Q tested "with similar configurations and components" (RBX-30 at 14), Ryder acknowledged that he did not take apart any of the specific instruments identified in the petitions. Tr. II at 107.¹⁴ Huntley credibly explained that, without an internal examination or a review of the drawings, including a comparison of the drawings with the actual configuration of the instruments, it would be hard to assume that the instruments will act similarly. Tr. II at 308.

explosive amount of methane is less than five percent, a figure with which Huntley specifically disagreed. See Tr. II at 330.

¹³ To the extent that the judge accepted Ryder's conclusion that the results of the dunk test indicated that the instruments are well-sealed (see Dec. at 15 n.17), I disagree.

¹⁴ Ryder testified that the four instruments on which he performed tests were taken apart and the internal workings examined. Tr. II at 86.

Based on the results of a water immersion test, Ryder opined that the ability of the new electronic surveying piece of equipment he tested (a SOKKIA SET550Rx) to withstand water ingress indicated that the electronic surveying equipment, with proper sealing, has the ability to prevent gasses from entering the equipment. RBX-30 at 17; Tr. II at 90, 96, 102-04.

Although proper sealing may, to some degree, protect against gas entering the equipment, Electrical Engineer Huntley credibly testified that the use of a water immersion test to determine if methane is capable of entering equipment is suspect because IEC standard 60529 warns against using ingress protection tests of dust and moisture for gas. Tr. II at 309.

Even if water were a proper surrogate for gas, moisture was detected inside all of the pieces of used equipment that Ryder tested. RBX-30 at 17-18; Tr. II at 96. Ryder testified that water was able to enter the used equipment because seals in the equipment were missing or degraded. Tr. II at 103. There is no record evidence, however, showing how long it would take for seals to degrade in a piece of electronic surveying equipment used in underground mining. For that reason, also, the results of the water immersion test do not persuade me that gas cannot enter the equipment.

I also agree with Huntley that Ryder's opinion that there is little likelihood that an internal ignition would propagate

outwards because the instruments do not have large enough openings is suspect. See RB-30 at 15-18. I credit Huntley's common-sense testimony that internal pressures from an ignition could create larger openings. Tr. II at 313.

I also do not give weight to Ryder's opinion that because "dust swab testing showed that even for the instruments that had been in active use [] minimal dust was present in the instruments" "minimal ingress of particulates will occur under normal operating conditions." RBX-30 at 13. Ryder acknowledged that the used instruments he tested had previously been removed from service and that he did not know the frequency with which the instruments had been used underground since their last servicing. Tr. II at 155-56.¹⁵ He testified that the Topcon instrument he tested had been serviced in 2008 and had been used intermittently since then.¹⁶ Tr. II at 105-06. Because the evidence does not indicate the frequency with which the instruments were used in a dusty environment after their last servicing, the fact that there was no, or minimal, dust inside the equipment does not establish that under normal use dust will not enter the equipment, or only a minimal amount of dust will

¹⁵ Ryder testified that the three used units, which were provided by Alpha Engineering, were serviceable backup units that Alpha would use if one of the firm's total stations were inoperable or had to go in for service. Tr. II at 82.

¹⁶ Ryder testified that the other instruments had been serviced in 2002 and 2003. Tr. II at 83, 105-06.

enter the equipment. The fact that Ryder detected some amount of dust inside three of the four pieces of equipment tends to show the opposite. See RBX-30 at 13.

I also reject the judge's conclusion, based on Ryder's testimony, that using the equipment in the presence of coal dust is not a concern. See Dec. at 5. Ryder testified that coal dust is not a concern because dust entering the equipment would not itself ignite because it would settle on a component and not remain in suspension. Tr. II at 123. Electrical Engineer Huntley credibly testified, however, that a concern with coal dust is that it can enter non-permissible electronic equipment, layer itself on internal components, and cause the equipment to overheat and ignite methane. Tr. II at 285-86, 307. Huntley testified that as part of its intrinsic safety approval process, MSHA performs a test during which coal dust is layered onto components to see if the dust will smolder. Tr. II at 306-07.

Huntley also credibly testified that based on his visual examination, the connection between the battery pack and the equipment did not appear to be gasketed to prevent dust or gas from entering the equipment. Tr. II at 272. I disagree with the judge that because the equipment has internal thermal breakers that are designed to de-energize the battery pack at a temperature below the ignition temperature of methane, coal dust layering on the internal components of the equipment is not a

concern. See Dec. at 5 n.6. Internal components like thermal breakers can fail, and there is no evidence concerning their reliability.

