FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

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THE DOE RUN COMPANY, Contestant, v. SECRETARY OF LABOR, MINE SAFETY AND HEALTH ADMINISTRATION (MSHA), Respondent.	CONTEST PROCEEDINGS Docket No. CENT 2015-318-RM Citation No. 8680899; 03/11/2015 Docket No. CENT 2015-319-RM Citation No. 8680900; 03/11/2015 Mine ID 23-00409 Fletcher Mine and Mill
SECRETARY OF LABOR, MINE SAFETY AND HEALTH ADMINISTRATION (MSHA), Petitioner, v. THE DOE RUN COMPANY, Respondent.	CIVIL PENALTY PROCEEDINGS Docket No. CENT 2015-441-M A.C. No. 23-00409-379896 Docket No. CENT 2016-55-M A.C. No. 23-00409-392975 Mine: Fletcher Mine and Mill

DECISION

Appearances: Susan J. Willer, Esq., Office of the Solicitor, U.S. Department of Labor, Kansas City, Missouri, for the Secretary of Labor

Ryan Seelke, Esq., for The Doe Run Co., Respondent

Before: Judge Lewis

STATEMENT OF THE CASE

These cases arise under the Federal Mine Safety and Health Act of 1977, 30 U.S.C. §801 *et seq.* (the "Act" or "Mine Act"). A hearing was held in St. Louis, Missouri, where the parties presented testimony and documentary evidence. After the hearing, the parties submitted post-hearing briefs and reply briefs, which have been fully considered.

FINDINGS OF FACT AND CONCLUSION OF LAW

The findings of fact are based on the record as a whole and the undersigned's careful observation of the witnesses during their testimony. In resolving any conflicts in the testimony, the undersigned has taken into consideration the interests of the witnesses, or lack thereof, and consistencies, or inconsistencies, in each witness's testimony and between the testimonies of the witnesses. In evaluating the testimony of each witness, the undersigned has also relied on his demeanor. Any failure to provide detail as to each witness's testimony is not to be deemed a failure on the undersigned's part to have fully considered it. The fact that some evidence is not discussed does not indicate that it was not considered. *See Craig v. Apfel*, 212 F.3d 433, 436 (8th Cir. 2000) (administrative law judge is not required to discuss all evidence and failure to cite specific evidence does not mean it was not considered).

I. JOINT STIPULATIONS

1. The Doe Run Company produces lead -zinc ore from its underground mine operations, and these mining operations affect interstate commerce.

2. The Doe Run Company is subject to the jurisdiction of the Federal Mine Safety and Health Act of 1977, as amended (the Act).

3. The Administrative Law Judge has jurisdiction over the disputes in these consolidated matters.

4. The Doe Run Company is, and has been at all relevant times to the inspection, the owner and operator of the Fletcher Mine/Mill, Mine ID No. 23-00409, located in Reynolds County, MO.

5. The Fletcher Mine is a mine as that term is defined by the Act.

6. The MSHA Assessed Violations History accurately reflects the history of Doe Run's Fletcher Mine/Mill for fifteen months prior to the date of the contested Citations.

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7. On January 21, 2015, a fatal accident occurred at the Fletcher Mine when falling material from the roof struck a Getman Mechanical Scaler operating in Section RC3PO Northeast Working Area of the mine.

8. At the time of the accident, the operator of the Getman Mechanical Scaler was inside a closed protective structure which was positioned underneath a section of mine roof that was supported by six foot long 1 ½ inch diameter friction stabilizer roof bolts.

9. During the date of the accident, Mine Safety and Health Administration ("MSHA") Inspector Jeremy Kennedy was at the Fletcher Mine conducting a quarterly E01 inspection.

10. During the day shift on January 21, 2015, Inspector Kennedy traveled to and inspected the RC3PO Northeast Working Area.

11. During his January 21, 2015, inspection, Inspector Kennedy observed the roof that would later fall.

12. At the time of the roof fall, approximately 25% of the roof fall cavity was supported with six foot long 1 ½ inch diameter friction stabilizer-type roof supports.

13. The Mine Safety and Health Administration ("MSHA") inspected The Doe Run Company's Fletcher Mine /Mill following the accident.

14. MSHA Inspector Jeremy Kennedy was acting in his official capacity as an authorized representative of the Secretary when he inspected said mine.

15. MSHA Inspector Michael R. Van Dorn was acting in his official capacity as an authorized representative of the Secretary when he inspected said mine.

16. MSHA issued a Section 104(a) Citation, No. 8680899, to The Doe Run Company on March 11, 2015, alleging a violation of 30 C.F.R. § 57. 3201.

17. Citation No. 8680899 has been terminated, as the affected area has been abandoned and fenced off

18. MSHA also issued a Section 104(a) Citation, No. 8680900, to The Doe Run Company on March 11, 2015, alleging a violation of 30 C.F.R. § 57. 3360.[1]

19. Citation No. 8680900 has been terminated, as the affected area has been abandoned and fenced off

20. The subject Citations were properly served by a duly authorized representative of the Secretary upon Contestant's agent on the date and place stated in the Citations.

21. The Citations may be admitted into evidence for the purposes of establishing their issuance and not for the truthfulness or relevancy of any statements asserted therein.

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22. The Mine Safety and Health Administration ("MSHA") inspected The Doe Run Company's Fletcher Mine /Mill after the occurrence of a fatal accident on January 21, 2015.

23. MSHA issued a Section 104(a) Citation, No. 8680902 to The Doe Run Company on March 12, 2015, alleging a violation of 30 C.F.R. § 48.7(a).

[1] The Joint Stipulations submitted mistakenly listed the Citation Number as Citation No. 86870900.

24. The subject Citation was properly served by a duly authorized representative of the Secretary upon Contestant's agent on the date and place stated in the Citation.

25. The Citation may be admitted into evidence for the purposes of establishing its issuance and not for the truthfulness or relevancy of any statements asserted therein.

26. The proposed penalties in these proceedings will not affect Respondent's ability to continue in business.

27. The exhibits offered by Contestant and Respondent are stipulated to be authentic, but no stipulation is made as to their relevance or the truth of the matters asserted therein. The parties stipulate that the exhibits may be admitted into evidence. Except R, S & T and 4, 5 and 6.[2]

JX-1

II. SUMMARY OF TESTIMONY

Jeremy Kennedy

At hearing Jeremy Kennedy appeared and testified on behalf of the Secretary.

He had been a MSHA inspector for nine years. His duties included E16 spot inspections, E04 compliance, E06 fatality and E08 non-fatality investigations. (Tr. 28). He had inspected a variety of different type mines, including sand and gravel, small and large limestone, zinc and copper. (Tr. 28-29).[3]

In 1999 he began working for Respondent. (Tr. 29). During his over eight years of employment, he worked at various Doe Run mines, including the Fletcher Mine, where he worked both as a surveyor's assistant and surveyor. (Tr. 29-30). His job duties included administering the mine's bonus program, measuring the advancement of face for tons removed, and measuring roof bolters' linear feet of advancement. (Tr. 30).

Kennedy had received training at MSHA's National Mine Academy in Beckley, West Virginia. (Tr. 31). Over his career he had inspected the Fletcher Mine on eight different occasions. He had conducted regular, follow-up, and spot inspections. (Tr. 32). The Doe Run operation consisted of six mines in all. (Tr. 34). Four were interconnected and two were satellites. (Tr. 34). Lead, copper and zinc were mined out of Fletcher, utilizing the room and pillar style.[4] (Tr. 35).

[2] The last sentence to this stipulation was added by hand.
[3] He had also earned a LPN certificate after completing one year of college.
[4] Room and pillar mining is a process whereby the miners advance a drift and, while advancing through the ore body, take slab rounds to both sides and create an intersection. If the ore body is wide enough, "you will go ahead and turn and make a pillar." (Tr. 36).

Kennedy had gone to Fletcher Mine on January 21, 2015, as part of his E01 regular inspection. (Tr. 38). His inspection had been going on for approximately one week. (Tr. 39). Ground conditions, equipment, electrical conditions, and housekeeping were all inspected. (Tr. 39). He actually travelled through the area where the roof fall was to occur, visually inspecting the site. (Tr. 40).

Fletcher mining operations consisted of a drill cycle, charging or blasting cycle, a load haul cycle, a scaling cycle, and then a bolting cycle. (Tr. 41). Kennedy noted that no mining was going on in the area of the impending accident during his inspection. (Tr. 41). He actually observed the scaler[5] that would be involved in the coming fatality. (Tr. 43). During his inspection of the headings, Kennedy looked for any ground control issues. (Tr. 46). Given his eight and a half years' employment by Respondent, Kennedy was familiar with Doe Run's ground control practices. (Tr. 46). Ground control is a systematic method of maintaining the back and ribs through scaling, rock bolting, and other means to ensure safety. (Tr. 47; *see also* GX-7 Re: Respondent's underground roof and ground control policy.)

Test holes may be drilled to evaluate the stability of a back and to look for geological conditions in the area. (Tr. 47-48). Drillers look at the returns to find what color the cuttings are. (Tr. 49). The percussion of the drill may cause the rock to give off different sounds depending upon its condition. (Tr. 49). A drummy sound—like a kettle drum—could be indicative of unconsolidated material. (Tr. 49-50).

Doe Run's ground control plan provided for test holes to be drilled in the middle of intersections.[6] (Tr. 51). Part of Fletcher's ground control plan called for rock bolting.[7] (Tr. 53; GX-7). Two types of bolts were used at Fletcher Mine: "split set" and resin.[8] Split set bolts are driven into drill holes whose diameter is somewhat smaller than the bolts, friction being used to keep them in place. (Tr. 55; GX-14). Resin bolts come in pre-packaged casings and are shot into the back, utilizing an epoxy to stay in place. (Tr. 55).

During his inspection of the area of the roof fall, Kennedy observed split set bolts in a 5 foot by 5 foot pattern. (Tr. 56). None of the bolts were sticking out. (Tr. 56-57). Kennedy did not conduct any soundings. (Tr. 57). He did "not observe anything that was not typical." (Tr. 57).

When miners enter an area they typically perform a visual inspection. (Tr. 58). If they have the needed equipment, they may perform other testing methods. (Tr. 58). They will also fill out work inspection cards. (Tr. 58). On Respondent's work inspection cards there were

[5] A mechanical scaler is a piece of equipment that is used to remove unconsolidated material from the roof and ribs of the mine. (Tr. 43).
[6] Intersections are the areas between the rooms and pillars. (Tr. 52).
[7] Bolts are pieces of steel inserted into holes drilled into the mine back (roof) to stabilize the back from rib to rib. (Tr. 53).
[8] Split sets are faster and cheaper to use than resin bolts. (Tr. 55). Resin bolts, which have to be spun into place, have a stronger capacity. (Tr. 55).

sections to note loose rock but no sections to report if soundings or test holes were performed. (Tr. 59; GX-7, p. 5).

Kennedy could not recall observing any "churned" or "disrupted" rock in the RC3PO area, the back appearing "smooth" without "unusual features." (Tr. 59-60).

When disrupted rock is encountered, a scaler might tighten up the pattern of bolts. (Tr. 60). A 4 foot by 4 foot or 3 foot by 3 foot pattern might be used. Sometimes extra-large face plates might be added to the bolts. (Tr. 60).

There had been recent blasting in the area of the fall (RC3PO) on the Monday prior to the accident. (Tr. 61). However, Kennedy did not observe any loose rock in the heading. (Tr. 61).

Kennedy had been called on January 21, 2015, because there had been a fatal accident at Fletcher Mine. (Tr. 62). He arrived at the site shortly after midnight. (Tr. 63). A 103(j) order had been issued by a district staff member. (Tr. 63). The verbal 103(j) order had been reduced to a written 103(j) order and then modified to a 103(k) order. (Tr. 64; GX-17). The Respondent's rescue and recovery plan had been approved—with modifications—for scaling and rock removal to effectuate the recovery of John Hoodenpyle. (Tr. 65-66).

Kennedy stayed at the mine for the entire MSHA investigation which lasted approximately two weeks. (Tr. 67). He took various photographs of the accident site, including pictures of the scaler involved in the fatality. (Tr. 67-68; GX-3).

The roof fall was approximately 125-200 tons in size. (Tr. 69). The roof height in the fall area was 18 to 19 feet. The size of the fallen face was 55 feet long by 20 feet wide by 6 feet thick at its deepest point. (Tr. 73).

The scaler involved in the accident had both a rollover protective system (ROPS) and a falling object protective system (FOPS)—but they were of no benefit in the instant catastrophic fall.[9] (Tr. 77-78).

The split set bolts in the area had failed and had completely pulled out of the ceiling. (Tr. 79-81; GX-14). There had been no test drilling prior to the roof fall. (Tr. 84).

Kennedy agreed that split set bolts were often used in "brecciated" conditions such as those found at Fletcher Mine. When he conducted his pre-accident inspection on January 21, 2015, Kennedy was competent enough to recognize hazardous unconsolidated material and to issue a citation for such. (Tr. 90). Kennedy was unaware of any ground falls at Fletcher Mine prior to January 21, 2015, which had involved the failure of split sets in brecciated ground. (Tr. 91). During his time as an inspector at Fletcher Mine, he had never issued a § 57.33 EO ground

[9] Kennedy noted that, though the scaler's protective systems had not prevented a fatality, the victim's body had been recovered "intact." (Tr. 78). The victim had not sustained certain injuries that one would expect to see from a catastrophic failure. (Tr. 78).

control citation. (Tr. 91). Nor had he noticed any ground control issues in the roof fall area at the time of his November 2014 EO1 quarterly inspection. (Tr. 92).

The ground support system that he had observed was that of patterned split set bolts. (Tr. 93). The ground appeared stable and competent. (Tr. 93). No citations were issued in either November 2014 or January 2015 for Respondent's failure to document workplace examination training on 5000-23. (Tr. 94-95).

During his prior inspections of the northeast working area, Kennedy had not observed any violations involving ground support or control, including faulty bolts or bolt patterns. (Tr. 97-101). Kennedy had actually walked through the roof fall area on January 21, 2015, prior to the accident. (Tr. 102). He noted no hazardous conditions, changes, or anything else that would cause him concern. (Tr. 102). The last 2 rows of bolts—bordering the unbolted roof where the fall occurred—appeared adequate, flush to back. (Tr. 105-106). No ground popping nor cracking nor unusual noises were heard. (Tr. 106). The active faces and active roadway were free of adverse conditions. (Tr. 108).

Kennedy's inspection took place approximately 8 hours before the fatal accident. (Tr. 109).

Scaler operators at Doe Run normally placed the cabs of their units under bolted ground with the remainder of their units under unbolted grounds, usually positioning themselves 60 feet from the face. (Tr. 111).

During his inspection of Fletcher Mine, Kennedy had not looked for test hole sites, but rather focused on bolt patterns and the presence of unconsolidated rock. (Tr. 112). Typically a driller drills test holes in the back, drilling as vertical as possible. (Tr. 113). Test holes have a greater height than bolt holes. (Tr. 121). One might be able to examine 3 or 4 feet of return in the back with a test hole. (Tr. 121-122). Whether drilling bolt or test holes, drill operators look for abnormal sounds, observe how fast the drill goes up into the rock, and check to see if there is a void where the steel will jump. (Tr. 113).

Prior to bolting the back, a scaler will scale for unconsolidated rock—which Mr. Hoodenpyle was doing prior to the roof fall. (Tr. 115). Prior to scaling a scaler will normally take the tooth of his scaling rig and sound the back. (Tr. 116).

Kennedy opined that, based upon his experience, split set bolts were cheaper and faster to install as compared to resin bolts. (Tr. 117). However, MSHA had established no set policy as to which type to use. (Tr. 117). Kennedy knew of no bolts that had failed, separating above the anchor point. (Tr. 120). Considering Doe Run's operating history, he found nothing that should have placed Respondent on notice of inadequate ground control in the fall area. (Tr. 120).

Resin bolts had greater strength than split set bolts. The split set bolts in the fall area had not broken above the anchorage point but had been stripped out. (Tr. 129). The installation of resin bolts was more involved than the installation of split sets. (Tr. 130). Resin needed to be

placed inside the drill hole with bolts being spun to mix the two-part epoxy. (Tr. 130-131). If a bolt was over-spun, the bolt was rendered useless. (Tr. 131). Split set bolts, with proper test hole drilling and hole size, required only friction to remain in place. (Tr. 130-131).

James Vadnal Direct Examination

James Vadnal also appeared and testified upon behalf of the Secretary.

At the time of hearing, Vadnal worked for MSHA in the technical support group, roof control division. In this capacity he participated in accident investigations, including the fatality at issue.[10] (Tr. 140).

