FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

1331 Pennsylvania Ave. N.W., Suite 520 N
Washington, D.C. 20004-1710
Telephone: (202) 434-9900
Fax: (202) 434-9949

December 17, 2013

SECRETARY OF LABOR,	:	CIVIL PENALTY PROCEEDING
MINE SAFETY AND HEALTH	:	
ADMINISTRATION (MSHA),	:	Docket No. SE 2011-583-M
Petitioner	:	A.C. No. 40-00080-256299 E24
v.	:	
	:	
AUSTIN POWDER COMPANY,	:	
Respondent	:	Mine: Cookeville Limestone Quarry

DECISION

Appearances: Noelle Lagueux-Alvarez, Esq., U.S. Department of Labor, Atlanta GA, on behalf of the Secretary

Nichelle Young, Esq., Law Office of Adele L. Abrams, PC, Beltsville MD, on behalf of Austin Powder Company

Before: Judge Barbour

This case is before me upon a Petition for Assessment of a Civil Penalty filed by the Secretary of Labor ("Secretary") acting through the Mine Safety and Health Administration ("MSHA") against Austin Powder Company ("Austin Powder") pursuant to sections 105 and 110, 30 U.S.C. §§ 815, 820, of the Federal Mine Safety and Health Act of 1977 ("the Mine Act"). 30 U.S.C. § 801, *et seq.* The Secretary seeks the assessment of a civil penalty of $4,689 for one violation of mandatory safety standard 30 C.F.R. § 56.6306(e), which requires that all persons leave the blast area, except those in a blasting shelter or other location that protects them from flying material or other blasting related hazards.[1] The violation is alleged in Citation No.

[1] Section 56.6306(e) states:
"In electric blasting prior to connecting to the power source, and in nonelectric blasting prior to attaching an initiating device, all persons shall leave the blast area except persons in a blasting shelter or other location that protects them from concussion (shock wave), flying material, and gases."

The term "blast area" is described in 30 C.F.R. § 56.2, as "the area in which concussion (shock wave), flying material, or gases from an explosion may cause injury to persons."

8552491, which was issued pursuant to section 104(a) of the Mine Act.[2] 30 U.S.C. § 814(a). The Secretary further asserts that the violation was a significant and substantial contribution to a mine safety hazard ("S&S"), that the violation affected one person, and that the violation was a result of "low" negligence by the operator.[3] Prior to the hearing, the court granted the Secretary's Motion to Plead in the Alternative a violation of 30 C.F.R. § 56.6306(f). Section 56.6306(f) requires that before a blast, ample warning be given to all persons to be evacuated and that access to the blast area be guarded against persons or vehicles.[4] In answering the petition, the company argued that it did not violate Section 56.6306(e) or Section 56.6306(f) and that the Secretary wrongly characterized the violation as S&S. The case was heard in Knoxville, Tennessee.

STIPULATIONS

The parties stipulated as follows:

1. The Cookeville Limestone Quarry, MSHA Mine I.D. 40-00080, is located at 1100 Old Calvary Road, Cookeville, Tennessee, 38501.
2. The Cookeville Limestone Quarry is a mine as defined in Section 3(h) of the Mine Act, 30 U.S.C. Section 802(h).
3. The mining operations at the Cookeville Limestone Quarry are subject to the Federal Mine Safety and Health Act of 1977 and to the jurisdiction of the Federal Mine Safety and Health Review Commission.
4. Judge Barbour, the presiding Administrative Law Judge, has the authority to hear this case and decide all issues herein.
5. During all times relevant to this matter, Austin Powder Company was an operator of the Cookeville Limestone Quarry as defined in section 3(d) of the Mine Act, 30 U.S.C. Section 802(h).
6. During all times relevant to this matter, Austin Powder Company was an operator of the Cookeville Limestone, LLC.

---

[2] Austin Powder was cited for the violation while performing contract work on the Cookeville Limestone Quarry, which is located in Cookeville, Tennessee.

[3] However, at trial, the inspector who issued the citation testified that the violation affected two persons and that the violation was the result of the operator's high negligence. Tr. 69.

[4] Section 56.6306(f) states:

"Before firing a blast–
(1) Ample warning shall be given to all persons to be evacuated;
(2) Clear exit routes shall be provided for persons firing the round; and
(3) All access routes to the blast area shall be guarded or barricaded to prevent the passage of persons or vehicles."