Moreover, I disagree with the judge's finding that the likelihood of a coal dust ignition is non-existent based on Ryder's testimony that it would be difficult to see in an environment where there was an ignitable amount of coal dust in suspension. See Dec. at 6. The finding fails to recognize that explosive amounts of coal dust can be rapidly placed in suspension. See e.g., 76 Fed. Reg. at 35970-71. If coal dust is rapidly placed into suspension, even a vigilant surveyor may not have the time to de-energize his instrument before it encounters an explosive concentration of coal dust.

2. The Instruction Manuals' Warnings

Topcon's instruction manuals include warnings against using the equipment in gassy or dusty environments or in underground coal mines.¹⁷ I agree with the Administrator that the judge

¹⁷ The Instruction Manual for the Topcon GTS 220 series states, "An explosion could occur. Do not use unit in areas exposed to high amounts of dust or ash, in areas where there is inadequate ventilation, or near combustible material. An explosion could occur." GX-1. The Instruction Manual for the Topcon GTS 210 series states under the heading "safety caution" and "warning" that the "GTS 210 series is not explosion proof. Avoid using in an area that produces explosive gasses." GX-2. The Instruction Manuals for the Topcon DT-104 and for the Topcon DT 200/200L series both state "Safety Cautions; Warning; May ignite explosively. Never use an instrument near flammable gas, liquid matter, and do not use in a coal mine." GX-3, GX-4.

erred in discounting the warnings on the basis that the Topcon representative whom Topcon provided to explain the reason for the warnings testified that he did not know why the warnings were made. See Obj. at 27-29. It was not the Administrator's burden to establish why Topcon issued the warnings or to determine that the equipment was safe, regardless of the warnings. Rosebud, not the Administrator, has the burden of proof in this proceeding. 30 C.F.R. § 44.30(b).

I also agree with the Administrator that Topcon is in the best position to know about the ignition risks of the equipment it manufactures. The warnings reflect Topcon's recognition that the equipment poses an explosion hazard in the presence of gas or dust or in underground coal mines. Contrary to the judge's conclusion, the fact that one of Topcon's representatives, the Director of Global Product Planning of Topcon Global Positioning, testified that he did not know the bases for the warnings, does not mean that the warnings are not significant. Particularly in light of the warnings, it is critically important that the conditions of use ensure that the atmosphere in which the equipment is used is free from explosive concentrations of gas or coal dust.¹⁸ As explained below, I do

¹⁸ Citing exhibits GX-1 and GX-4, Rosebud asserts that the warnings are not included for all Topcon instruments. Rosebud Response at 33. Exhibit GX-1, however, specifically warns against an explosion occurring if the unit is used "in areas

not believe that the conditions of use set by the judge are adequate and have imposed additional conditions.

- E. The Conditions Of Use In This Decision And Order Will Promote The Same Safety Goals As the Standards With No Less Than The Same Degree of Success

As MSHA expert witness Huntley testified, the Mine Act protects against ignition and explosion hazards by requiring multiple layers of protection to miners. Tr. I at 342. Among other things, the Mine Act and the Mine Act standards and regulations impose ventilation requirements, methane monitoring requirements, de-energization requirements, rock-dusting requirements, and permissibility requirements. The proposed alternative method eliminates the permissibility requirements for electronic surveying equipment. To offset that loss of protection, conditions for use in addition to those imposed by the judge are necessary.

Although the conditions for use requiring a qualified person to continuously monitor for methane immediately before and during the use of non-permissible surveying equipment in or inby the last open crosscut and in return air, coupled with the requirements that the equipment not be used and that the equipment be immediately de-energized when one or more percent

exposed to high amounts of dust or ash, and in areas where there is inadequate ventilation" and Exhibit GX-4 specifically warns that the equipment "may ignite explosively" and instructs never to use the instrument near flammable gas, liquid matter, and . . . in a coal mine." GX-1 and GX-4.

methane is detected, provide some protection from the increased risk of a methane ignition posed by using non-permissible equipment (See Tr. I at 193-94; 195-96), they are not enough.¹⁹ As MSHA electrical engineer Huntley testified, and as Rosebud expert Hartsog acknowledges, methane detectors fail. Tr. I at 202, 335. Methane detectors also may not be properly calibrated. Tr. II at 341-2. Former surveyor Caramellino also credibly testified that there are times when the transit man may be some distance away from the surveying equipment. Tr. I at 358-59, 389. For these reasons, I have determined that there must be at least two members of the surveying crew who are qualified persons under 30 C.F.R. § 75.151 and who must carry methane detectors that continuously monitor for methane. The hand-held methane detectors must be MSHA-approved and maintained in permissible and proper operating condition.