Vadnal had first gone underground into Fletcher Mine on January 23, 2015. (Tr. 150). He viewed the Getman scaler that had been involved in the fatality.[11] (Tr. 151). He traveled to the fall area located between pillars 7516 and 7517. (Tr. 151). Immediately upon walking up to the edge of the fall area, Vadnal had noticed that "the rocks had changed." (Tr. 152). They had gone from a "layered,'' "bedded" look to a look where "everything was all jumbled up" or had "disturbed bedding." (Tr. 152).

The center of the fall cavity revealed a horizontal bedding plane. (Tr. 154; GX-14, p. 2). The dolomite at Doe Run had several distinctive beds. (Tr. 154). Each bed was separated from the ore above or below by a bedding plane. (Tr. 154). Hydro-thermal fluid had been pushed along these bedding planes; this is where the bulk of the brecciation had taken place. (Tr. 155). The dolomite rock at Doe Run had been broken apart in the geologic past by the pressures associated with the injection of lead and zinc ore. (Tr. 155). Angular blocks of dolomite surrounded by lead and zinc ore could be seen in the area being mined. (Tr. 155). Usually these blocks were rather small. (Tr. 155). However, in the fall area there was disrupted bedding; it appeared all the beds had been picked up and jumbled around. (Tr. 156). The blocks of dolomite that are referred to in brecciation as the "inner class" were feet on a side—as opposed to the usual inches on side size. (Tr. 155-156).

[10] *See also* GX-11 for Vadnal's resume. He had received a bachelor of science in geology in 1975 and later attained a Master's Degree in 2007-2008 in safety with an emphasis in mining. (Tr. 140-141). Vadnal had been hired by MSHA in 2004, becoming an authorized mine safety inspector. (GX-11). He had gotten his job with the technical support roof control division in January 2007. (Tr. 147). As a roof control specialist, he had reviewed ground control and roof control plans and had investigated approximately 100 roof fall accidents. (Tr. 147-148). Prior to being hired by MSHA, Vadnal had worked for approximately 30 years in the mining industry. (GX-11). He had worked as a geologist for environmental engineering firms. (Tr. 142). He had worked in various positions for Arch Coal, including vice president, geology and exploration, manager of safety and administration, director of geology and exploration, and senior geologist. (Tr. 141-145; *see also* GX-11).

[11] Vadnal found no evidence that the canopy of the scaler had been compromised.

The changed geology in the accident area was not only inside the fall cavity. (Tr. 157). The disturbed bedding from the roof fall cavity had carried on over to the face in the left rib and a portion of the face. (Tr. 157). Photographs of the fall area demonstrated the difference in brecciated ground versus churned or larger inner class ground. (Tr. 158; GX-3). Horizontal bedding lines were essentially the same color. (Tr. 158; GX-3, p. 9). Such horizontal bedding was the normal look of Fletcher Mine. (Tr. 158-159). The ground around the roof fall had gray areas with larger class of dolomite that appeared to have "no orientation," and were jumbled up and disturbed. (Tr. 159; GX-3, p. 10).

Vadnal opined that the changes he had observed would have been obvious to others as the changes were "dramatic" in nature. (Tr. 162).

Vadnal helped to prepare a fatal accident report, which contained a graphic representation of Fletcher Mine's geologic strata. (Tr. 162; GX-12, p. 3). The report recommended that where the roof or back of Fletcher Mine had "brecciated dolomite or other hazardous conditions," a "change in the density and type of ground support might be warranted." (Tr. 163-164; GX-12, p. 2). In areas containing highly brecciated ground or disrupted bedding, Vadnal recommended that test drilling be performed. (Tr. 165). If the test drilling revealed changes in the composition of the roof, management could be alerted.[12] (Tr. 165-166).

Drill holes (for production) look different than test holes. (Tr. 169). Vadnal found no test drill holes in the area of the fall. (Tr. 168).

In addition to drilling test holes to ascertain possible hazardous conditions, a miner can also visually inspect an area for changes in texture and color. (Tr. 166-167). Vadnal detected dramatic changes in the highly brecciated area of the accident site. (Tr. 167).

The ore deposits found at Fletcher Mine were formed by a hydrothermal process: hot, very mineralized water was pushed directly in and around the dolomite. (Tr. 167-168). Extraction required both the removal of dolomite and ore. (Tr. 168).

Areas that looked "shaley" would be significant. When there were small shale layers (on the roof) at Doe Run, this would constitute a hazardous condition. (Tr. 170-171).

If a change in a mine's geology is observed, an evaluation for possible hazardous conditions should be performed. (Tr. 171). An evaluation would be an integral part of a ground or roof control plan. (Tr. 172).

In churned, highly brecciated zones (such as the fall area) the operator's policy should require fully grouted resin bolts to be installed for roof support at a maximum spacing of 5 feet by 5 feet. (Tr. 172; GX-12, p. 2). Number 7 fully grouted resin bolts have approximately three times the capacity of split set bolts. (Tr. 172). In Vadnal's opinion a reasonably prudent miner would recognize the need for a (roof) evaluation in a highly brecciated and churned area. (Tr.

[12] A test drill hole should extend minimally a foot longer than the longest bolt hole.

179). It was Vadnal's further opinion that, considering the approximate 175 to 250 tons of material that had fallen, an adequate number of resin bolts in the bolted area "could have" supported the roof area over the scaler. (Tr. 179-180).

Typical bolting patterns of 5 by 5 would mean 5 feet between each bolt with 5 feet across the drift and 5 feet down the drift. (Tr. 180). In tightening a bolt pattern the density of the ground support could be increased to 4 by 4 pattern. (Tr. 181). By going to a 4 by 4 pattern or adding a bolt in the center (like the number 5 on dice), the ground control system is made more robust and is able to carry heavier loads. (Tr. 181). When hazardous conditions are detected, a mine's roof control system can be increased by shrinking the bolt pattern or adding a bolt to the center of a pattern. (Tr. 181-182).

The MSHA fatality report further recommended training of miners to identify brecciated geologic zones because of the hazards associated with disturbed bedding. (Tr. 182; GX-12, p. 2). Such training would include presentation of "very good" pictures showing disturbed bedding and having experts explain what differences (in ground conditions) should be looked for as part of annual retraining. (Tr. 182). Drillers, in performing test holes, would be advised to immediately report to management anything found out of the ordinary. (Tr. 183). Further, test holes should be drilled at the beginning of each drilling cycle to determine separations in the back strata. (Tr. 183). The holes should be drilled as vertical as possible, be a minimum of one foot longer than the support installed. (Tr. 183). The holes should be marked and the results of the examinations should be reported to management. (Tr. 183).

Vadnal further found the Doe Run area inspection cards to be inadequate in that they did not notify the mine regarding conditions detected by visual or audio examinations. (Tr. 184; GX-7, pp. 5-6). The cards had no space for the description of abnormal ground condition or for the results of test drill holes. (Tr. 185).

In the fatality report Vadnal had also recommended that the back should be supported (bolted) within 30 feet of the drift at all times. (Tr. 185; GX-12, p. 2). This would reduce the exposure of miners to unbolted ground. (Tr. 186).

Despite having been advised that there had been three other falls at Fletcher Mine prior to the fatality at issue, Vadnal was unable to visit any of the sites, as Doe Run management was unable to find or locate such. (Tr. 186).

Vadnal opined that the victim was in a location that exposed him to falling material because the "accident occurred" and "the material fell." (Tr. 187). Vadnal further opined that the accident was preventable: "with proper evaluation and observations, the change in geology could have been detected and a change in the roof support system could have been made." (Tr. 187).

In certain areas of Fletcher Mine there were relatively thin shale layers that were indicative of a weaker roof. (Tr. 187-188; GX-8, p. 4). Persons interviewed stated that roof bolt operators had been instructed to change from friction stabilizers to 6 foot long fully grouted resin

bolts in these areas. (Tr. 188; GX-8, p. 4). It would be left to the judgement and discretion of the roof bolt operators to decide ground support spacing and the need for fully grouted bolts.[13] (Tr. 188; GX-8, p. 4).

Most of the scaler involved in the accident was under unbolted ground. (Tr. 190; GX-12, p. 5). A photograph of the fall area (GX-12, p. 6) revealed how the roof had changed from typically layered brecciated dolomite to churned disrupted bedding. (Tr. 192). A picture of the intersection next to the fall area showed the various layers of roof that was referred to as "typical layered breccia dolomite roof." (Tr. 197; GX-13, p. 11).

In its *Root Cause Analysis,* MSHA concluded that Doe Run management had "failed to establish policies and procedures for identifying hazardous conditions." (Tr. 199; GX-8, p. 6). Before the subject fatality, miners had not been required to drill test holes at each intersection in order to identify adverse ground conditions. (Tr. 199; GX-8, p. 6).

Drilling test holes after an intersection was completed would be too late in the process. (Tr. 199). Rather test holes should be drilled at the beginning of each drill cycle. (Tr. 200; GX-8, p. 6). Further, test hole results should be written down and the hole visibly marked. (Tr. 200). The written observations should be communicated to management. (Tr. 200). Respondent work area inspection cards should be modified so that test hole results could be recorded. (Tr. 200; *see also* GX-7, p. 5).

Doe Run management had also failed to design and install adequate support to control the roof in areas where there was disrupted bedding of the brecciated zone. (Tr. 200): such as existed in the RC3PO northeast area where persons worked and travelled. (Tr. 200-201; GX-8, p. 6).

It was further recommended that the roof and ribs be supported with 6 foot fully grouted number 7 resin bolts or bolts with greater strength and anchorage capacity. (Tr. 202). Bolting should be within 30 feet of the drift in breccia zones with disrupted bedding.[14] (Tr. 202; GX-8, p. 6).

It was further recommended as a corrective action that "management"—someone other than the bolting machine operator—should determine the type of roof support to be installed to insure adequate face support. (Tr. 202-203; GX-8, p. 7).

The final root cause of the accident was found to be management's failure to ensure that miners performed scaling operations from a safe location that did not expose them to falling materials.[15] (Tr. 203; GX-8, p. 7). As a corrective action it was recommended that new roof

[13] Roof bolt operators are not supervisors. (Tr. 189).
[14] In areas with stable back conditions, bolts were to be kept within 100 feet of the work face. (GX-8, p. 6).
[15] Vadnal estimated that 75% to 80% of the victim's scaler was outside of the bolted area. (Tr. 205; GX-13, p. 5).

control procedures be established requiring limited distances for unbolted areas to ensure a safe location for scaling operations. (Tr. 203). Miners should be trained in these procedures. (Tr. 203).

Vadnal Cross Examination

On cross examination Vadnal agreed that he had not observed what the back looked like in the time period immediately prior to the fall. (Tr. 206). He assumed that the changes he had observed in the fall cavity area were observable prior to the accident. (Tr. 206-207). He had attempted to learn more about the other falls that had reportedly occurred at Fletcher Mine but had been unable to obtain further information from Doe Run management, including the mine geologist. (Tr. 207-208). Vadnal did not know if these other falls had involved bolted ground or similar ground conditions as involved in Hoodenpyle's death. (Tr. 208). He had not observed any shale when he had traveled to the accident area. (Tr. 209).

Although his title was mining engineer, Vadnal did not have a degree in mine engineering or any other engineering degree. (Tr. 209). In view of his past mining and engineering work experience, however, the Federal Government had deemed him qualified to be classified as a mining engineer. (Tr. 209-210). His exposure to brecciated ground conditions,[16] prior to the Doe Run accident, was limited to a zinc mine, St. Lawrence Zinc, in New York and Willow Lake Coal Mine[17] in Illinois which had experienced a large number or roof falls. Prior to the within hearing Vadnal had not ever testified as an expert regarding the holding capacity of split set bolts. (Tr. 215). Nor had Vadnal, prior to the within matter, ever been retained as an expert with respect to brecciated ground conditions. (Tr. 215).

Vadnal agreed that not all brecciated ground is adverse. (Tr. 216). He could not say with any certainty that when breccia is re-cemented back together it would be stronger than what the rock was before it broke apart. (Tr. 216). He agreed that the "country rock or host rock" at Doe Run was dolomite and that dolomite was a strong, chemically stable rock. (Tr. 217).

Prior to his first visit on January 22, 2015, Vadnal had never examined the brecciated ground conditions at Fletcher Mine. (Tr. 218). He concurred that "as a whole" the ground conditions at Fletcher Mine were stable. (Tr. 218).

There are varying degrees of brecciation. (Tr. 220). A layer of dolomite that has not been disrupted, when pinned together by roof bolts, forms a (stable) beam that spans the mine opening. (Tr. 220). However, when layers are no longer present and "everything is all broken," the beam is "a lot" harder to establish. (Tr. 220). Nonetheless, a beam may still be established in highly brecciated ground, if there is adequate bolting. (Tr. 220-221).

[16] At hearing Respondent's counsel objected to this Court's acceptance of Vadnal as an expert witness based in part upon Vadnal's lack of experience as to brecciated ground and the usage of split set bolts. (Tr. 149, 152).

[17] Willow Lake had elected not to continue mining in its brecciated areas as opposed to Doe Run which dealt with such ground conditions regularly. (Tr. 213).

Vadnal saw nothing that alerted him as to possible hazardous conditions while travelling to the accident scene. (Tr. 221, 223). The very edge of the fall between 7508 and 7517 was "pretty ratty" and Vadnal did not come close to the fall cavity in that area. (Tr. 223).

He did not interview any of Respondent's employees or MSHA personnel as to the appearance of the fall area prior to the accident. (Tr. 232-233). He accorded only "minimal credit" to Kennedy's statements that nothing appeared unusual or caused him concern in the cave area eight hours before the accident. (Tr. 235). Kennedy's visual inspection would only be part of an evaluation for hazardous ground conditions, only the start of the evaluation. (Tr. 235). Vadnal's opinion would not be altered—even if scalers had been working in the area of fall prior to the accident. (Tr. 237). Conditions could have changed over time.[18] (Tr. 237).

Changes in the size of the inner class would dictate a deeper evaluation of the situation. (Tr. 239).

Vadnal had not found any areas of change—similar to that observed in the fall area—at other sites in Fletcher Mine. He had not interviewed any rib bolters at Fletcher Mine. (Tr. 239). Nor had he travelled the whole of Fletcher Mine or other Doe Run mines. (Tr. 241).

The rubble that fell out of the fall cavity was consistent with large inner class. (Tr. 242). Vadnal did not see any flat tubular pieces in the rubble. (Tr. 242). He was unable to find any test holes in the fall area and had been told by an unnamed employee of Respondent that none had been drilled. (Tr. 244).

Eight bolts had been found in the rubble pile and a ninth bolt in the fall area. (Tr. 245-246).

The purpose of test hole drilling was to assess ground conditions. (Tr. 247). If individuals paid attention, they might also detect changes during "production drilling" but the purpose of such was to "hurry up and get it down." (Tr. 247).

A dead weight calculation is computed to determine the amount of ground control fixtures required to support a certain amount of tonnage that is not moving or is "static." (Tr. 248). "Dynamic" loads, as opposed to static loads, are more difficult to calculate. (Tr. 248).

Vadnal did not know how the roof fall at issue had occurred. (Tr. 249). The force which was placed on the bolts that fell was gravity. (Tr. 249). Vadnal had not made calculations as to the precise number of resin bolts that would have been required to have prevented the ground fall. (Tr. 250). He did opine that if No. 7 fully grouted 6 foot bolts[19] had been installed with a

[18] Vadnal, however, agreed that not all change indicates the existence of adverse ground conditions. Change can go from bad to good. (Tr. 237-238).
[19] Vadnal estimated that resin bolts were three times stronger than friction stabilizers. (Tr. 250).

tighter pattern, there would have "at some point" been sufficient bolts to have held the roof up. (Tr. 250-251).

Vadnal further opined that if the split set bolts in the failed roof had been replaced with the same number or resin bolts in the same 5 foot by 5 foot pattern, the roof would have held.[20] (Tr. 251).

Vadnal conceded that he had no idea, however, if a static or dynamic load had ripped out the bolts. (Tr. 252). He further agreed that it was possible that the ground fall had caused a cantilever effect on the bolts that were over Mr. Hoodenpyle. (Tr. 253). He further conceded that he had previously stated that the "best" indicator for present ground conditions was past operating history in similar ground conditions. (Tr. 254). Vadnal had found no reportable ground falls at Fletcher Mine in the prior five year operating history. (Tr. 255).

Prior to the accident, the manufacturer had conducted pull tests of the friction stabilizers in the RC3PO area and they had met spec. (Tr. 256). Surface holes had been drilled at the mine but were too far from the accident site to the relevant.[21] (Tr. 256).

Vadnal had been advised by the individual handing him Doe Run's ground control plan that employees had to read the plan and sign it at the end of retraining. (Tr. 257-258). He himself had never attended any Doe Run training session. (Tr. 258).

Other than the fact that the roof fell, Vadnal based his conclusions that Doe Run was not following its ground control policy based upon his inability to find any test holes and the information he had received that none had been drilled. (Tr. 260-261).

Vadnal did not know how or if Doe Run was making calculations in its decisions to use bolts. (Tr. 262).