Consistent with the recommendations of MSHA Coal District 2, the methane monitors also must provide visual and audible

¹⁹ 30 C.F.R. § 75.360 requires preshift examinations for methane; 30 C.F.R. § 75.361 requires supplemental examinations for methane; 30 C.F.R. § 75.362(d)(1) requires that at the start of each shift at each working place before electrically operated equipment is energized and at least every 20 minutes operators must take methane measurements; 30 C.F.R. § 75.1714-7 requires that at least one person in a group of underground miners and each person who is working alone carry a multi-gas detector; 30 C.F.R. § 75.363 requires that hazardous conditions be corrected immediately and recorded; and 30 C.F.R. § 75.323(b) provides that when one percent or more methane is detected in the working place or in intake air courses, electronic equipment must be immediately de-energized.

warnings when methane is detected at or above 1.0 percent. To ensure that the atmosphere immediately surrounding the non-permissible equipment is continuously monitored, one member of the surveying crew who is continuously monitoring for methane must remain with the electronic equipment while it is energized in or inby the last open crosscut or in a return. In addition, when 1.0 percent or more methane is detected, before resuming surveying activities in or inby the last open crosscut or in the return, corrective action must be completed to reduce the level of methane and the atmosphere must be checked to ensure that it is safe to resume surveying activities. See JX 2 at 4.

To minimize the likelihood of sparking when a battery is disconnected, the judge changed Rosebud's proposed condition of use requiring that batteries be changed out or charged in fresh air outby the last open crosscut to require that batteries be changed out or charged in fresh air outside the mine. Dec. at 17 at ¶ 6. Former surveyor Caramellino credibly testified that if a surveyor has a problem with his battery, he may be tempted to remove the battery and try to fix the problem without going outby. Tr. I at 359. He explained that the surveyor may be 1,000 or 2,000 feet away from fresh air and not want to spend the time to return back into fresh air to change out or charge the battery. Id. Requiring that batteries be changed out or charged in fresh air outside the mine rather than in fresh air

outby the last open crosscut will create more of a temptation to disregard the requirements for changing out or charging the battery since it may be significantly more burdensome to exit the mine than it is to go into fresh air outby the last open crosscut. Consistent with Rosebud's proposed alternative method, I am therefore modifying the judge's conditions of use to require that batteries be changed out or charged in fresh air outby the last open crosscut. To minimize the temptation to try to fix a problem with the battery without going into fresh air outby the last open crosscut, consistent with Coal District 2's recommendation, I am requiring that replacement batteries for the electronic equipment not be brought in or inby the last open crosscut or in the return. See JX 2 at 5. In addition, I am requiring that before taking non-permissible electronic surveying equipment in or inby the last open crosscut or into the return, the equipment must have fully charged batteries. See *Id.*

Because, contrary to the judge's finding, float coal dust is a concern when using non-permissible electronic surveying equipment, additional conditions of use to protect against coal dust are necessary. Consistent with the conditions of use set by the Administrator allowing non-permissible diagnostic and testing equipment to be used in or inby the last open crosscut, I am requiring that the electronic surveying equipment not be

used in or inby the last open crosscut or in return air when coal production is occurring on the section. See RBX-16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27. Not only will this condition reduce the likelihood that energized non-permissible surveying equipment will encounter float coal dust, it will also reduce the likelihood that energized non-permissible surveying equipment will encounter explosive concentrations of methane since methane is liberated when coal is cut.