It was not a violation of a mandatory safety standard for Doe Run to have had 75% of the fall area unbolted. (Tr. 264). The ground did not fail above the anchor point of the bolts. (Tr. 265).

Vadnal was "surprised" that a test hole had not been drilled. (Tr. 266). A test driller would have proceeded "a lot" slower than a production driller and would have watched for changes in colors in cuttings. (Tr. 268). He would have noted different penetration rates and would have looked for jumps in the steel that might indicate a crack or void. (Tr. 268). He would have recorded these findings and conveyed such to management. (Tr. 269).

Vadnal had not spoken to the roof bolter who had bolted the accident site or to any other hourly employee. (Tr. 269).

[20] See Tr. 250-251 for Vadnal's "in my head" calculations supporting his opinions.
[21] Vadnal estimated the closest surface hole to be hundreds of feet from the fall site. (Tr. 256).

Vadnal Redirect Examination

The fallen inner class that contained certain of the roof bolts appeared larger than the inner class circling the opening where the fall occurred and down the rib. (Tr. 269; GX-14, photograph 9). It was "very possible" that this fallen inner class would have been even more visible than that remaining on the roof. (Tr. 270).

Vadnal was unaware at the time of his investigation that the roof bolters at Fletcher Mine were being paid a bonus for how many bolts they installed in a given time frame. (Tr. 270).

Vadnal Examination by the Court

Assuming that a different scaler with a 20 foot longer arm had been used by the victim, Vadnal opined that a fatality may possibly not have occurred. (Tr. 273).

Michael Van Dorn

At hearing Michael Van Dorn, MSHA field office supervisor, appeared and testified.

Van Dorn had worked as a field office supervisor for 15-16 years. (Tr. 280). He supervised seven employees in three states. (Tr. 280). He performed regular inspections, conducted hazard complaint and accident investigations. (Tr. 280). His fatal accident investigations included fatalities involving heavy equipment, roof falls, and falls from heights. (Tr. 280).[22]

Van Dorn headed the investigation of the Fletcher Mine accident. After being telephoned by Robert Seelke of the fatality, Van Dorn arrived at the mine to learn that Hoodenpyle's body had already been recovered and brought to the surface. (Tr. 286). Going underground he headed to the RC3PO area where he observed that the scaler had been pulled out to the side. (Tr. 288). Individuals were trimming and cleaning up materials. (Tr. 288).

Along his way to the site, Van Dorn noticed in some places the roof bolts had looked like the rock had either fallen from around them or had been trimmed from around them. (Tr. 288). Wherever the roof was domed out at the fall site, the rock had different colors. (Tr. 289).

[22] *See* Tr. 280-284 for full curriculum vitae. Van Dorn had worked as an MSHA inspector in various field offices. (Tr. 281). He had earned associate degrees in general business and applied safety sciences. (Tr. 282). He had inspected Doe Run mines in the past but not Fletcher Mine. (Tr. 282). Prior to coming to MSHA, he had worked in underground limestone mines for nine years, including jobs as a scaler and safety representative. (Tr. 283).

"Shaley" was a term used by people to describe a layer of shale at Fletcher Mine. (Tr. 289). Van Dorn believed that the different colors he had observed in the dome were due to the presence of shale.[23] (Tr. 289).

Van Dorn had interviewed miners during the course of his investigation. (Tr. 290). A miner named Ryan Bowden had advised him that the roof at Fletcher Mine appeared in places to be shaley. (Tr. 292). Another miner reported a roof fall over by the sump that had taken place approximately a year ago. (Tr. 292-293). Sam McCabe, a production driller, reported that he knew of no test drilling in the general RC3PO area. (Tr. 294). Bowden, who was the powder man in the area, further indicated that there had been blasting in the area. (Tr. 294). Rather than having a 17 millisecond delay between drifts—a technique that Van Dorn was familiar with—the pre-accident blasting had involved the tying together of the drifts with detonator cord creating a lot more vibration.[24]

In interviewing miners about task training, Van Dorn was advised by scaling machine operators that they were performing workplace examinations with their cap light. (Tr. 295). None of the scalers reported that they were sounding the back. (Tr. 295). Task training was conducted at Doe Run by having an experienced miner train the next person to do the task training or workplace exam.[25] (Tr. 295-296).

Review of Doe Run's work area inspection cards prior to the accident did not reveal any information that the miners recognized any changes in ground conditions. (Tr. 298; GX-7). In looking at other areas of the mine, Van Dorn noticed that the drift next to where the accident took place had a "domed out" space. (Tr. 299). Van Dorn however was unable to determine what had caused the space—whether it was due to blasting, scaling, or a falling materials. (Tr. 299).[26]

Based upon the information gathered by the routine accident investigation team, Van Dorn had helped to author the final report of investigation that was signed in June 2015. (Tr. 300-302; GX-8). In its discussion of "roof conditions" the report described the predominant type of roof at Fletcher Mine as horizontally-bedded (layered dolomite) which created favorable roof conditions. (Tr. 302; GX-8, p. 4). Roof bolt operators had been instructed to change from six-foot-long friction stabilizers[27] to six-foot-long fully grouted resin rock bolts in shaley areas. (Tr. 302; GX-8, p. 4).

Pull tests had been conducted to gauge the support capacity of different types of bolts. (Tr. 304). Resin bolts were shown to have a greater support capacity than friction stabilizers,

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[23] Van Dorn had noticed two other areas exhibiting shaley different colors on his way to the roof fall site. (Tr. 289-290).

[24] Multiple blasts are required to create intersections, creating vibrations through the rocks that can shake rock loose. (Tr. 294-295).

[25] This type of training is called "pass training" or on-the-job training. (Tr. 296).

[26] *See also* GX-13, p. 3 for map location of area between pillars 7507-7517.

[27] Friction stabilizers are split set bolts. (Tr. 304).

being three times as strong. (Tr. 305). The split sets "yielded" approximately 18,000 pounds or 9 tons as opposed to resin bolts which yielded 40,000 pounds.[28] (Tr. 305).

In the root cause analysis of the accident it was determined that management had failed to establish policy and procedures for identifying hazardous ground conditions in that, prior to the accident, miners were not required to drill test holes at each intersection in order to identify adverse ground conditions.[29] (Tr. 306; GX-8). Test holes were not being drilled; there was not a good relay of information; if someone found changes in the rock, there was no good way to get back to management to take any corrective actions needed to stabilize the roof. (Tr. 306-307).

The second root cause of the fatality was determined to be management's failure to design and install adequate support to control the roof in the disrupted bedding of the brecciated zone of the back (roof) in the RC3PO northeast area. (Tr. 307; GX-8). The basis of this opinion was that Respondent had a roof fall in the area and hadn't been able to control the roof. (Tr. 307). The recommended corrective action was for management to establish new policies and procedures for identifying hazardous ground conditions and for training miners to drill test holes at the beginning of each drilling cycle to identify any separation in the roof strata. (Tr. 308). The test holes were required to be drilled, as near to vertical as possible, and should extend not less than one foot larger than the support installed. (Tr. 308; GX-8). The test holes should be visibly marked and identified and the examination results recorded on the workplace examination record. (Tr. 308; GX-8). It had been tech support's determination that the fall area had, in fact, contained disrupted bedding. (Tr. 308).

Fletcher Mine had different roof types, including shale, which Van Dorn observed while travelling in the mine. (Tr. 308-309). Although the mine had areas of water, he saw no areas where the mine was seeping through the roof. (Tr. 309).

The final root cause of the accident was determined to be management's failure to ensure that miners perform scaling operations from a safe location that would not expose them to falling material. (Tr. 310; GX-9). When the subject accident took place, the back quarter of the scaler was located under the last row of roof bolts. (Tr. 310-311; GX-13, p. 3). Van Dorn opined that if the scaler had been set further back toward the existing intersection—up toward pillars 7508 and 7516, Hoodenpyle would not have been injured. (Tr. 311-312; GX-13, p. 3).

[28] *See also* GX-8, p. 5, where yield is defined as the maximum anchorage capacity of a bolt. Testing by the roof bolt manufacturer disclosed six foot long, 1 ½ inch diameter friction stabilizers yielded at a range of 6-8 tons of force; six foot long, fully grouted, No. 6 headed-rebar rock bolts yielded at 14 tons; six foot long, fully grouted, No. 7 headed-rebar rock bolts yielded at 20 tons.

[29] The tech support group supplied the primary opinion. (Tr. 306).

GX-6 contained "Fatalgrams" regarding the roof fall accidents, including an accident at a Doe Run mine in January 1998, in which a surveyor was crushed in a roof fall.[30] (Tr. 313-314). The "Best Practices" listed as a result of this roof fall were that ground conditions should be tested, as well as visually examined after blasting and prior to work commencing or as ground conditions warrant. (Tr. 314; GX-6). With further roof fall deaths, it was further recommended that test holes and examinations be performed after each blast. (Tr. 314-315). Sounding, test holes, and visual examinations are tools that can be utilized to ascertain possible hazardous conditions. (Tr. 315). The advisories regarding such are readily available to operators on MSHA's website. (Tr. 316-317).

In reference to § 57.3360 "Ground support use," MSHA issued "Rules to Live By" standards for metal/nonmetal, alerting mine operators of the fatal hazards posed by roof and rib falls. (Tr. 317-319).

Van Dorn had issued Citation No. 8680899 to Respondent for violation of § 57.3201. (Tr. 319; GX-1). The citation, dated March 11, 2015, was issued because there was a Getman scaler that was being operated in an area of the Fletcher Mine where the roof fell, hitting the miner and the machine. (Tr. 320).[31]

The cab had not provided adequate protection for the miner. (Tr. 322).

The citation had been modified to extend time periods to "get everything terminated."[32] (Tr. 323). The citation was finally terminated with the area being posted, barricaded, and being abandoned. (Tr. 323; GX-14, p. 14). Given that an accident involving a death had in fact taken place, the gravity levels assessed were "occurred" in section 10(a), "fatal" in section 10(b), and 1 person affected in section 10(d). (Tr. 324). The level of negligence was determined to be moderate.[33] (Tr. 325).

The violative conduct was found to be S&S in nature. (Tr. 325). The standard was violated; there was a discrete safety "factor" (hazard) of rocks falling from an 18 foot roof; it was likely that such a rock fall would result in injury. (Tr. 326; GX-1). The likelihood of rocks or the ceiling falling was based upon the failure to perform "all the tests and examinations" and the failure to follow MSHA policies. (Tr. 326). An experienced person was needed to evaluate any changes and to act accordingly. (Tr. 326). The hazard of rocks falling and striking a person created the reasonable likelihood of injury. (Tr. 326; GX-1).

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[30] Fatalgrams are accident reports that can be found at MSHA's website (www.MSHA.gov). They describe the results of fatality investigations and make recommendations to miners and mine operators so that similar such fatal accidents may not reoccur.

[31] See GX-3 for photograph of scaler similar to the one involved in miner's death. (Tr. 321).

[32] Such included the scaling and bolting of the area. (GX-1, pp. 2-13).

[33] Van Dorn's rationale for such is as follows—"the operator, the foreman of the mine at that time, wasn't in the area. He didn't know that this was going to happen. And I just put him at moderate because high says they knew or should have known." (Tr. 325).

Van Dorn also issued Citation No. 8680900 for violation of standard § 57.3360. (Tr. 327; GX12). This was also a 104(a) S&S citation. (Tr. 327; GX-2).[34] This standard required that operators design, install, and maintain roof bolts to control the ground. (Tr. 328).

In order to develop an adequate ground control plan, mine geologists, engineers, and others should be consulted. (Tr. 328). They would have to know the ground, know the changes in it, what kind of material was on the roof, perform appropriate testing, and install long enough bolts. (Tr. 328-329).

Van Dorn had issued the citation for violation of § 57.3360 because there had been a roof fall and roof bolts pulled out. (Tr. 329).

In "good" ground, split set bolts could be used, but resin bolts should be used wherever there were "bad" ground conditions. (Tr. 330). By performing visual examinations, sound testings, and drilling test holes, a miner could know if he was entering bad ground. (Tr. 330-331).

Based upon his observations and tech support information, Van Dorn concluded that split set bolts appeared to be exclusively used at Fletcher Mine. (Tr. 332). Given the reports of another fall over by a sump, Doe Run should have considered changing to resin bolt support. (Tr. 332-333). Tighter bolting patterns to support more weight might also be indicated as a result of an evaluation and testing of a particular area. (Tr. 333).

As roof bolt(s) had come out and an accident involving death had actually taken place, the gravity of the injury was assessed as "occurred" and "fatal." (Tr. 333; GX-2). The operator's level of negligence was determined to be "high" because the operator knew or should have known of the existing conditions. (Tr. 334; GX-2). The citation was marked as S&S because there was a violation of the mandatory safety standard: the roof had fallen causing injury. (Tr. 334). It was likely that an accident would occur because the operator wasn't conducting testing for roof conditions and using resin bolts in the fall area. (Tr. 335).

Van Dorn also issued Citation No. 8680902 for violation of § 48.7(a). (Tr. 335; GX-9). This citation was amended to reflect a violation of § 48.9 (Records of training). (Tr. 336). This amended citation had been issued because MSHA had not received MSHA form 5000-23 from Respondent, recording and certifying that its miners had been task trained on workplace examinations. (Tr. 336-337). Without such training documentation, MSHA could not ascertain whether adequate training had been afforded. (Tr. 336). MSHA's Part 48(a) Training Plan for Fletcher Mine required in part that any person designated to conduct or supervise workplace examinations should receive appropriate training relative to this task. (Tr. 337; GX-10). This training was to be documented on an MSHA Form 5000-23. (Tr. 337; GX-10). The training plan was to go into effect in October of 2014. (Tr. 338).

[34] There were no 104(d) citations issued nor were there any special assessment penalties proposed. (Tr. 327).

The original citation for violation of § 48.7(a) had been issued on March 12, 2015. (Tr. 339; GX-9). No records of refresher training had been provided to MSHA as of March 12, 2015, approximately five months after the training plan's effective date in October 2014. (Tr. 339). With the amendment to § 48.9, the gravity was assessed as "no likelihood" with no lost workdays and one person affected. (Tr. 340). The violative conduct was determined to be non-S&S. (Tr. 340). The amended citation still listed the negligence level as "high" because the operator was responsible for knowing what was in his training plan and Respondent should have known what was in his plan. (Tr. 340). Miners who were interviewed all reported that they performed their workplace examinations by using the lights off their machines and cap lights, a few saying that they would be under bolted roof looking out. (Tr. 341). None reported sounding the back. (Tr. 341).

The MSHA assessed violation history report (GX-16) revealed no citations for training plan violations in November 2014.

Van Dorn Cross Examination

A powder man, Ryan Bowden, was the only miner who had advised Van Dorn that the mine was "a little shaley." (Tr. 344, 348). Van Dorn conceded that Jeremy Kennedy and Stephen Brille's field notes regarding their interviews of Bowden did not contain any mention of shale. (Tr. 344-345; GX-15, pp. 10, 19). There was a reference, however, to "a little shale" mentioned in Van Dorn's notes of his Bowden interview. (Tr. 346-347; GX-15, p. 23). Van Dorn had not seen shale at the accident scene. (Tr. 351).

The other area where Van Dorn observed shale was approximately 100 yards from the cave-in. (Tr. 349). Another area that had caused concern was where the roof had fallen out around bolts or the roof had been scaled out around them. (Tr. 350). There were no citations issued because of such. (Tr. 350). These were the only two other areas that had caused concern. (Tr. 351).

Van Dorn conceded that he had never actually asked specifically in his discussion of workplace examinations whether soundings were being performed. (Tr. 352). Nobody interviewed reported that there were adverse ground conditions that required changes in the ground control policy. (Tr. 353). Nor did Van Dorn specifically ask such. (Tr. 353).

Van Dorn did ask hourly employees if they had any concerns about roof bolting in the area and none expressed concern. (Tr. 353).

Kennedy also had not observed anything abnormal during his "quick inspection." (Tr. 354).

Van Dorn believed split sets had been used at Fletcher Mine since 2000 and there had been no reported accidents regarding such. (Tr. 355).

With the exception of the two areas of concern that he previously testified regarding, Van Dorn observed no other areas that had ground conditions that disturbed him. (Tr. 356).

It was common in a drill and blast type of mine that domed-out areas would appear on a shot. (Tr. 358). This would not indicate systemically adverse conditions. (Tr. 358).

Van Dorn did not have any issues with the bolts still in the roof closest to the accident scene. (Tr. 359). He did not personally inspect the pillars and did not see anything of concern from a ground control perspective regarding the pillars. (Tr. 360).

No reportable ground falls at Fletcher were found. (Tr. 361). Nor were any unreportable ground falls located. (Tr. 361-362).

Approximately 90% of Fletcher Mine was brecciated ground. (Tr. 364). Van Dorn knew of no split set failures between 2000 and January 2015. (Tr. 365). Van Dorn was unaware if any other Doe Run mines had back falls similar to the instant accident. (Tr. 366). There had been no § 57.3360 citations issued in the last three years. (Tr. 366-367). Pull testing in 2014 did not reveal any split set bolts that failed to meet manufacturer's specifications as to holding capacity. (Tr. 367-368). The Casteel ground fall was not taken into consideration in issuing the § 57.3360 citation. (Tr. 368-369).

Van Dorn conceded that there was nothing in Fletcher Mine's history that supported the issuance of his citation. (Tr. 370). Van Dorn did rely upon the fact that roof bolts had been sticking straight up after the fall and that they had failed. (Tr. 371). Van Dorn opined that if roof bolts failed, they were not adequate to hold and therefore a citation was justified. (Tr. 371-372). The mine's past operating history would be considered in determining the level of negligence. (Tr. 372).

Van Dorn agreed that if roof bolts fail, an automatic citation is called for. (Tr. 373-374). Even if observable ground conditions may have been "okay" according to Inspector Kennedy's standards—the roof bolts had pulled out and "that's where I'm at on issuing it." (Tr. 373).

It was only after Vadnal pointed out the changes in the fall area did Van Dorn see them. (Tr. 375).

Disturbed bedding indicates that changes are happening and the area should be checked out. (Tr. 376). Van Dorn himself saw nothing at Fletcher that immediately struck his attention. (Tr. 377). He had no idea why the back fell. (Tr. 377). He estimated 175 to 250 tons of rock fell—of which 75% was in unbolted ground. (Tr. 377). He did not know the amount of force placed on the split sets during the fall or whether the force was static or dynamic. (Tr. 378-379).

Static force is the "total force pushing down." (Tr. 378). Dynamic force would be "movement of it or cantilever type," having a crowbar effect on the bolts. (Tr. 378).

Van Dorn did not know if resin bolts would have held but there would have been a greater chance of holding because of their greater holding capacity. (Tr. 378-379). He did not know whether static or dynamic force had been involved in the roof collapse. (Tr. 379). Van Dorn had no personal experience installing split sets but had observed them being installed. (Tr. 381-382).

Doe Run's ground control policy did not require the installation of resin bolts in shaley conditions. (Tr. 3482; GX-7). Split set bolts can support shaley ground. (Tr. 384). Doe Run's ground control policy did allow for bolt spacing to be changed if conditions warranted such. (Tr. 384-385).

A driller, Sam McCabe, advised Van Dorn that test drilling was not being performed but no roof bolters had indicated such. (Tr. 385-389).[35]

The sole basis for finding a violation of § 57.3201 was that Hoodenpyle "was in a position where he got injured from falling material." (Tr. 389). No more factual grounds were necessary for the issuance of the citation. (Tr. 390). Many mitigating circumstances surrounded the accident. (Tr. 390).

Van Dorn argued that it was not uncommon for 75-80% of a scaler to be under unbolted ground. (Tr. 390-391). He further agreed that the scaler cab was under the last row of bolts at the time of the accident. (Tr. 391). It was not necessarily a violation for a mechanical scaler to be under unbolted ground. (Tr. 391). Mitigating circumstances had been found as to this accident because Doe Run management was not in the fall area and had been unaware of the material falling on the scaler. (Tr. 394). These factors had reduced the level of negligence from high to moderate. (Tr. 395). Van Dorn agreed that another mitigating factor might be that the (mining) process employed by Respondent had been in use for a long time without prior incidents. (Tr. 395). That nobody in the fall area had voiced any concerns regarding bolts or ground conditions would not constitute a mitigating factor in that none of whom were management. (Tr. 396). For the same reason, the MSHA inspector's failure to note anything wrong with bolts or ground conditions would not constitute a mitigating factor. (Tr. 396). The fact that there had been no split sets failures in the past also would not constitute a mitigating factor as to the scaling citation. (Tr. 397). The fact that a scaler has FOPS had the potential for being a mitigating factor but not for the accident at issue. (Tr. 397-398).

During the investigation of the accident Van Dorn had garnered facts warranting the issuance of Citation No. 8680902. (Tr. 399; Gx-9). As of January 2015 Doe Run had not yet completed any training under its October 2014 approved training program. (Tr. 399). Van Dorn agreed that the time this original citation citing a violation of § 48.7(a) had been amended because the original allegations that no training had taken place were incorrect. (Tr. 400).

[35] *See* same transcript pages for back and forth as to whether this question was limited to specific intersection of accident.

Van Dorn had learned that the citation had been amended on Friday prior to the within hearing.[36] (Tr. 402-403). He agreed that no workplace examination training had taken place between October 14, 2014, when the plan had been approved, and January 26, 2015. (Tr. 403-404). Van Dorn did not know if Hoodenpyle had received workplace examination training prior to his death. (Tr. 406). During his investigation Van Dorn asked various individuals in a conference room if they had been task trained on performing workplace examinations. (Tr. 407). All answered "yes," but none had MSHA form 5000-23 documentation. (Tr. 407). This was the evidence Van Dorn used to support the amended citation. (Tr. 407-408). Van Dorn had not considered Hoodenpyle in determining the amended citation but believed him to fall within the class of people without documentation. (Tr. 406, 410).

Van Dorn opined that Doe Run should have issued 5000-23s to document past training received prior to the new October 2014 part 48(a) training plan—even though no training had been afforded subsequent to October 2014. (Tr. 411).

Van Dorn, however, stated that he didn't agree with the way the amended citation came about. (Tr. 412). He further acknowledged that the new Part 48(a) training plan did not provide that Responded should go back and document that training had taken place under a prior approved plan. (Tr. 413; see also GX-10, p. 13).

If a mine has had a history of falls, whether reportable or not reportable, this could go to a knowledge of change in conditions in the mine.

The interview notes of Steve Strickland disclosed that Strickland had "glue bolted[37] before in bad ground." (Tr. 417; GX-15, p. 26). Big plates—base plates had also been used before in bad ground to help with the holding of the roof. (Tr. 417; GX-15, p. 26).

Clay McNail

Clay McNail, superintendent of Fletcher Mine, appeared and testified on behalf of the Respondent. (Tr. 419). He had been superintendent since 2010 and had worked for Doe Run for 12 years. (Tr. 419-420). His job duties included developing mine plans, working with survey and geological groups, and travelling on a regular basis throughout the mine.[38] (Tr. 420).

Fletcher was one of five active Doe Run mines. (Tr. 422). Doe Run mines were located in the Viburnum Trend, "a world class lead deposit," which also contained zinc and copper materials. (Tr. 424). Fletcher Mine first opened in 1965 and had ground conditions similar to other mines within the Viburnum Trend. (Tr. 424). Doe Run mines' host or country rock was

[36] At trial counsel for the Secretary stipulated that the actual filing date was on Monday before the commencement of hearing on Tuesday, May 23, 2017.
[37] Resin bolting (Tr. 418).
[38] McNail first started working in mining in 1994. (Tr. 420). In 1998 he earned a Bachelor of Science in Mine Engineering with emphasis in explosives engineering. (Tr. 421). In 2012 he earned a Master's in Mine Engineering with a Minor in Explosive Engineering. (Tr. 421).

dolomite, dolomitic limestone. (Tr. 425). This was "very competent" rock. (Tr. 425). The method of mining employed at Fletcher was "modified room and pillar" mining. (Tr. 425). Because of elevation changes, there is ramping up and down to different levels. (Tr. 425-426). The width of Doe Run mines depended on the width of the drifts. (Tr. 426).

There is a breccia trend that runs through the area which is followed in the mining process, which makes for a more snake-like appearance than that found in coal mine maps. (Tr. 426-427). Typical drifts and pillars at Fletcher range from 28 feet to 32 feet in width. (Tr. 427). The back is usually 16 feet to 18 feet high and no lower than 14 feet due to equipment size. (Tr. 427). Successive mining passes will result in areas as high as 100 feet to 120 feet in the trend. (Tr. 427). The mining cycle at Fletcher starts with drilling holes in the face and placing explosives in the holes. (Tr. 427). After the shot is set off, a loader is sent in; this pushes up the fly rock and mucks what can be mucked. (Tr. 428). When rock can no longer be loaded, a scaler comes in and, either by machine or hand, takes down the loose rock, making the area safe again. (Tr. 428). Loaders and trucks will come back in and complete the mucking or loading of the rock. (Tr. 428). If more scaling is required, scalers may come back in. (Tr. 428). Then the roof bolter comes in as final part of the cycle. (Tr. 428). Then the process starts over again. (Tr. 428).

At time of the accident bolting was performed at the intersections pursuant to ground control policy. (Tr. 429). Roof bolts were the main source of ground control at Fletcher Mine. (Tr. 429). Scaling involved the removal of rock that was not competent and separated by a crack or something that had the potential to possibly fall of its own accord. (Tr. 429). Blasting often creates the need for scaling. (Tr. 429).

Fletcher uses mechanical scalers with telescoping booms run by operators. (Tr. 429). It also uses, as an alternative, man baskets with two employees in the basket, using six foot aluminum bars with chisel ends to remove the rock by hand. (Tr. 436). Below 25 feet both methods are used interchangeably; above 25 feet hand scaling is used exclusively. (Tr. 430).

McNail had created a supervisor training presentation regarding ground support. (Tr. 430; RX-B). In describing the major job duties for mechanical and high boom scaling, McNail listed the following required actions: make areas safe by hand scaling from the ground up to 100 feet high with basket trucks; make areas safe by scaling with mechanical scaler; make accurate judgements on scaled areas that they are safe for the mining cycle to continue; install roof bolts by required means when necessary; complete other tasks as directed by mine supervisor. (Tr. 431; RX-B). Scaling is performed before rock bolting to ensure that rock is removed to a competent layer that will allow bolting to best support the ground above it. (Tr. 432). Mechanical scalers and high boom scalers are trained to sound the roof. (Tr. 432). Roof is sounded with basically anything that gives audio feedback. (Tr. 432). A mechanical scaler will ram the back with the tooth of his scaler and listen for sound. (Tr. 432). A hollow sound might indicate a separation of layers or vug.[39] (Tr. 433).

[39] A vug is a small or medium sized cavity in rock. (Tr. 433).

Fletcher Mine employed Getman S330 mechanical scalers such as used by the victim. (Tr. 433). At the end of the scaler were teeth that allowed the operator into cracks or features that he found. (Tr. 434). The Getman had a telescoping boom that could extend 25-30 feet, allowing the operator to stay in his station yet extend his reach. (Tr. 434). The Geman, used by the victim, had an articulation ROPS/FOPS canopy, giving the scaler a wider range of coverage without the need to physically move the machine. (Tr. 434). The operation station was located farthest away from the working end of the machine. (Tr. 434).

Prior to Hoodenpyle's arrival, the header had already been scaled several times over the course of a month. (Tr. 436). It had been scaled the day before the accident—both day and night shift. (Tr. 436).

Fletcher was a "very competent" section of the Bonneterre Formation and had already had millions of tons extracted from it. (Tr. 436). A good breccia trend ran through the middle of the mine. (Tr. 436). Adverse ground conditions at Fletcher were not common and very localized. (Tr. 437). No matter the job title, all Fletcher Mine employees are trained to identify such conditions. (Tr. 437). All supervisors at Doe Run underwent annual underground roof and ground control training. (Tr. 438; RX-D). Employees also received workplace examination training—either during new miner training or annual refresher training. (Tr. 438).

Adverse ground conditions, such as vug holes or faulting, can be determined by visual examination. (Tr. 439).

The ground conditions where the fall occurred were similar to those throughout the trend generally. (Tr. 440; RX-A). A timeline had been developed describing the January 2015 mining cycle in the fall area prior to the accident. (Tr. 441; RX-Z). The area was shot on January 3. Scaling took place on January 4; crosshatching was installed on January 5; bolts were also installed on January 5. (Tr. 442-443). More scaling was performed on January 7. The area was shot again on January 8, with more scaling on January 10. (Tr. 442). The area was shot again on January 13 and scaled again on January 15. Another shot occurred on January 18. The area was scaled on both shifts on January 20. (Tr. 442). Scaling continued on January 21 when Hoodenpyle entered the area. (Tr. 442; RX-Z).

Vernon Roark was the bolter on January 5 who installed the split set bolts involved in the accident. (Tr. 443-444).

Split set bolts and resin bolts were used interchangeably in the mine. (Tr. 444). Due to ground water coming through the roof, resin bolts could not be physically installed in some areas of the mine because the resin packages containing the glue would be washed out. (Tr. 444-445).

McNail was not aware of any significant ground control issues at the Fletcher Mine as a whole or in RC over cut area. (Tr. 447). No employee had even complained to him of abnormal ground conditions. (Tr. 447). He had no knowledge regarding split set bolt failure at Fletcher. (Tr. 447). McNail had traveled throughout Fletcher Mine and had never personally observed any adverse ground conditions that had not been controlled. (Tr. 448). It was normal procedure to

do blasting near bolted areas, the rock damage zone from a blast usually extending only a couple of feet. (Tr. 449).

The ground control policy in force at the time of the accident provided that scaling would begin a minimum of 60 feet back from the active face. (Tr. 449; RX-F). Generally the outline for roof bolting and scaling, rock bolting on a 5 by 5 pattern had been historically sufficient for intersections. (Tr. 449). The ground control policy had not required the use of resin bolts in areas of shale. (Tr. 449-450). Split sets had been used in areas of shale. (Tr. 450). The space between 7508, 7516, 7517, and 7561, as depicted on the map at RX-E, was not a completed intersection, and pursuant to the existent ground control policy would not have required a test hole at the time of accident.

Cross Examination of McNail

On cross examination McNail conceded that blasting created a certain amount of stress on rock.

Before an intersection is completed, there need to be test holes drilled pursuant to ground control policy. (Tr. 453). Bolting was budgeted for and McNail was not "worried about money." (Tr. 455). There were times when adverse ground conditions had required decreased spacing. (Tr. 455). Pattern tightening was not generally based upon reports of discoloration but upon reports of shale. (Tr. 456). McNail was not in the fall area the day that the accident had taken place. (Tr. 456).

Redirect Examination of McNail

The operating history of Doe Run suggested that the ground control policy regarding test holes was sufficient. (Tr. 457).

Though bolting incurred additional costs and slowed production, Respondent nonetheless chose to bolt throughout Fletcher Mine, including areas between pillars near the fall site that were not required to be bolted. (Tr. 457-458).

Questioning by the Court of McNail

McNail didn't have "any idea" as to the difference in costs between split set and resin bolts.[40] (Tr. 459).

[40] As discussed within, this Court found this answer to be less than fully credible given *inter alia* McNail's description of his job duties: "we look at financials and try to interpret those and control cost according to budget." (Tr. 420).

Vernon Roark Direct Examination

At hearing Vernon Roark testified on behalf of Respondent. He had been working as a roof bolter for Respondent for the last 18 years, 14 of which were at Fletcher Mine. (Tr. 460-461). He had received training in sounding the back and bolting, split set and resin. (Tr. 461-462). In installing a split set bolt, he would first inspect the area, looking for "loose," and if none found, drilling a hole and then driving a bolt into the back. (Tr. 462). When drilling a hole he looks at shavings and observes the way the steel goes, whether it's jumping or solid. (Tr. 462). Shavings can indicate where shale or clay mud is being encountered. (Tr. 462-463). Shale was grayish in color and mud was red. (Tr. 463). The drill jumps if it hits soft ground or a void. (Tr. 463).

Roark sounded the back every time he drilled a hole. When the steel hits the back, he could tell if it was solid or "drummy." (Tr. 464). A drummy sound could indicate a layer was loose. (Tr. 464). If he encountered possible adverse conditions, he would notify the geologist, Bob Ridings. (Tr. 464).

In installing a resin bolt, glue is shot in after the hole is drilled. (Tr. 464). The bolt is spun in and held for a few seconds until the glue sets up. (Tr. 465). He was not aware of a situation where he would use one type of bolt versus another. (Tr. 465). He had been installing split sets for the past five years—"that's about all I put in." (Tr. 465). Prior to the accident on January 21, 2015, he had bolted in the fall area on January 5. (Tr. 465). He was unaware of any split sets failing in the past. (Tr. 466). When he was in the fall area on January 5, 2015, the back and ribs looked "fine." (Tr. 466-467). There was no loose or voids. (Tr. 467). There was good color. (Tr. 467). There was nothing visually different from other areas. (Tr. 467). In drilling the bolt hole and in sounding the back, he noted no unusual shavings nor drumminess in sound nor jumping. (Tr. 467). The drifts and pillars were unremarkable.

He typically drilled two rows at a time, then returning to put the bolts in, with the whole process taking about 15 minutes. (Tr. 468). When he drilled in the fall area on January 5, he noticed nothing that required different spacing. (Tr. 468). He did not observe rounded boulders in the back. (Tr. 469). There was nothing about the previously installed bolts that concerned him. (Tr. 469). There were no abnormal noises. (Tr. 469).