In requiring that the non-permissible equipment not be used in or inby the last open crosscut or in return air during production, I note that Rosebud expert witness Cole, Project and Safety Director of CME Engineering, acknowledged that surveying can be done on non-production shifts. Tr. I at 152. Rosebud expert witness Alpha Engineering President Hartsog testified similarly. Tr. I at 207. I also note that the same requirement is contained in the Consent Agreement in *In re Twenty Mile Coal Company (Foidel Creek Mine)* -- the petition for modification proceeding in which the Administrator agreed to allow the use of non-permissible electronic surveying equipment in or inby the last open crosscut in an underground coal mine. See RBX-7. Rosebud mining engineer Cobaugh acknowledged that the Twentymile consent agreement was a template for Rosebud's petitions for modification in this case. Tr. I at 69-70. Rosebud, however,

did not offer any explanation why this requirement was not included in the petitions.

Given the potential for explosive amounts of coal dust to become rapidly suspended, and in light of my finding that coal dust is a concern when using non-permissible electronic surveying equipment and my finding that the judge erred in discounting Topcon's warnings against using the equipment in dusty and gassy environments, additional protections against suspended coal dust are necessary. I am therefore requiring that before using non-permissible electronic surveying equipment in or inby the last open crosscut or in return air, Rosebud ensure its compliance with the requirement of 30 C.F.R. § 75.403 to maintain a minimum of 80 percent incombustible content of mixed dusts in the section consistent with required measurements. Compliance with Section 75.403 "is essential to protect miners from the potential of a coal dust explosion, or if one occurs, to reduce its severity." 76 Fed. Reg. at 35969.

Until recently, to determine compliance with rockdusting requirements, samples of dust mixtures were sent to laboratories for analysis. Results might not be available for several days or more. The National Institute for Occupational Safety and Health ("NIOSH") has recently developed a new way to assess the hazards of dust accumulations using a coal dust explosibility meter ("CDEM") which allows real-time measurement of coal and

rock dust explosibility. See National Institute for Occupational Safety and Health Information Circular 9529 titled "Coal Dust Explosibility Meter Evaluation and Recommendations for Application" (August 2012) and MSHA Program Information Bulletin P13-01.²⁰

In light of this new technology and because it is critically important to protect miners from suspended coal dust while non-permissible electronic surveying equipment is being used in or inby the last open crosscut or in return air, I am requiring that immediately before using the non-permissible electronic surveying equipment in or inby the last open crosscut or in the return, Rosebud test the mixed dust in the immediate area where the electronic equipment is to be energized with a properly calibrated CDEM. Green readings by the CDEM will satisfy this requirement. An alternative method such as on-site lab analysis of incombustible content would also satisfy the requirements of this condition.²¹

²⁰ The NIOSH circular is available at <http://www.cdc.gov/niosh/mining/Works/coversheet1843.html>. Program Information Bulletin P13-01 is available at <http://www.msha.gov/regs/complian/PIB/2013/pib13-01.asp>.

²¹ For the reasons stated above, I believe that it is critical that the area where the non-permissible electronic surveying equipment is used, in or inby the last open crosscut or in the return, is adequately rockdusted. I recognize, however, that the record does not contain any specific evidence concerning this requirement or the CDEM. If either party believes that the matter should be remanded to the judge to take additional

To ensure that there is adequate ventilation in the area in or inby the last open crosscut or in the return where the electronic surveying equipment is used, I am also requiring that immediately before energizing the equipment in or inby the last open crosscut or in return air, Rosebud take an air reading at the location where the equipment is to be used to ensure that the air movement is at least equal to that required by the ventilation plan. The readings shall be taken as follows:

(i) at the location of last open crosscuts, as identified in the ventilation plan, the air reading will be the amount required in the ventilation plan for that location;

(ii) in the return the air reading will be the amount required in the ventilation plan for the last open cross cut;

(iii) in any other location, the amount will be the amount required in the ventilation plan when roofbolting is occurring.

In setting this requirement, I note that this requirement is also contained in the Consent Agreement in *In re Twenty Mile Coal Company* which Rosebud acknowledged was a template for its petitions in this case. See RBX-7; Tr. I at 69-70. Again,

evidence on this requirement or the CDEM, within ten days of the date of this order, the party should file a motion for reconsideration setting forth the reasons why a remand is necessary.

however, Rosebud did not offer any explanation why the requirement was not included in the petitions.²²

To ensure that Rosebud complies with the conditions set forth in this decision and order, I am also requiring that before using non-permissible electronic equipment in or inby the last open crosscut or in the return, all members of the surveying crew receive training on the terms and conditions of use contained in this decision and order. Consistent with the recommendations of Coal District 2, I am also requiring that when training is conducted on the terms and conditions of use set forth in this decision order, Rosebud complete an MSHA Certificate of Training (Form 5000-23) indicating that the surveyor training was provided. See JX 2 at 6.