Bolters at Fletcher Mine did receive a bonus, calculated by linear feet, for the number of bolts they installed. (Tr. 469). However, Roark did not care or "worry" about the bonus but worried about the people going under the bolts. (Tr. 470). He did not consider the area of the accident that he had bolted a completed intersection. (Tr. 470; RX-E).

Cross Examination of Roark

Split set and resin bolts both have the same size six inch bolt plates. (Tr. 470-471). There are also larger "butterfly" plates that are 12 inches. (Tr. 471). These larger plates are "not very often" used. (Tr. 471). The normal bolting pattern is 5 feet by 5 feet. (Tr. 471). On occasion, 4 feet by 4 feet or 3 feet by 3 feet patterns are employed to give more holding power.

(Tr. 471-472). No supervisor was present before Roark began bolting on January 5. (Tr. 472). Split sets were quicker to install than resin bolts. (Tr. 472).

In the past Roark had hit clay mud, shale, voids, soft ground, and drummy ground at Fletcher Mine, all of which might have required tighter bolting patterns. (Tr. 473). He had not been task trained to use a "jumbo drill" which was a larger drill for drilling test holes. (Tr. 474).

He relied upon Mr. Ridings, the geologist, to pass on information about adverse ground conditions to a supervisor who would then decide to act or not act upon such. (Tr. 475).

If he encountered a void or vug, he would not file a written report but rather orally inform his foreman. (Tr. 476).

The bonus given for split set installation ranged from $200 to $800 monthly. (Tr. 476).

Roark agreed that conditions could change in 50 to 100 feet. (Tr. 479). After he stopped bolting on January 5, he walked into the heading about 25 feet from the face and noted nothing unusual. (Tr. 479).

Roy Folkerts Direct Examination

Roy Folkerts appeared and testified on behalf of Respondent at the hearing. He had held the job of roof man[41] at Fletcher Mine on January 15, 2015. He had operated a mechanical scaler for more than 30 years and for 10 years at Fletcher Mine. (Tr. 482). Getman "scratchers" or scalers were used at Fletcher Mine to scratch the face and back to get loose down. (Tr. 484). In scaling an area Folkerts would first get out of his cab and examine the area for cracks, loose, and anything abnormal. (Tr. 482-486). He would then return to his machine, stretch out the boom, hit and sound the back with the tooth[42] to see if the back sounded like clay or drummy. (Tr. 484). He would then do the side of ribs and keep working his way up. (Tr. 484). The teeth are rotated straight up and down and sideways to do the scaling. (Tr. 486).

Folkerts worked in 10 foot sections, stretching out the boom and moving up every 10 feet. (Tr. 487). As he scaled he would perform multiple soundings each shift. (Tr. 488). When encountering loose or faults or cracks, he would use different methods to get it down. (Tr. 488). He had never encountered a drummy or bad back that prevented him from completing the scaling process by the end of his shift. (Tr. 489). He had been in the RC3PO1 northeast area hundreds of times prior to the accident, both as a mechanical scaler and hand scaler. (Tr. 489-490). He had always found the ground conditions to be good. (Tr. 491). He had never observed loose split sets in the area. (Tr. 492). Sometimes the tooth of a scaler can tug on an installed bolt and bend it but not pull it out. (Tr. 492-493). On January 20, 2015, he had been working in the area between 7508 and 7516 (RX-E) for several days and had taken four to five soundings. (Tr. 494-

[41] A roof man operates a mechanical scaler, cleaning up headings to ensure safety. (Tr. 481).
[42] The tooth of a Getman is in front of the boom on a swivel head. (Tr. 485). The swivel head had two teeth and could be pulled back and forth. (Tr. 484; RX-C).

495). He had observed roof bolts in the area between 7516 and 7517 on January 20, 2015, and they all looked normal and secure. (Tr. 495-496). He did not observe big rocks in the back (as testified to previously). (Tr. 497). Based upon his opinion and looking at the (fall) area, ground conditions appeared good from the first time he had been in the (fall) area until the time of accident. (Tr. 498).

Folkerts considered Hoodenpyle a good operator who set his scaler in a proper position. (Tr. 500). Roark had never experienced material falling on his cab while scaling.

Roy Folkerts Cross Examination

Folkerts had stopped scaling in the area at about 7508 to 7516. (Tr. 502; RX-E).

Thomas Welch Direct Examination

Thomas Welch testified at hearing for Respondent. An hourly employee, he had worked at Doe Run for 22 years, six years as a loader operator.[43] (Tr. 505). As a front-end loader operator, his job duties were to go in after a round has been shot, muck the heading out, clean it up, get it ready to be scaled and bolted and re-drilled and again start the mining cycle. (Tr. 507). Some scaling was done with the bucket on the loader. (Tr. 507). Any time scaling can't be performed with the bucket, the area is ribboned off and mechanical scalers or hand scalers are brought in. (Tr. 507).

Welch had been working in the roof fall area prior to Hoodenpyle's death and had been working on the same shift as the victim. (Tr. 508). He had seen Hoodenpyle "doing his walk around inspection, like I seen him doing a thousand times." (Tr. 508). Welch had been in the bolted area of the fall area. (Tr. 508). He had driven his loader in between pillar 7508 and 7516. (Tr. 509; RX-E). Everything looked normal: the back looked well; the pins were all in place; nothing looked like it had recently fallen. (Tr. 509). He had been sitting between 7495 and 7508 (*see* RX-E) waiting for trucks to be loaded again and had been at the scene approximately one to one and one half hours prior to Hoodenpyle's arrival. (Tr. 510).

Prior to the ground fall Welch did not hear anything indicating ground was moving. (Tr. 511). The ground conditions in the fall area appeared similar to the ground conditions in other areas of the mine. (Tr. 512). He was not aware of any unplanned ground falls of brecciated ground nor complaints about ground conditions. (Tr. 512). While he did not see the ground fall, he heard it and thought it sounded "like a lot of rock" for the area. (Tr. 514). When he arrived at the post-accident site, he noted no shale or other suspicious ground conditions. (Tr. 515-516).

[43] Welch had approximately 25 years' experience in underground mining, working for two other mines in addition to Doe Run. His jobs included truck driver, loader operator, mechanical scaler, grade operator, shift extra and development miner. (Tr. 505-506).

Thomas Welch Cross Examination

When scaling with the bucket of the loader, Welch would only scale up to about 6 feet. (Tr. 516). He did no sounding in the areas between 7508 and 7516. (Tr. 516-517). Nor did he check and drill test holes. (Tr. 517). He did not go into the unbolted area between 7517 and 7561. (Tr. 517; RX-E). He did not examine the ribs or back in the area nor went past the bolted area. (Tr. 517).

Jason England Direct Examination

Jason England, the safety manager at Doe Run, testified at hearing. (Tr. 520). He had been Doe Run's safety manager for 13 ½ years. (Tr. 520). He had previously worked as a safety manager and specialist. (Tr. 520-521). As safety director, England reviewed citations to help sites determine which to conference, managed four safety specialists, helped implement and write training plans. (Tr. 521).

Miners at Doe Run receive roof and ground control training, including the identification of adverse ground conditions and procedures such as scaling, in new miners' classes and annual refresher training. (Tr. 522-523). Safety specialists, experienced in ground control, demonstrate the proper use of scaling bars and show the different types of bolts. Safety meetings and supervisor training throughout the year also touch upon ground control issues. (Tr. 522). Hoodenpyle would have received training on Doe Run's ground control policy. (Tr. 523). Every employee is required to read and sign a copy of the policy. (Tr. 523). RX-N was a compilation of the training documents signed by Hoodenpyle throughout his career at Doe Run, including ground control policies.[44] (Tr. 523-523; RX-N).

Hoodenpyle had been task trained for the Getman scaler in February 2013. (Tr. 525-526).

As safety director, England would have received notice of any mine accidents but had not been notified of any accidents involving bolted ground falls prior to January 21, 2015. (Tr. 526). His review of records disclosed no reports of ground falls in ground supported by split set bolts. (Tr. 527). Nor had anyone ever expressed concerns to him regarding the use of friction stabilizer bolts at Fletcher Mine. (Tr. 527). Reviewing records back to 2010, he found no injuries as the result of ground falls on cabs with ROPS/FOPS. (Tr. 528). Internal investigations revealed nothing indicating ground support in the area had been inadequate. (Tr. 528).

There were no § 57.3360 violations found in Fletcher Mine's 10 year citation history. (Tr. 528-529). There was one citation for violation of § 57.3201 in 2009. (Tr. 529). There was no indication that the mechanical scaling process utilized by Doe Run (for at least the past 10

[44] Hoodenpyle had been hired by Doe Run in 2011. His acknowledgements of having received ground control training were dated February 2011, February 2012, February 2013, and February 2014. (Tr. 524).

years) had exposed miners to the danger of falling material.[45] (Tr. 530). There was no record of mechanical scaler injuries. (Tr. 530). MSHA had never voiced concerns about the process. (Tr. 531).

England had become aware the day before the hearing of the amendment to Citation No. 8680902 from a training violation to a document citation. (Tr. 531).

During the closeout conference England objected to Doe Run being cited for failure to document workplace examination training. Hoodenpyle had received his workplace examination training during a time period when the October 2014 plan then in fact did not require such 5000-23 documentation. (Tr. 535). England did not deem it proper to write a citation on training that was conducted prior to the new plan's approval. (Tr. 532). No new miner class training or refresher training had been conducted or miner transfers had taken place under the new plan between its approval and the accident date. (Tr. 533). Between the new training plan's approval and the date of citation there was nobody at Doe Run who was required to receive task training on workplace examinations. (Tr. 533).

Review of the new Part 48 training plan did not indicate that MSHA forms 5000-23 should have been submitted for workplace examinations under the old training plan. (Tr. 537-538; GX-10, p. 13). The first annual refresher training regarding workplace examinations after accident was in February 2015. (Tr. 539). 5000-23 documentation was issued for such. (Tr. 540). During the time period between October 2014 and January 2015 MSHA, during its inspections, issued no citations for 5000-23 documentation violations. (Tr. 540-541).

Jason England Cross Examination

Falls from unbolted ground would not generally be reported. (Tr. 542).

Randall Hanning Direct Examination

Randall Hanning held the position of mine operations manager at Doe Run since October 2014, having worked for the Respondent since September 1998.[46] (Tr. 546-547).

As a mine operations manager he manages the production of all the mines, helping mine superintendents in their daily activities. (Tr. 549). His position is cross functional with other departments, including maintenance, safety, and budgetary departments. (Tr. 549).

[45] The policy provided that all employees upon entering an area perform workplace examinations. They must start at least 60 feet from the face and scale their way into whatever heading they're working in. (Tr. 530).

[46] Hanning graduated in 1988, receiving a Bachelor of Science in Engineering. (Tr. 548). He began working for Ascaro at the Sweet Mine in 1988. (Tr. 548). He had worked in mining as a surveyor, training level supervisor, mine supervisor, general mine supervisor, and mine superintendent. (Tr. 548-549).

Hanning worked underground at four of Doe Run's mines. (Tr. 549). Generally, the ground conditions were similar at all of the mines with dolomite as the host rock and split stabilizers being utilized since 1998. (Tr. 550). He could not recall any split set failures. (Tr. 551). He was familiar with the installation of both split set and resin bolts. (Tr. 552). He opined that split sets and resins were "equal depending on how you use them and the situation and all that." (Tr. 553).

While holding capacity, by pull testing, disclosed six to eight tons for split sets and 20 tons for resin bolts, Hanning liked split set bolts because in "real wet" ground resin bolts did not work as well, it being difficult to keep the resin up in the holes. (Tr. 553). With split sets Hanning was more confident of "a quality installation," it not taking a "rocket science" to put in a split set bolt. (Tr. 553-554). With resin bolts, there is a concern that there is not enough resin in the hole or if there is sufficient spinning. (Tr. 554). Closing the split set pattern will help to increase the holding capacity to match resin bolts. (Tr. 554). The Doe Run ground control policy in effect on January 21, 2015, allowed for closer patterns if the bolter reached the determination such was necessary. (Tr. 555).

Hanning had travelled to the fall area after the accident but did not see any adverse ground conditions on his way to the site. (Tr. 556).

Randall Hanning Cross Examination

Split set and resin bolts are the only two types of bolts used at Fletcher Mine. (Tr. 558). They are not necessarily selected based upon ground conditions. (Tr. 558). There are two types of machines used in installing bolts: a split set and resin bolter. (Tr. 558). If one is unavailable, then the other one is used. (Tr. 559). Bolters are paid a bonus depending upon the amount of bolting they do in a given time period. (Tr. 559). The incentive program can range from $200 to $800 a month. (Tr. 559).

Hanning had not visited the fall area prior to the accident and hadn't made any evaluation of ground conditions. (Tr. 559).

There was no requirement in Doe Run's ground control policy in effect in January 2015 that test drill holes be marked. (Tr. 560).

The fall area was not a wet area that would have prevented the use of resin bolts. (Tr. 562).

Hanning had observed split set bolts being installed in areas containing shale. (Tr. 563-564). Such a practice was not prohibited by Doe Run's ground control policy in effect in January 2015. (Tr. 564).

George Moellering Direct Examination

George Moellering, Respondent's Southeast Missouri exploration manager, appeared and testified at hearing. He had worked for Doe Run for 28 ½ years.[47] (Tr. 572). He had held his current position as Southeast Missouri exploration manager since 2012. (Tr. 576). His duties were basically the same as chief mine geologist with some additional duties, including setting policy for the mine geology group. (Tr. 576). Moellering had analyzed surface hole logs, graded faces, and mine planned to avoid "dilution."[48] (Tr. 577). As a geologist he would often go underground to visually determine different types of rock structures to help in the mining decision-making process. (Tr. 578).

Doe Run's mining areas run approximately 32.5 miles long. (Tr. 578; RX-A). The breccia trend at Doe Run is very intense in some places such as the Buick Mine and other places it is very subtle. (Tr. 580; RX-A). The entire Viburnum Trend had been dolomitized over the years, the dolomite sequence being narrow, generally less than two to three miles wide. (Tr. 581).[49]

In particular the Fletcher Mine had one of the higher grades in the Viburnum Trend with very strong and stable dolomite host rock. (Tr. 583-584). The geologic conditions in Fletcher Mine and in the accident area—RC3PO Northeast—were similar to other parts of the Doe Run complex. (Tr. 584-585; RX-A). Although the general breccia is the same, every run is going to look different. (Tr. 585). The rocks are turned different ways every round: taking a picture of it in one area and comparing a picture of it in another area would not show like images but the general structure would be the same. (Tr. 585). So changes (in appearance) would be quite common. (Tr. 585).

RX-I contained a photograph of a classic breccia taken at Casteel Mine which was a typical representation of breccia found in the Doe Run mines. (Tr. 586-587).[50] Describing different photographs of breccia with fracturing and different blocks of colored material, Moellering opined that none of the pictures depicted adverse ground conditions. (Tr. 587-589; RX-I). As breccia is re-cemented together over millions of years it can become even stronger in

[47] RX-8 contains Moellering's complete resume. He earned a B.S. in economic geology in 1988. From 1989 to 2004 he worked as a mine geologist for Doe Run, working initially as a grade control geologist and then as a mine geologist. (Tr. 574-575). He then worked for eight years with Doe Run as chief mine geologist, overseeing 10 mine geologists, a couple grade control geologists, and an underground drill foreman. (Tr. 575). His duties included grading faces with breccia in them, locating new ones, controlling the dilution, mine planning, budgeting—"everything…to do with mine geology, including surface drilling." (Tr. 575-576).

[48] Dilution is rock with no ore in it. The goal is keep as much of such out of the system as possible. (Tr. 577).

[49] *See* Moellering's full testimony at Tr. 579-583 for more complete description of geological process leading to formation of Viburnum Trend and its mining history.

[50] *See* Tr. 585-587 for more detailed technical description of breccia formation.

character. (Tr. 589-590). Brecciated ground conditions do not per se constitute hazardous conditions. (Tr. 590-591).

Moellering had walked with Vadnal to the fall area on January 21, 2015, and noted the changes that Vadnal had alluded to but found the changes to be "no surprise" in a breccia trend. (Tr. 591). As one comes from slightly brecciated ground into the main core of the breccia, change is expected. (Tr. 591-592). Moellering observed various changes in the face of the accident area: lighter color rock; different colors in some of the rocks; gray silt[51] showing in the back. (Tr. 593-594; area between 7561 and 7517 on RX-E). Nothing that Moellering observed did he find to be as a geologist unusual. (Tr. 595). He saw no shale on the ribs or back. (Tr. 595).

There was a surface hole approximately 140 feet in front of the mine workings that had not been cut with mining. (Tr. 596; RX-J). He had evaluated the lithology of the surface hole and found it to be typical of every other surface hole in the area. (Tr. 598). Nothing in the hole indicated the existence of adverse conditions. (Tr. 598). Nor did he see anything unusual about the elevation around 1086. (Tr. 599). He also did not detect any shale in the fall area and/or rocks in the fall area depicted in the photograph at GX-13, page 006. (Tr. 600-601).

In examining the photograph of rock laying between the pillars 7517 and 7561 (RX-E) Moellering opined that the rock looked like it had come out of the portion of the fall between 7517 and 7561. (Tr. 601). In looking at the photographs of the fallen rock, he did not note the change that he noticed on the face between 7561 and 7517. (Tr. 601). The face appeared to be highly brecciated and the material on the ground appeared to be pretty well flat bedded. (Tr. 602). He saw no evidence of shale in the rocks that had fallen on the scaler cab. (Tr. 603).

Moellering disagreed with Vadnal's assessment that heavily disrupted bedding could not hold a good back. (Tr. 604). Recementation was the key: if the rock was well-cemented together, there would be no problem. (Tr. 604). Based upon his past experience and education, he found no evidence of inadequate cementation in his review of photographs from the fall area. (Tr. 605). During his employment at Doe Run he had never seen nor heard of an unplanned ground fall—in bolted or unbolted ground—of the magnitude of the instant incident in similar ground conditions. (Tr. 605). As a geologist, he believed brecciated dolomite was safe ground to work under. (Tr. 605-606). Nothing in the photographs reviewed suggest to him as a geologist that ground conditions required more analysis or testing. (Tr. 606). High brecciated ground, if well cemented, was safe to work under. (Tr. 606). Mining production at Fletcher Mine, in brecciated condition, had been ongoing from 1965. (Tr. 607). Moellering had been unaware of any split set failure in any area of brecciated ground in RC3PO1. (Tr. 607).

[51] Gray silt is originally deposited as limestone, basically a lime mud stone; it's predominantly dolomite and generally very thick bedded. (Tr. 594).

Moellering Cross Examination

Surface holes cannot inform a miner whether the back or roof in a given area is stable. (Tr. 608). Grade sheets are a name for a report that a geologist produces when he's on any round that goes underground. A geologist would have the option of making comments on them about the mining area. (Tr. 608). Although copies are given to other management and employees, grade sheets are primarily for the purpose of determining an area contains ore that the geologist wants to have mined. (Tr. 609).

Moellering agreed that ground conditions could change from drift to drift and that was why evaluations were required. (Tr. 610). The difference in dolomite class (size) had no effect on its strength. (Tr. 611). Blasting can open seams and enlarge fractures. (Tr. 614). There could have been vugs, holes, or voids or some other condition that could have occurred in the space between the surface hole previously testified to and the fall site 140 feet away that could have affected the stability of the rock. (Tr. 615). Moellering did not participate in decisions on bolting. (Tr. 615).

It was Moellering's opinion that the percentage and class of the dolomite in a measured stone didn't have any effect on the strength. (Tr. 616).

Moellering Redirect

The cement or matrix in brecciated conditions was generally white sparry dolomite. (Tr. 616).

Moellering Recross

More elements or different types of rock could affect the strength of the matrix. (Tr. 619).

Thomas Yanske Direct Examination

Thomas Yanske, Doe Run's mine services manager, testified at hearing. (Tr. 621).[52] As mine services manager Yanske looked after the technical side of mining, assisting in production, supervising engineers, dealing with ground support. (Tr. 621). Yanske earned a Bachelor of Science in engineering in 1977 and later earned a professional engineer's license. (Tr. 622). In his early career he had been involved with the installation of roof bolts, actually installing split set bolts. (Tr. 622, 624). Later, he had been further involved with ground control issues and designing ground control systems. (Tr. 626). He had moved his offices to Fletcher Mine in 1992, working with pillar extraction and making evaluations as to what would be required to support roof and back. (Tr. 627). From 1995 to 2003, he had been involved as a mine engineer with the effect of pillar extraction on rock bolts, evaluating both resin bolts and split set conventional bolts. (Tr. 627-628). As a mine service manager since 2004, he managed

[52] *See* RX-K for full resume and Tr. 621-629.

three groups of employees: a surveying group which did all the surveying underground, ensuring all the maps were up to date and which also managed the bonus program for miners; a tech service group which consisted of five engineers who were extensively involved with pillar extraction; a mine planning group which looked at mining "from all operations from short-term, mid-term, to long-term planning." (Tr. 628). His tech service group coordinated with the vendor in setting up pull tests for the various types of bolts used at the mine. (Tr. 629).

Yanske was familiar with Doe Run's ground control policy that was in effect on January 21, 2015, and had participated in revising the policy in 2010 to require that the area above a person jack legging[53] needed to be bolted. (Tr. 631). The policy had also been revised after a fatality in 1998. (Tr. 632). It was provided that workplace examinations would start out 60 feet from the face. (Tr. 632). Test holes would be utilized and completed one per round. (Tr. 632). Surveyors would be required to have scaling bars and an area would be tested and scaled before work began. (Tr. 632).

Yanske was unaware of any unplanned ground falls during the time period between the institution of the new ground control policy following the 1998 fatality and the instant January 21, 2015 accident. (Tr. 634). The area between pillar 7515 and 7517 where the accident occurred was not a completed intersection. (Tr. 635). The ground control policy then in effect would not have required the entire area to be bolted. (Tr. 635).

Although MSHA had requested to see Doe Run's ground control policy prior to January 21, 2015, MSHA, to Yanske's knowledge, had not recommended any changes to the policy. (Tr. 636).

In installing split set bolts, a hole is drilled slightly smaller than the bolt itself. (Tr. 637). The bolt is hammered into place; the friction between the bolt and rock causes a radial force to the side which holds the layers of rock together. (Tr. 637). A roof bolter machine, rather than a jack leg, is now used to hammer the friction stabilizer in place. (Tr. 637-638).

The holding capacity of a split set bolt was shown by pull tests to be six to eight tons. (Tr. 638). This holding capacity was shown to be sufficient to support the ground at Doe Run. (Tr. 638). Yanske had actually met the creator of the split set—Dr. Scott—while Yanske had been attending college in 1977. (Tr. 640). He knew of no failures of split sets since his arrival at Doe Run in 1990. (Tr. 638).

When installing resin bolts, a hole is drilled and a cartridge of glue is inserted into the hole. The bolt is then inserted and spun into a two-part epoxy. (Tr. 640). They are separated in the plastic cartridges themselves. As the bolt is pushed up into the hole, it splits the cartridges and they rotate a prescribed amount of times. (Tr. 640). The bolt mixes the two parts together and epoxy glue sets up and holds the bolt into place. (Tr. 640). Resin bolts have a higher holding capacity than split set bolts but might not be used in ground that has a lot of water

[53] Jack legging is when a miner uses an air-operated drill by hand while drilling out the back. (Tr. 631).

coming from it. (Tr. 641). Split sets cannot be used in soft ground because of the lack of friction. (Tr. 642). Split sets were appropriate ground support for brecciated conditions and, if properly installed, for shale.[54] (Tr. 642).

Yanske had travelled to the fall area after the accident and did not consider it shaley. (Tr. 643). He did not observe any shale in the area. (Tr. 643). A static load is a load that is in place. A dynamic load is a load where rock is moving. (Tr. 643). It was difficult to calculate dynamic loads and Yanske knew of no one who calculated dynamic loads on a regular basis. (Tr. 644). He also knew of no type of pull test that could measure a dynamic load. (Tr. 644).

Prior to the ground fall bolts had been in place in the fall area for two weeks, since January 1, 2015. (Tr. 645). Yanske opined one of two things happened after Hoodenpyle had begun scaling. As Hoodenpyle was reaching out onto unsupported ground with his boom to scale a piece of loose either he hit a keyblock and dislodged it which in turn allowed other rocks to fall or some force he generated in scaling caused it to go beyond—to go where it was no longer equilibrium—and that rock fell. (Tr. 645-646). In turn when it fell, it put dynamic load on those bolts in place, causing bolts to pull out. (Tr. 646). Yanske felt that the fall did not originate at the bolted ground because bolts had been in place prior to the ground fall for two weeks. (Tr. 646). When the ground fall took place, it did not go above the anchor point of the bolt. It actually separated below the anchor point which made Yanske feel the fall originated in the unsupported ground. (Tr. 646). The analogy would be similar to an underground miner taking his scaling bar, sticking it pointed end and trying to pry down a rock. As a miner slides his hands down a scaling bar it's very difficult to pry down a rock. But if the miner puts his hands at the far end of the scaling bar, six feet from the prying point, the fulcrum effect makes it a lot easier. (Tr. 646-647). The rock out in the unsupported ground acted in the same way as a scaling bar, actually pulling rock bolts out of the back. (Tr. 647).

Dynamic forces and dynamic loads cannot be anticipated. It would be "strictly speculation" to state that resin bolts would have prevented the fall. (Tr. 647). With dynamic loading and the longer the moment arm is, the more force is generated with the rock sitting out there, even though the weight in the unbolted rock would not be as much in weight as the rest. (Tr. 647). The multiplying force could cause the bolts to come out. (Tr. 648). Further, Yanske opined that a test hole in the middle of the intersection may not have revealed anything adverse. (Tr. 648). Based upon Doe Run's operating history and his knowledge of what the current ground conditions looked like in the area of the accident prior to the fall, he opined that there was no indication that the six-foot friction stabilizer bolts were inadequate. (Tr. 648).

All breccia is disrupted. Even highly brecciated ground can be supported by split set bolts as demonstrated by their use in Doe Run mines for decades. (Tr. 649-650).

In conducting a pull test, the load is continued until slippage of the bolt is detected. (Tr. 652). The slippage point indicates the bolt's maximum holding capacity. (Tr. 652).

[54] Proper installation in shale backs might require tightening the spacing to 4 feet by 4 feet, 3 feet by 3 feet, or even 2 feet by 2 feet patterns. (Tr. 642-643).

Thomas Yanske Cross Examination

In addition to the bolters, other groups involved in production that receive bonuses at Doe Run are: drillers; roof bolters; backfill operators; mine support people; supervisors (annual bonuses). (Tr. 654). Geologists also received variable bonuses. (Tr. 654). The faster work is completed in a safe fashion[55], the more the bonus. (Tr. 654).

There is ground in the mine that cannot be safely mined due to geologic features. (Tr. 654). These areas will be bermed and flagged off. (Tr. 655). When too much water is encountered, more scaling is performed or additional bolts installed. (Tr. 655-656).

A deciding factor in determining whether to utilize split set or resin bolts may be the type of bolting machine that is available. (Tr. 656). In evaluating a roof, miners look for such features as fractures that might indicate an opening or movement, shale, color changes in the rock. (Tr. 656). Spacing patterns of bolts might be tightened to increase holding capacity in such situations as when larger beams like a brow are exposed or where a hole is encountered. (Tr. 658). Butterfly plates can also be used to prevent materials from falling. (Tr. 658).

Yanske repeated his opinion that the fall had been caused by a keyblock being dislodged during scaling or some other force that the victim induced causing it to go beyond equilibrium and fall. (Tr. 659).

Resin bolts in a tightened pattern would have more holding capacity than split set bolts. Because dynamic loads are so difficult to calculate the safety factor involved in increasing bolt patterns would be speculative in nature. (Tr. 660).

The area of ground involved in the 1998 Casteel Mine fatality was unbolted. (Tr. 662-663). If at the time of the fall Hoodenpyle's scaler had been back 15 to 20 more feet, he may have been in a protected area. (Tr. 663).[56]

Thomas Yanske Redirect

Any part of the roof that was being scaled at the time of accident—not just a keyblock—could have been disturbed, causing a disruption in the equilibrium, setting the fall in motion. (Tr. 667-668).

Thomas Yanske Questioning by the Court

Split set bolts can be installed "a little quicker" than resin bolts. Split sets are also "a little cheaper" than resin bolts. (Tr. 670).[57]

[55] There are no bonuses for safety alone. (Tr. 654).
[56] *See* Tr. 663-664 for more detailed answer.
[57] *See* Tr. 669-670 for full answers.

Robert Ridings Direct Examination

Robert Ridings testified at hearing. He had been employed at Doe Run since October 2007 and was currently senior mine geologist. (Tr. 671). He had been working at Fletcher Mine as a geologist on January 21, 2015. (Tr. 672). As a geologist his primary duty was to come up with a hypothesis of the location of mine ore. (Tr. 672). Based upon data available he tested the hypothesis by managing underground drilling which took core samples. (Tr. 672). The underground percussion drill powders rock along the hole that can be assayed for data. He has a surface expiration program. (Tr. 672). He uses data from all sources to support or not support his opinion as to where ore is to be found in a certain area. (Tr. 673). He oversees the mining of the stopes of all the ore bodies that he has found. (Tr. 673). He looks for breccia, fractures, structures, anything that might serve as a conduit or have permeability for which the ore to deposit in. (Tr. 673). He goes underground for about four hours on the average of three days per week. (Tr. 673-674).

His activities include evaluating ground conditions. (Tr. 674). He looks for loose rock. (Tr. 674). Areas that have stylolite or a parting will be blasted so that loose rock could be scratched down. (Tr. 674). Any area that presents a concern is taped off and noted on his grade sheets. (Tr. 675). Nobody can enter it until it's scaled down and safe. (Tr. 675).

Breccia is the most common form of host rock at Fletcher Mine. (Tr. 675). A geologist uses grade sheets with mapping to convey to foremen and managers the exact grade of ore located underground at all the areas being mined. (Tr. 676; RX-R).[58] Any adverse condition would also be noted on the grade sheet. (Tr. 679).

During the month prior to the accident Ridings had in fact worked in the area of the fall (RC3PO northeast). (Tr. 680). He had created the Doe Run grade sheets in December 2014. (Tr. 680; RX-Q). He did not recall observing any adverse conditions, inadequate ground support, or any condition indicating a possible hazard on December 26, 2014. (Tr. 681). Nor did he observe any of such on January 5, 2015, or January 9, 2015. (Tr. 682-683). During an underground trip on January 12, 2015, he was surveying by eye and saw nothing that would cause alarm. (Tr. 684; RX-E). On January 16, 2015, the workings had advanced a little. He again saw nothing, including bolting or ground control, that looked dangerous. (Tr. 684).

On the day of the accident Ridings drove through the exact area where the fall took place and again saw nothing that would cause alarm. (Tr. 685). The time that he drove through was approximately 10:30 am to 1:00 pm. (Tr. 685). At the time Ridings was travelling with another geologist who was training for Fletcher and he was "kind of showing him around." (Tr. 685). There was nothing unusual about the brecciated back that he observed in the fall area. (Tr. 687). He did not notice any boulders in the back in what was to be the proposed intersection. (Tr. 685; *see also* RX-E). He actually saw the bolts that would later fall: They looked "good"; plates were flat up against the back. (Tr. 689).

[58] See Tr. 677-678 for detailed description for meaning of markings on RX-R.

He saw no evidence of a recent rock fall and heard no sounds, popping or cracking, indicating ground was moving. (Tr. 690). He saw no evidence of unusual cracks or fractures. (Tr. 690).

As a geologist he is often advised if somebody notes a possible adverse condition. (Tr. 690-691). Usually the first to notice such are roof bolters. (Tr. 691). The roof bolter Vern Roark had in the past brought possible adverse conditions to Ridings' attention but did not report anything about the fall area at issue. (Tr. 691). Nor had anyone else. (Tr. 692).

There was nothing in the month leading up to the accident date that indicated that the ground support was inadequately supporting the ground. (Tr. 692). The fall area ground was similar to the entire RC West Fork overcut and similar to areas supported by 5 foot by 5 foot patterns. (Tr. 692). He did not recall any similar situations where split sets installed in similar ground conditions had failed. (Tr. 692).

Robert Ridings Cross Examination

On cross examination Ridings agreed that he was not a bolter or driller nor had been involved in the development of any ground control or safety program at Fletcher. (Tr. 693). He further conceded that the best way to detect change in brecciated ground conditions is "continuous" testing and evaluation. (Tr. 694). Test hole results are not reported on the geologist's grading sheets. (Tr. 694). Blasting can loosen rock. Ore goes along the fractures in the rock. (Tr. 695). Fractures operate as a conduit: whatever path permeability for fluids to move through is where ore can be deposited. (Tr. 695).

Robert Ridings Redirect

As a geologist Ridings considered scaling a method of testing the stability of ground. (Tr. 698). Scalers can definitely spot loose. (Tr. 698).

Ridings carries a scaling bar with him and, if it appears safe to do so, will himself scale areas of loose. (Tr. 699). There was nothing uncommon about the fractures and cracks that he observed on January 21, 2015. (Tr. 699). He did not consider the typical cracks in brecciated ground at Fletcher mine to constitute adverse conditions. (Tr. 701).