In addition, I am including a condition that non-permissible electronic surveying equipment only be used until permissible electronic surveying equipment is available, i.e., a piece of electronic surveying equipment is approved by MSHA's

²²For the reasons stated above, I believe that when non-permissible electronic surveying equipment is used in or inby the last open crosscut or in return air it is critical that there be adequate ventilation. Although Rosebud represented that the Twentymile consent agreement was the template for the petitions for modification in this case, the record does not contain any specific evidence concerning the ventilation testing requirement. If either party believes that the matter should be remanded to the judge to take additional evidence on this requirement, within ten days of the date of this order, the party should file a motion for reconsideration setting forth reasons why a remand is necessary.

Approval and Certification Center, or until viable new mechanical equipment is determined to be available. I have found that the proposed alternative method, including the modifications and additional conditions in the judge's decision and order, as modified and supplemented by the conditions in this decision and order, will at all times promote the same safety goals as the original standards with no less than the same degree of success. However, critical reasons for granting Rosebud's petitions are that accurate surveying is important for miner safety and the availability of viable used mechanical equipment is spotty, spare parts for mechanical equipment are difficult to find, and it is difficult to repair used mechanical equipment. The weight of the evidence is also that new viable mechanical surveying equipment is not commercially available. If permissible electronic surveying equipment becomes available, or if it is determined that new viable mechanical equipment is commercially available, accurate surveying can be readily performed under the current standards.²³ If permissible electronic surveying equipment is available, or if it is determined that new viable mechanical equipment is commercially

²³ To be viable, the mechanical equipment must be sufficiently accurate. Although I do not have to decide the issue now, I note that former surveyor Caramellino testified that there are no safety issues when surveying equipment achieves 1 foot-in-10,000 feet accuracy levels. See Tr. 1 at 384.

available, there would be no reason for MSHA's limited resources to be spent ensuring compliance with the terms and conditions of this decision and order.²⁴

In imposing the condition that non-permissible electronic surveying equipment only be used until permissible electronic surveying equipment is available or until viable new mechanical equipment is determined to be commercially available, I reject the judge's finding that using mechanical equipment is less safe than using electronic equipment because surveyors are not trained to use mechanical equipment. See Dec. at 15. Surveyors can be trained to use mechanical equipment. As Rosebud mining engineer Cobaugh acknowledged, "People could be trained. If they were trained in the past, they could certainly be trained today." Tr. I at 100.²⁵

²⁴ Section 101(c) of the Act provides that the Secretary "may" grant a petition for modification if the petition meets the standard set forth in Section 101(c). I interpret Congress' use of the term "may" to mean that I have some discretion in determining whether to grant a petition.

²⁵ I also reject the judge's finding that mechanical surveying equipment is less safe than electronic surveying equipment because electronic surveying is more efficient and reduces the exposure of surveying personnel to mine hazards. See Dec. at 15. The evidence concerning the increased likelihood of injury from the asserted increase in exposure time is general and not quantified and does not establish that the increase in exposure time would result in anything more than an insubstantial decrease in safety. See e.g., Tr. I at 146-47, 176-78, 464-66. The argument also does not consider the additional time needed to comply with the conditions for use in this decision and order -- conditions that are necessary to

D. The Proposed Alternative Method, Including The Modifications And Additional Conditions Of Use In This Decision And Order, Will Not Detract From Overall Mine Safety

Under the second step of Mine Act Section 101(c)'s test for granting petitions for modification based on a proposed alternative method, I must take into account both advantages and disadvantages of the proposed alternative method, including effects unrelated to the goals of the standards, and determine how the proposed modification will affect overall mine safety. *UMWA v. MSHA*, 928 F.2d at 1202. The record does not contain any evidence that using non-permissible electronic surveying equipment in or inby the last open crosscut or in return air will detract from overall mine safety in any way that is unrelated to the goal of the standards to protect against methane and dust ignitions and explosions. I have found that the proposed alternative method, including the modifications and additional conditions in the judge's decision, as modified and supplemented by the additional conditions in this decision and order, will at all times promote the same safety goals as the standards with no less than the same degree of success. Accordingly, the overall effect of the proposed alternative method, including the modifications and additional conditions in

ensure that the alternative method promotes the same safety goals as the standards with the no less than the same degree of success.

this order, will not detract from overall mine safety. It therefore satisfies this step of the analysis.