CONTENTIONS OF THE PARTIES

The Secretary argues that the location of the Getman Mechanical Scaler identified in Citation No. 8680899 was a violation of 30 C.F.R. §57.3201 because the Mechanical Scaler was located in area that was only 25% bolted with split set bolts in a 5x5 pattern. The Secretary argues that the bolting in the area of the fall was inadequate for roof conditions and that the inadequate bolting was directly related to the failure to thoroughly evaluate and test the roof conditions. The Secretary argues that being further removed from the fall zone or under an area that was thoroughly tested, examined, and then properly bolted would have protected the scaler operator.

Doe Run argues that Citation 8680899 should be vacated because an objective analysis of all the surrounding circumstances, factors, and considerations establishes that a reasonably prudent person familiar with the mining industry and protective purposes of the standard would not have recognized the hazardous condition the standard seeks to prevent, in this case injury from falling material. Doe Run argues that mechanical scaling is the safest way to bring down loose material from roof and rib surfaces and that the mechanical scaler that Mr. Hoodenpyle operated contained many safety features, protecting the scaler operator from rock falls. Therefore, a reasonably prudent person would have believed the safety features protected the operator of the mechanical scaler. Doe Run argues that MSHA inspectors Kennedy and Van Dorn testified they have seen mechanical scalers operate in this position before and that doing so was not a violation and that such positioning was normal. Doe Run asserts there was nothing that should have put Doe Run on notice that either the ground support or ground conditions in the area were insufficient or hazardous.

The Secretary argues Doe Run failed to design, install, and maintain ground support adequate to the mine conditions. In support of Citation No. 8680900 the Secretary argues that Doe Run fails the reasonably prudent person test. The Secretary argues that the evidence shown at trial demonstrated that Doe Run failed to adequately design and install ground control measures at the Fletcher Mine and that that the measures installed were inadequate for the conditions existing in the RC3PONE heading. The Secretary argues the fatal roof fall occurred in an area where 25% of the roof was bolted as direct evidence of the inadequacy of the ground support for the mine conditions. In support of the argument, the Secretary states that previous roof falls put the mine on notice of the hazard. The Secretary argues that conditions dictated roof bolting in the area of the fall should have been done with either a tighter pattern or resin bolts. The Secretary argues a reasonably prudent person, familiar with the mining industry and the protective purpose of the standard, would have recognized the hazardous conditions that the standard seeks to prevent and would have adjusted the bolting accordingly.

Doe Run argues Citation 8680900 should be vacated as it also fails the reasonably prudent person test. Doe Run argues Citation No. 8680900 should be vacated because the evidence fails to establish that ground support in the RC3PONE stope was not properly designed, installed and maintained based on known ground conditions prior to the ground fall and Doe Run's mining experience in similar ground conditions as required by C30 C.F.R. §57.3360. Doe Run also argues that prior to the date of the accident the Fletcher Mine had never experienced any unplanned ground falls where split set roof bolts failed in similar ground conditions. Doe Run argues the geology in the area of the fall does not require the use of resin bolts or a tighter bolt pattern. Doe Run relies on the testimony of several witnesses to assert that split set roof bolts adequately and safely support similar geologic conditions and had done so for decades at Doe Run mines to include the Fletcher Mine.

The Secretary argues that Citation Nos. 8680899 and 8680900 were properly designated "Significant and Substantial" per Section 104(d) (1) of the Mine Act. In support of the argument, the Secretary asserts that the violations associated with the Citations were of such nature as could significantly and substantially contribute to the cause and effect of a coal or other mine safety or health hazard. The Secretary argues that both Citations satisfy the four step framework of the

Mathies test: (1) the violation(s) were established as a violation of a mandatory safety standard; (2) the likelihood of the occurrence of the hazard against which a mandatory safety standard is directed; (3) the gravity of the violation; and (4) whether violation of the hazard would be reasonably likely to result in injury.

Doe Run further argues that Citation Nos. 8680899 and 8680900 were improperly designated as "Significant and Substantial." In support of this argument Doe Run argues that the Secretary failed to prove violations of either 30 C.F.R. §57.3360 or 30 C.F.R. §57.3201. Doe Run argues that if the Secretary is unable to prove a violation of a mandatory safety standard the Secretary fails the first step of the revised *Mathies* test rendering the other three steps unnecessary. Doe Run argues however, that, even if the Court determines the Secretary is able to meet its burden in regards to step one of the test, element two of the test is unmet because the likelihood of this occurrence was also unlikely for the same reasons.

ANALYSIS

Issue: Given that the Mine Act is a strict liability statute and given that a miner was killed due to the fall of roof material on his scaler due to ground support failure, were there *per se* violations of §§ 57.3201 and 57.3360?

Strict Liability

In their post-hearing briefs neither party devoted much of their briefs as to the applicability of strict liability to the present controversy.[59] The Undersigned nonetheless is convinced that this doctrine lies at the very heart of the matter, playing a decisive role in determining the fact of violation in cases of accidental roof falls causing death.

The Federal Mine Act has long been understood to be an act based upon strict liability. The Commission and Circuit Courts have long held that "an operator may be liable without fault." *Sewell Coal Co. v. FMSHRC*, 686F.2d 1066, 1071 (4th Cir. 1982). "Because the Mine Act is a strict liability statute, any violation of the Act or the mandatory safety and health standards adopted thereto…would be attributable to the mine operator regardless of whether the mine operator is at fault." 27 FMSHRC 721, 731 (2005). In *Spartan Mining Co.*, 30FMSHRC 699, 706 (Aug. 2008) the Commission rejected compliance with internal policy as a defense *because of the Mine Act's strict liability*.

Indeed, the legislative history of the Mine Act confirms the congressional intent that there should be "liability for violations of the standards against the operator without regard to fault." *Conf. Rep.* No. 761, 91st Cong., 1st Sess. 71, *reprinted* 1969 *U.S. Code Cong. & Ad. News* 2503, 2578, 2586.

[59] This is so despite this Court's explicit request to do so. (*see, inter alia,* Hearing transcript at pp. 708-711, Secretary's original brief at p. 20, and Respondent's brief at pp. 35-37).

The history of American mining horrifically documents why there was such a desperate need for the legislative imposition of strict liability. For generations mine operators had denied responsibility for miners' injuries and deaths, hiding behind such hoary legal defenses as assumption of the risk. All too often operators evaded responsibility by concealing or destroying evidence of accident causation, the explanation of which was their own avariciousness, recklessness, and gross indifference to miners' health and safety.[60]

The long history of American mining shows how with the aiding and abetting company lawyers, constabulary, and biased judicial donees, mine operators routinely evaded liability for even the most flagrant misconduct.[61] American mine workers' ability to obtain even minimal safety and health protection and minimal measures of justice were regularly blocked by an enabling political class, which, at Big Mining bidding, servilely refused to pass any meaningful regulatory reform.[62]

For score after score of years, mining state politicians would Pharisaically invoke the inscrutable nature of God's will to explain away avoidable accidents. A recent mining documentary, *Blood on the Mountain*, cites a particularly egregious example of such exculpatory theologic mumbo-jumbo. Acting to protect Pittston Coal Company, which operated the infamous Buffalo Creek Dam, West Virginia governor Arch Moore tried to suppress his own

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[60] Donald Blankenship's malevolent shenanigans at Upper Big Branch is but a recent example of such.

[61] This observation should not be construed to imply that present Respondent has in any way acted reprehensibly.

[62] In 1968 President Nixon eloquently described the necessity for new Federal mine safety legislation:

> The workers in the coal mining industry and their families have too long endured the constant threat and often sudden reality of disaster, disease, and death. This great industry has strengthened our Nation with raw material of power. But it has also frequently saddened out Nation with news of crippled men, grieving widows, and fatherless children.
>
> Death in the mines can be as sudden as an explosion or a collapse of a roof and ribs, or it comes insidiously from pneumoconiosis or black lung disease. When a miner leaves his home for work, he and his family must live with the unspoken but always present fear that before the working day is over, he may be crushed or burned to death or suffocated. This acceptance of the possibility of death in the mines has become almost as much a part of the job as the tools and the tunnels.
>
> The time has come to replace this fatalism with hope by substituting action for words. Catastrophes in the coal mines are not inevitable. They can be prevented, and they must be prevented.

Special Message to the Cong. on Coal Mine Safety, Pub. Papers no. 96 at 177-78 (Mar. 3, 1969).

investigatory committee report regarding the dam's lethal design and construction. Lamenting the continual catastrophes that had plagued his state's mining industry, Moore pietistically blubbered: "why do all bad things have to happen to West Virginia? These are *Acts of God* (emphasis added) and where he picks to deliver his message I don't know."[63]

This history, and Congress' explicit intent, show that without the imposition of strict liability—the nation's miners are put at risk.[64]

In arguing that a reasonably prudent person test should be applied in determining the fact of violation, both parties appear to rely upon past Commission holdings in *Canon Coal Co.*, 9 FMSHRC 667 (Apr. 1987) and *Harlan Cumberland Coal*, 20 FMSHRC 1275 (Dec. 1988). (*Respondent's Post-Hearing Brief*, 42; *Secretary's Post-Hearing Brief*, 24). However, a more recent Commission decision, *Jim Walter*, 37 FMSHRC 493 (Mar. 2015) raises a substantial question as to the continuing viability of these precedents. This is particularly so where, as here, there is an actual accidental rock fall causing death.

In the underlying ALJ decision in *Jim Walter*, 34 FMSHRC 1386 (June 2012)(ALJ), the ALJ was confronted with a factual scenario similar to the instant controversy. The victim had been killed by a large piece of rock that had fallen upon him. All or a portion of the fall area had been bolted and supported. There were no eyewitnesses to the accident and the victim's body had only been discovered subsequently. Relying upon *Canon* and *Harlan*, Judge Weisberger found that the Secretary had failed to establish the existence of objective signs that existed prior to the roof fall that would have alerted a reasonably prudent person to install additional roof support beyond which had been actually provided at the time of accident. 34 FMSHRC at 1393. Accordingly; Judge Weisberger concluded that the Secretary had failed to establish by *the preponderance of the evidence* that § 77.202(a) had been violated. 34 FMSHRC at 1393-1394.

On appeal the Secretary argued that the ALJ had erred in applying a reasonably prudent person test. 34 FMSHRC at 494. The Secretary argued that operators are strictly liable for Mine Act violations and that, as a result, if a roof fails the roof was (as a matter of law) not supported or otherwise controlled to protect persons from hazards related to roof falls. (37 FMSHRC at

[63] Moore was later convicted of widespread corruption and sentenced to jail in 1990.

[64] This is especially so when roof fall accidents are at issue. Such accidents have been and remain the leading cause of miner fatality. *See, inter alia*, July 6, 2017 Department of Labor news release documenting that roof falls since 2013 had led to the deaths of five continuous mining machine operators and the injury of 83 other operators; September 8, 2017 "Fatalgram" reporting death of 62 year old section foreman killed in West Virginia mine by a 3 foot by 2 foot rock fall between roof bolts.

494). Thus, the Secretary contended that, under the plain meaning of § 75.202(a)[65], a roof fall demonstrated a *per se* violation of the standard.[66] (37 FMSHRC at 495).

Given "the stark and tragic facts" presented, the Commission indicated that it was not necessary to decide whether to adopt one or the other test in *all* roof fall cases involving allegations of unsupported roof. 37 FMSHRC at 495. However, the majority opinion went on to state the following:

> This leaves the issue of whether the operator failed to support the roof "to protect persons from hazards related to falls." When Inspector Wilcox arrived on the scene, Jerry McKinney was lying fatally injured beneath a large roof fall. Accordingly, the only conclusion to be reached is that the roof was not supported to protect the miner from a roof fall. As previously mentioned, *the Mine Act is a strict liability statute, and this fatality resulting from a fall of roof material where persons work or travel unquestionably demonstrates a violation of section 75.202(a). The roof fall that pinned McKinney under a piece of rock, resulting in his death, amply demonstrates that the roof was not supported in a manner to protect him from hazards related to falls.*

37 FMSHRC at 496 (emphasis added).

Further, in his concurring decision, Commissioner Cohen specifically addressed the majority's refusal to follow the *Canon* precedent, concluding that "the disposition in this proceeding effectively overrules the Commission's decision in *Canon Coal*." Id. at 498 (Cohen Concurring).[67] Commissioner Cohen noted that the prudent person analysis in *Canon Coal* did not reflect an appropriate interpretation of the requirements of the safety standard to protect miners and the strict liability of the Mine Act. 37 FMSHRC at 498. "A roof that falls and kills a miner was obviously not supported 'to protect persons from hazards related to falls of the roof.'" *Id*.

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[65] § 75.202(a) provides, in pertinent part, that "the roof, face and ribs of areas where persons work or travel shall be supported or otherwise controlled to protect persons from hazards related to falls of the roof…"

[66] In the absence of a roof fall the Secretary would retain the reasonably prudent person test to determine the cited standard had been violated.

[67] The majority in footnote 7 of its opinion stated as follows:

> We recognize that the decision in *Canon Coal Co.*, 9 FMSHRC 667 (Apr. 1987), was reached in a factual context similar to that in the present case. However, in light of the determination set forth immediately above, we decline to follow the *Canon* decision.

37 FMSHRC at 497, note 7.

The "stark and tragic facts" of this miner's death are, if anything, more compelling than in *Jim Walter*. The roof fall that crushed John Hoodenpyle at Fletcher Mine was far more massive than the rock fall that pinned and killed Jerry McKinney at No. 7 Mine.[68] It was in fact so massive that it completely squashed the cab of Hoodenpyle's scaler, despite the cab's reinforced canopy. The sound of the roof fall was so thunderous that it could be heard in other parts of the mine. (*see* Tr. 514). The roof fall's force was so tremendous that even the bolted ground above the scaler cab collapsed.

The ALJ finds that the "stark and tragic" facts in this case require this Court to follow the Commission's rationale in *Jim Walter* rejecting *Canon Coal's* and *Harlan Cumberland's* prudent person test in the *limited circumstances where there is an accidental roof fall causing death.* In such limited circumstances, the fact of the fatal accident itself, by reason of strict liability, demonstrates a *per se* violation of the safety standard.

In reaching this conclusion the ALJ notes that the mandatory safety standards at issue are essentially identical to § 75.202(a) in that the plain meaning of both standards is there should be adequate ground control to protect miners from falling materials.

The operative language in § 53.3201 is that "scaling shall be performed from a location which will not expose persons to injury from falling material…" "The stark and tragic facts" of this case clearly establish that Mr. Hoodenpyle, while performing his scaling duties, was not in a "location that prevented his exposure to injury" and indeed death. Likewise, § 57.3360 provides in pertinent part that the ground "support system be designed, installed, and maintained to control ground in places where people work." The facts establishing a massive unplanned and uncontrolled roof fall in the area where Hoodenpyle worked and others travelled again demonstrate a clear *per se* violation of the mandatory safety standard.

In applying a strict liability test to the within controversy, this Court intentionally declines to address whether the fact of violation as to either standard could be established by utilizing a prudent miner test. The questions as to whether there were observable signs prior to the accident, whether there were similar unplanned ground falls, whether there were sufficient number, type and patterns of bolts used, and whether the accident was caused by geologic, static, and/or dynamic forces have been all zealously argued by the parties at hearing and in their respective briefs. Suffice it to say that, given the plethora of questions raised and unresolved, a prudent person test would have made the Secretary's case as to fact of violation much more problematic.

But of course this is exactly the point. When there is a death of a miner in a catastrophic roof fall, a mine operator cannot and should not escape liability on the fatalistic bases of "just bad luck" or "Act of God" or "accidents happen" or for that matter good faith conduct and

[68] As noted within, the roof fall at Fletcher Mine measured 55 feet by 20 feet by 6 feet. Tr. 73. The rock fall in *Jim Walter* was 83 inches by 43 inches by 7 inches. 34 FMSHRC at 1391.

unforseeability. A mine operator, in such circumstances, must be held liable under the Mine Act's strict liability.[69]

Accordingly, this Court finds that there were *per se* violations of §§ 57.3201 and 57.3360.

Issue: Based upon the particular facts surrounding the violations of §§ 57.3201 and 57.3360 did there exist a reasonable likelihood of the occurrence of the hazard against which the mandatory safety standards were directed?

The test for whether a violation was Significant and Substantial has been modified recently by *MSHA v. Newtown Energy, Inc.*, 38 FMSHRC 2033, 2036-2040 (Aug., 2016).

> Under the Commission's newly formulated *Newtown* test, the four steps of the S&S analysis require determinations of whether:
> (1) there has been a violation of a mandatory safety standard;
> (2) based upon the particular facts surrounding the violation, there exists a reasonable likelihood of the occurrence of the hazard against which the mandatory safety standard is directed;
> (3) based upon the particular facts surrounding the violation, the occurrence of that hazard would be reasonably likely to result in an injury; and
> (4) any resultant injury would be reasonably likely to be reasonably serious.

MSHA v. ICG Illinois, LLC, 38 FMSHRC 2473, 2483 (Oct. 2016) (Althen Dissenting).

It has already been found, *supra*, that there was a violation of a mandatory safety standard. The distinct safety hazards against which §§ 57.3201 and 57.3360 are directed are essentially similar: the dangers that materials might fall upon miners scaling, working, or travelling in areas with insufficient ground support.

However, after carefully reviewing the total record, the ALJ is not persuaded that there were compelling indicia surrounding the instant violations that would have suggested the reasonable likelihood of material falling upon Hoodenpyle while he performed scaling in the RC3PO northeast section.[70]

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[69] To paraphrase Sam Spade's lines to Brigid O'Shaughnessy in *The Maltese Falcon*: "When a miner is killed, it's bad business to let the operator get away with it…bad all around, bad for every miner everywhere"

[70] At hearing this Court requested that the parties address the issue of whether the two ground control violations met *Newton's* revised two-part *Mathies* Step 2 test. In his brief, Respondent's counsel primarily focused upon his contentions that step one of *Mathies* was not met in that there were no actual violations of either safety standard. However, Respondent did argue, in the alternative, that for all the reasons indicating there was no violation, step two was not met because the "likelihood of occurrence was unlikely." (*see also* Footnote 4 of Respondent's brief, p. 36).

Geologic Features of Viburnum Trend, Fletcher Mine and RC3PO Northeast Stope

This Court accepts the Secretary's general contention that when dramatic changes in rock are encountered there should be closer examination and testing. However, the Secretary failed to carry his burden of showing that Fletcher Mine in general, or the RC3PO northeast stope in particular, had or displayed geologic features that would have established the existence of a reasonable likelihood of a rock fall that would have injured Hoodenpyle in his scaler cab.

At hearing Vadnal testified that he had witnessed dramatic changes in the fall area which should have alerted miners to a potential roof fall hazard. (Tr. 165-168). However, the Secretary's own witness, MSHA Inspector Jeremy Kennedy contradicted such testimony, testifying that he had travelled through the area shortly *before* the accident and had seen nothing to alert him that a fall was imminent.[71]

This Court found Vadnal to be an honest and forthright individual. However, Vadnal had limited experience in dealing with brecciated ground and lead mining in general. He had no firsthand experience with Doe Run operations or Fletcher Mine ground conditions *prior* to the accident. His visual observations were limited to the time period *subsequent* to the accident. He lacked an actual degree in engineering. (Tr. 209-211). Further calling Vadnal's testimony into question were various Respondent witnesses who stated they had seen no outward signs of possible hazardous roof conditions either prior to or after the accident. (*See e.g* Tr. 447.) All of these factors diminished the probative weight that this Court accorded Vadnal's testimony.

This Court also observes that the photographic evidence offered by the Secretary to show external changes and disruptions of rock indicating the potential likelihood for a roof fall was problematic. The Respondent's witnesses all denied that the Secretary's pictures revealed obvious stigmata of dramatic change or signs indicating hazardous rock conditions. This Court could not discern any distinctly different geologic features in the scenes depicted.

Contrary to the Secretary's assertions otherwise, the mine geologist, George Moellering testified that the geological conditions in the RC3PO northeast stope were essentially similar to other parts of the Fletcher Mine as well as other parts of the Viburnum Trend as a whole. (Tr. 585). There was nothing unusual about mining in brecciated ground. Such mining had been going on since the late 1960s at Fletcher Mine. (Tr. 595, 607).

The ALJ recognizes that Respondent's witnesses may have offered some self-serving testimony in their assertions that there were no outward signs indicating the existence of

[71] As trier of fact this Court has the duty to decide which evidence presented by either party is more credible or more persuasive. However, the Secretary does bear the burden of proof. When it presents testimony that is inherently contradictory, the Secretary places the Court in a position that might involve improper speculation. *See eg. Commonwealth v. Farquharson*, 467 Pa. 50, 354 A.2d 545 (1976), wherein the Pennsylvania Supreme Court held that where the Commonwealth presented evidence that was so contradictory in nature that any verdict based thereon would be pure conjecture, a jury would not be permitted to return such a verdict.

hazardous roof conditions. Nonetheless, this Court was not persuaded by the Secretary that, at the time of accident, there were any geologic features of the Viburnum Trend, of Fletcher Mine as a whole, or rock changes in the RC3PO northeast fall area in particular, which would have indicated that there existed the reasonable likelihood of roof material falling upon Hoodenpyle's scaler cab.

Position of Hoodenpyle and the Getman S330 Mechanical Scaler at Time of Accident

At hearing and in his brief(s), Respondent essentially contends that the "prospective danger" (hazard) of falling materials from inadequately supported ground injuring a miner did not have an increased likelihood because of the position of Hoodenpyle inside his Getman scaler at the specific site of the accident.

None of the facts surrounding the violations associated with the position of Hoodenpyle and his scaler would have created the reasonable likelihood of falling material injuring the miner. Hoodenpyle had been positioned in his cab 60 feet from the face and his cab was under bolted ground—a place that historical practice had shown to be protected and safe. (Tr. 111.)

The Getman S330 mechanical scaler which Hoodenpyle operated had many safety features, including a stable chassis, telescopic boom, and ROPS/FOPS operator's compartment, all of which would have decreased the reasonable likelihood of an injury-causing rock fall. Both the locations of the scaler in general and scaler cab in particular would not in any significant way increase the likelihood of the occurrence of the hazards against which the mandatory safety standards were directed. No citations had ever been issued in the past to a miner for positioning his scaler in such a manner as Hoodenpyle nor had there been any instances of a roof fall crushing a scaler cab.

Thus, in considering *Newton's* "particular facts surrounding the violation" component of *Mathies* Step 2, this Court found nothing about the positioning of the scaler 60 feet from the face or the locating of the scaler cab beneath the last two rows of bolted ground or the reinforced features of the canopy/cab which would have contributed to the reasonable likelihood of an injurious roof fall onto Hoodenpyle. Furthermore, I find the negligence in both of these citations to be Low.[72]

Type of Bolts and Patterns of Bolt

The Secretary essentially contends that if resin bolts had been utilized in place of split set bolts and if a tighter bolt pattern had been utilized, the roof in RC3PO northeast may not have collapsed. (*see inter alia* Secretary's brief at 21). Given the total record, this Court finds said

[72] It should be noted that the Secretary's argument for increased negligence was lacking. Van Dorn's rationale for such is as follows—"the operator, the foreman of the mine at that time, wasn't in the area. He didn't know that this was going to happen. And I just put him at moderate because high says they knew or should have known." (Tr. 325).

hypothesis to be transcendentally speculative.[73] However, in arguing such the Secretary is also in essence contending that the type of bolts used and pattern of bolting utilized in the fall area were additional particular facts surrounding the violations that created a reasonable likelihood of occurrence of falling materials. This contention is also not supported by the total record.

This Court accepts the arguments of Respondent and credits Respondent's witness testimony that split set bolts in typical 5 foot by 5 foot patterns had been successfully and safely used throughout Doe Run and at Fletcher Mine and did not in any way constitute inadequate ground control support or techniques.

This of course is not to say that Respondent's witnesses were altogether forthcoming and completely believable in their assertions about the interchangeability of split sets and resin bolts at Doe Run. Beside the availability of appropriate bolting machines, this Court suspects that the usage of split sets was also motivated by cost and time factors and the lack of bolters possessing sufficient expertise to efficiently install resin bolts.

This Court also agrees with the Secretary's contentions that the use of bonuses to reward productivity may create the potential for unsafe work performance and resulting unsafe conditions. However, this Court found nothing in the evidence presented that established that Fletcher Mine personnel had performed their duties in an unduly speedy manner in the RC3PO northeast stope so as to endanger Mr. Hoodenpyle.

Prior Roof Falls

Although presenting some hearsay evidence about prior roof falls, the Secretary was unable to locate and examine any actual fall site so as to compare the area and circumstances of such with the accident site at issue. Inspector Kennedy testified that he was unaware of any falls prior to January 2015, which involved the failure of split sets in brecciated ground. (Tr. 91). Vadnal similarly found no reportable ground falls at Fletcher Mine in the five years prior to the instant fall. (Tr. 255). Van Dorn confirmed this lack of prior roof falls, and argued that such should be considered a mitigating factor. (Tr. 395).

There was testimony concerning a roof fall in the area in 1998 that led to a fatality. (Tr. 313-314, 632). The Secretary carries the burden of proof, and this Court believes that MSHA investigators were somewhat derelict in not pursuing a more robust investigation into this area. The operator revised its procedures after the 1998 fall, including providing that workplace examinations would start out 60 feet from the face, using test holes, and having surveyors scaling the area before work began. (Tr. 632). However, there is no indication that MSHA inspectors focused on investigating the area in any additional manner.

The parties' explanations for the actual force behind the ground fall that killed Mr. Hoodenpyle ranged from the simplistic—gravity—to the speculative—dynamic load fulcrum

[73] This Court does however adopt that as a general premise of ground support control, the greater the number of resin bolts used and the tighter the spacing, the lesser the likelihood of a roof fall.

effect. Exact causation need not be proved by the Secretary. However, the etiological mystery at the heart of this accident impinges upon the issue of whether the Secretary has shown sufficient particular facts surrounding the violations which indicated the existence of a reasonable likelihood of occurrence of a roof fall.

Other Evidence

It is also noted that private counsel for the estate of deceased was present at hearing. In considering the particular facts surrounding the violations the ALJ noted no evidence adduced that the specific bolts and scaler involved in the accident had a design or manufacturing defect which would have contributed to the likelihood of a hazardous ground fall. The ALJ does note however that if the scaler boom or arm in question had been 15-20 feet longer Hoodenpyle's death may have been avoided.

In view of the foregoing the Secretary has failed to carry its burden of proving the second prong of *Mathies* as set forth by the Commission in *Newton* and consequently neither of the within violations are found to be S&S in nature.

Issue: Did the Secretary's Amendment of Citation No. 8680902 Prejudice Respondent?

On the day before hearing, on May 22, 2017, the Secretary filed a Motion to Amend Citation No. 8680902 from a violation of 30 C.F.R. §48.7 to a violation of 30 C.F.R. §48.9. The original cited training standard requires:

> Miners assigned to new work tasks as mobile equipment operators, drilling machine operators, haulage and conveyor systems operators, roof and ground control machine operators, and those in blasting operations shall not perform new work tasks in these categories until training prescribed in this paragraph and paragraph (b) of this section has been completed. This training shall not be required for miners who have been trained and who have demonstrated safe operating procedures for such new work tasks within 12 months preceding assignment. This training shall also not be required for miners who have performed the new work tasks and who have demonstrated safe operating procedures for such new work tasks within 12 months preceding assignment.

30 C.F.R. §48.7.

The amended standard requires:

> Upon a miner's completion of each MSHA approved training program, the operator shall record and certify on MSHA Form 5000-23 that the miner has received the specified training. A copy of the training certificate shall be given to the miner at the completion of the training. The training certificates for each miner shall be available at the mine site for inspection by MSHA and for examination by the miners, the miner's representative, and State inspection

agencies. When a miner leaves the operator's employ, the miner shall be entitled to a copy of his training certificates.

30 C.F.R. §48.9.

The Secretary argues that its amendment to Citation No. 8680902 did not prejudice Doe Run because the facts and circumstances that support the violation are identical under either standard, and that no new defense or additional witnesses were required. It further argues that Doe Run was permitted to cross examine Inspector Van Dorn at the hearing on any issue related to the violation. The Secretary argues that its amendment to the Citation on the eve of trial was not filed in bad faith or for the purpose of delay.

The Respondent argues that there was no excuse for the Secretary's late modification of the Citation, and that it will suffer recognizable prejudice as a result of the proposed modification. Specifically, Respondent argues that its "preparation of witnesses and documents would have been considerably different if the undersigned would have been informed of the modification in advance of trial," and provides specific examples of such. *Resp. Post-Hearing Brief*, 64.

The Commission has held that a trial court judge "possesses considerable discretion in resolving motions seeking leave to amend pleadings." *Cyprus Empire*, 12 FMSHRC 911, 916 (May, 1990). Such amendments are to be "liberally granted," unless the moving party has acted in bad faith or for purposes of delay, or where the other party is prejudiced in preparing its defenses. *Wyoming Fuel Company.* 14 FMSHRC 1282, 1289-90 (August, 1992); *Brannon v. Panther Mining.* LLC, 31 FMSHRC 1277, 1279 (2009) (ALJ).

At hearing, the parties presented brief arguments for their respective positions regarding the amendment. This Court provisionally granted the motion to amend in order to accept evidence relating to the Citation. (Tr. 13). However, the Court made the provisional nature of the grant explicit, and invited further briefing into the issue, stating, "So that although I'm granting the motion to amend, I may ultimately find there is prejudice." *Id.* Upon review of both parties' briefs and arguments, this Court finds that the Secretary unduly delayed its amendment and that as a result the Respondent suffered prejudice.

In the instant matter, Inspector Van Dorn stated in depositions on October 12, 2016, that the Citation was issued under the wrong standard. *Resp. Post-Hearing Brief*, Ex-1. Furthermore, in preparation for the hearing, the parties discussed the Citation, and the Secretary "explicitly indicated to the [Respondent] that MSHA was electing to take the original allegations (i.e. that no training was conducted) to trial." *Resp. Post-Hearing Brief*, 64. Despite knowing that its inspector believed the Citation was issued under the wrong standard over 7 months prior to the hearing, the Secretary waited until the day before hearing to file its motion (and for the day of hearing to present it to the Court). The only excuse that the Secretary has provided for its decision to wait until hearing to amend the Citation is that the case had been passed along through several solicitors. (Tr. 11-12).

The Respondent has stated that its preparation for trial was based on the Secretary's repeated assurances that the Citation would not be amended. Furthermore, the Respondent states that as a result of the late modification,

> Doe Run was prevented from gathering and presenting evidence of MSHA Form 5000-23s documenting new miner training, annual refresher training and task training where workplace examinations had been trained on prior to the approval of the October 2014 training plan. Such evidence is highly probative to the issue of whether Doe Run was in violation of 30 C.F.R. §48.9 under the Secretary's interpretation that it be applied retroactively.

Resp. Post-Hearing Brief, 64. This Court is in substantial agreement with the Respondent that the Secretary's delay in amending the Citation was unreasonable, and that the request to amend on the afternoon before hearing prejudiced the Respondent. Therefore, Citation No. 8680902 is Vacated.

PENALTIES

The principles governing the authority of the Commission's administrative law judges to assess civil penalties de novo for violations of the Mine Act are well established. Section 110(i) of the Mine Act delegates to the Commission and its judges the authority to assess all civil penalties provided in the Act. 30 U.S.C. 820(i). The Act delegates the duty of proposing penalties to the Secretary. 30 U.S.C. §§ 815(a), 820(a). Thus, when an operator notifies the Secretary that it intends to challenge a penalty, the Secretary petitions the Commission to assess the penalty. 29 C.F.R. §2700.28. The Act requires that in assessing civil monetary penalties, the Commission and its judges shall consider the six statutory penalty criteria:

> [1] the operator's history of previous violations, [2] the appropriateness of such penalty to the size of the business of the operator charged, [3] whether the operator was negligent, [4] the effect on the operator's ability to continue in business, [5] the gravity of the violation, and [6] the demonstrated good faith of the person charged in attempting to achieve rapid compliance after notification of a violation

30 U.S.C. § 820(i).

The Secretary has proposed penalties of $5,503.00 for Citation No. 8680899, $18,271.00 for Citation No. 8680900, and $745.00 for Citation No. 8680902. The Secretary has submitted evidence that the operator has a significant history of previous violations, and that it was a large operator. Furthermore, the assessed penalties would not affect the operator's ability to continue in business. Citation No. 8680899 was originally designated as "Moderate" negligence, and Citation No. 8680900 was originally designated as "High" negligence. Both citations were designated as "Low" negligence and Non-S&S, *supra*. The gravity of the citations was properly designated as "Fatal" and "Occurred," as a miner died as the result of the violations. The Citations were modified 13 and 14 times, respectively, over eight months, which illustrated a limited showing of good faith attempts at compliance. Accordingly, the penalty amount for

Citation No. 8680899 is modified to $3,100.00, the penalty amount for Citation No. 8680900 is modified to $10,300.00, and Citation No. 8680902 is Vacated.

ORDER

The Respondent, Doe Run Company, is **ORDERED** to pay the Secretary of Labor the sum of $13,400.00 within 30 days of this order. [74]

John Kent Lewis
Administrative Law Judge

Distribution:

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[74] Payment should be sent to: MINE SAFETY AND HEALTH ADMINISTRATION, U.S. DEPARTMENT OF LABOR, PAYMENT OFFICE, P. O. BOX 790390, ST. LOUIS, MO 63179-0390