ORDER

For the reasons set out above, I hereby modify the decision of the administrative law judge as described herein and grant Rosebud's petitions for modification subject to the following conditions:

Rosebud may use the following electronic surveying equipment and similar low voltage battery-operated equipment in or inby the last open crosscut or in return air subject to the conditions of this order:

1. A 6 volt Topcon DT209L theodolite;
2. A 6 volt Topcon DT104L theodolite;
3. A 7.2 volt Topcon GTS-213 total station;
4. A 7.2 volt Topcon GPS-223 total station;
5. A 7.2 volt Topcon GPT-3003 W total station; and
6. A 7.2 volt Topcon GPT-3103 W total station.

1. Rosebud will maintain a separate log book for each piece of electronic surveying equipment. The logbooks will be kept in the mine office where the equipment is located and will be available for audit by MSHA inspectors. The log book will contain the date of manufacture and/or purchase of that particular theodolite or total station.

2. All non-permissible battery-powered surveying equipment to be used in return air or in or inby the last open crosscut shall be examined prior to use to ensure the equipment is being maintained in a safe operating condition. In addition, the equipment will be examined at intervals not to exceed seven days by a qualified person as defined in 30 C.F.R. § 75.153; examination results shall be recorded weekly in the equipment's log book. These checks shall include:

- i. Checking the instrument for any physical damage and the integrity of the case;
- ii. Removing the battery and inspecting for corrosion;
- iii. Inspecting the contact points to ensure a secure connection to the battery;
- iv. Reinserting the battery and power up and shut down to ensure proper connections; and
- v. Checking the battery compartment cover to ensure that it is securely fastened.

3. At least two persons in the surveying crew shall be qualified persons as defined in 30 C.F.R. § 75.151 and shall continuously monitor for methane immediately before and during the use of non-permissible surveying equipment in or inby the last open crosscut or in the return. While the equipment is used in or inby the last open crosscut or in the return one qualified person who is continuously monitoring for methane shall remain with the electronic surveying equipment.

4. All hand-held methane detectors shall be MSHA-approved and maintained in permissible and proper operating condition as defined in existing 30 C.F.R. 75.320.

5. All methane detectors must provide visual and audible warnings when methane is detected at or above 1.0 percent.

6. Non-permissible surveying equipment 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 non-permissible surveying equipment is being used, the equipment shall be de-energized immediately and the non-permissible electronic equipment withdrawn outby the last open crosscut. Before re-entering the area, corrective action must be completed to reduce the level of methane and the atmosphere must be checked to ensure that it is safe to resume surveying activities in or inby the last open crosscut or in the return air.

7. Immediately before the surveying equipment is activated in or inby the last open crosscut or in the return, an air reading will be taken at the location of the equipment to assure that

air movement is at least equal to that required by the ventilation plan as follows:

i. At the location of the last open crosscut, as identified in the ventilation plan, the air reading will be the amount required in the ventilation plan for that location;

ii. In the return the air reading will be the amount required in the ventilation plan for the last open crosscut; or

iii. In any other location, the amount will be the amount required in the ventilation plan when roofbolting is occurring.

8. Non-permissible equipment shall not be used where float coal dust is in suspension.

9. Non-permissible surveying equipment shall not be used when coal production is occurring in the section. All mining in the section shall cease prior to use of the equipment in or inby the last open crosscut or in the return.

10. Batteries contained in the surveying equipment must be "changed out" or "charged" in fresh air outby the last open crosscut. Replacement batteries for the electronic surveying equipment shall not be brought in or inby the last open crosscut or in the return. Before taking non-permissible electronic surveying equipment in or inby the last open crosscut or into the return, the equipment must have fully charged batteries.

11. Qualified personnel engaged in the use of surveying equipment shall be properly trained to recognize the hazards and limitations associated with the use of surveying equipment.

12. All members of the surveying crew shall receive specific training on the terms and conditions of this decision and order before using non-permissible electronic equipment in or inby the last open crosscut or in the return.

13. Before putting into service a piece of non-permissible surveying equipment that will be used in or inby the last open

crosscut or in the return, Rosebud shall ensure that MSHA has sufficient notice to allow MSHA to initially inspect the equipment and determine that it is in compliance with the terms and conditions of this order.²⁶

14. Non-permissible electronic surveying equipment shall only be used until equivalent permissible electronic surveying equipment is available or if viable new mechanical surveying equipment is not commercially available.

15. Within 60 days after the Proposed Decision and Order becomes final, Rosebud shall submit proposed revisions for its approved 30 C.F.R. Part 48 training plan to the Coal Mine Safety and Health 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 decision and order, an MSHA Certificate of Training (Form 5000-23) shall be completed. Comments shall be included on the Certificate of Training indicating that it was surveyor training.

16. Rosebud shall replace or retire from service any electronic surveying instrument that was acquired prior to December 31, 2001 within one year of this Order becoming final. Rosebud shall replace or retire from service any electronic surveying instrument that was acquired between January 1, 2002 and December 31, 2007 within two years of this Order becoming final. Within three years of the date that this Order becomes final, Rosebud shall replace or retire from service any theodolite that was acquired more than five years prior to the date that this Order became final or any total station acquired more than ten years prior to the day that this Order became final. After five years, Rosebud will maintain a cycle of purchasing new electronic surveying equipment whereby theodolites will be no older than five years from date of manufacture and total stations will be no older than 10 years from date of manufacture.

²⁶ This condition has been modified from the judge's order to make clear that before a piece of non-permissible surveying equipment is used in or inby the last open crosscut or in the return, Rosebud must ensure that MSHA has received a reasonable amount of notice to allow MSHA the opportunity to inspect the equipment and ensure that Rosebud is in compliance with the terms and conditions of this decision and order.

17. Rosebud is to ensure that all surveying contractors hired by Rosebud are using relatively new electronic equipment, i.e. theodolites no older than five years from date of manufacture and total stations no older than 10 years of manufacture.

18. Rosebud is to ensure that all non-permissible electronic surveying equipment is serviced according to the manufacturer's recommendations. Dates of service will be recorded in the equipment's log book and a description of the work performed.²⁷

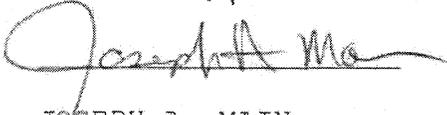
19. Immediately before using the non-permissible electronic surveying equipment in or inby the last open crosscut or in the return, Rosebud shall ensure compliance with 30 C.F.R. § 75.403 by using a permissible coal dust explosibility meter (CDEM) or equivalent method to test the mixed coal dust in the immediate area where the electronic equipment is to be used.

20. Except for conditions 16 and 17, all conditions of use in this decision and order shall apply to all non-permissible electronic surveying equipment used in or inby the last open crosscut or in a return, regardless of whether the equipment is used by Rosebud or by an independent contractor.

Upon receipt hereof, Rosebud is directed to post this Decision and Order in unobstructed locations on the bulletin boards and/or in other conspicuous places where notices to miners are ordinarily posted, at all the mines for which this Decision and Order applies, for a period of not less than 60 consecutive days.

²⁷ This condition of use modifies the judge's condition of use to clarify that Rosebud must ensure that both its own non-permissible electronic equipment is serviced according to manufacturer's recommendations and that non-permissible electronic equipment used by surveying contractors in Rosebud's mines has been serviced according to manufacturer's recommendations.

SO ORDERED on this 14th day of Nov., 2013.



JOSEPH A. MAIN
Assistant Secretary
for Mine Safety and Health

Distribution:

Lynne B. Dunbar, Esq.
U.S. Department of Labor
Office of the Solicitor
1100 Wilson Blvd., 22nd Floor
Arlington, VA 22209-2296

R. Henry Moore, Esq.
Arthur M. Wolfson, Esq.
Patrick W. Dennison, Esq.
Jessica M. Jurasko, Esq.
Jackson Kelly PLLC
Three Gateway Center, Suite 1500
401 Liberty Avenue
Pittsburgh, PA 15222

E-Mail rhmoore@jacksonkelly.com
Dunbar.lynne@dol.gov