7. Austin Powder Company has an effect upon interstate commerce within the meaning of the Federal Mine Safety and Health Act of 1977.
8. The mining operations of the Cookeville Limestone Quarry are small, accounting for 18,979 working hours in 2010.
9. The Secretary's proposed exhibits listed in the Secretary's pre-hearing report have been reviewed by Austin Powder's representative.
10. Austin Powder stipulates the authenticity and admissibility of all the exhibits listed in the Secretary's pre-hearing report except for S-24, the letter from Asher Lefebvre.
11. On April 11, 2011, Austin Powder conducted a stripping blast at the Cookeville Limestone Quarry.
12. On April 11, 2011, Respondent's employee, John T. Frady, a blaster-in-charge, was in charge of the blasting operations at or around Cookeville Limestone Quarry in Cookeville Tennessee.
13. Austin Powder's April 11, 2011 blast resulted in fly rock that left the mine property and damaged a home located at 1250 Skyline Drive in Cookeville, Tennessee.
14. 1250 Skyline Drive is located on private property.
15. The damage to 1250 Skyline Drive, due to the April 11, 2011 blast, included rocks and other debris penetrating the roof and coming to rest in a bedroom.[5]
16. Mr. Roy D. Hudgens and Ms. Sarah P. Hudgens reside at 1250 Skyline Drive in Cookeville, Tennessee.
17. On April 19, 2011, MSHA Inspector Scott M. Blair issued Citation Number 8552491.
18. Citation Number 8552491 alleges a violation of 30 CFR Section 56.6306 subsection e.
19. When he issued Citation Number 8552491, Inspector Blair was acting in his official capacity as a duly authorized representative of the Secretary of Labor.
20. A true and correct copy of Citation Number 8552491 was properly served upon Austin Powder Company or its agent as required by the Mine Act.
21. Secretary's Exhibit S-1 is an authentic copy of Citation Number 8552491 and may be admitted into evidence for the purpose of establishing its issuance and not for the purpose of establishing the authenticity of any statement asserted therein.
22. Secretary's Exhibit S-5, the assessed violation history report, accurately sets forth the history of violations relevant to this case and may be

[5] An 86 pound rock was propelled from the blast site into the home. Tr. 32-33.

admitted into evidence and used in determining the civil penalty and assessment for the alleged violation in this case.

23. The Secretary proposed a total civil penalty of $4,689.00 using the criteria set forth in 30 C.F.R. Part 100, as set forth in Secretary's Exhibit A to the Petition For Assessment of Civil Penalty.[6]

24. The assessed penalty of $4,689.00, if affirmed, will not affect the Respondent's ability to remain in business.

25. Respondent in good faith attempted to achieve prompt abatement of the cited condition.

Tr. 17-22.

THE TESTIMONY

BACKGROUND

Two types of blasting are performed at the Cookeville Limestone Quarry, production shots and stripping shots. Tr. 172. Production shots are used to break solid rock formations into manageable, portable rock fragments. Tr. 171. After a production shot, the rock fragments are loaded onto trucks and prepared for sale. Tr. 171. However, when the solid rock formations, also called production rock, are inaccessible, a stripping shot may be necessary to remove the "cap stone," the top layer of weathered rock and dirt. Tr. 166, 213. Unlike production rock, cap stone is not a solid formation and may contain a combination of loose rock and dirt. This distinction is noteworthy to an operator designing a blast in cap stone, as dirt does not absorb a blast as well as solid rock. Thus, an operator must take additional precautions when designing a stripping blast. Tr. 218-19.

Designing and carrying out a blast typically involves the following people: (1) the mine superintendent who is employed by the quarry operator and who works with the blaster-in-charge to design a blast; (2) the blaster-in-charge[7] who is employed by the blasting contractor, who is the supervisor of the blasting contractor's "helpers," and who works with the mine superintendent to design a blast; (3) the crew of one or two "helper(s)" who are employed by the blasting contractor and who follow the instructions of the blaster-in-charge in preparing the blast; and (4)

[6] Stipulation 23 was not read into the record at hearing and therefore does not appear in the hearing transcript. Stipulation 23 is found in a separate, two-page document titled "Petitioner and Respondent's Joint Stipulations." This separate document was signed by both parties and submitted simultaneously with the Secretary's Pre-hearing Report and the Respondent's Pre-hearing Statement, dated March 19, 2013.

[7] This position was variously called: "master blaster" (Tr. 62), "blaster-in-charge" (Tr.101), and "blaster" (Tr.123).

the driller who is employed by an independent contractor and who drills the holes into which explosives and stemming are loaded according to the blast design. Tr. 101, 220, 224. The blaster-in-charge and mine operator's superintendent create the blast design based on the quarry operator's intentions for the blasted material. Tr. 171, 221.

The April 11, 2011, a blast was needed at the top of a highwall to clear cap stone and create a ramp that would make the area accessible to heavier equipment. Tr. 220-21. In creating the blast design, it is necessary for the blaster-in-charge to consider the minimum distance to any nearby structure that people inhabit, such as a home or a school, and makes adjustments in the amount of explosives to ensure that flyrock does not reach the structure.[8] Tr. 148, 166, 215. In the present case, the blaster-in-charge identified the home of Roy Douglas (Doug) Hudgens and Sarah Hudgens as the nearest inhabited structure. The Hudgens' home was 407 feet away from the blast site. Tr. 223.

In designing the blast, it is necessary for the blaster-in-charge to identify the blast area. Tr. 221. As noted previously, the term "blast area" is defined in the Secretary's Safety and Health Standards for Surface Metal and Nonmetal Mines (30 C.F.R. Part 56) as "the area in which concussion (shockwaves) flying material, or gases from an explosion may cause injury to persons." 30 C.F.R. 56.2. The definition further states that in determining the blast area, the following seven factors shall be considered: "1) the geology or material to be blasted, 2) the blast pattern, 3) the burden, depth, diameter, and angle of the holes, 4) the blasting experience of the mine, 5) the delay system, powder factor, and pounds per delay, 6) the type and amount of explosive material, and 7) the type and amount of stemming." *Id*. Determination of the initial blast area does not end in the blast design stage. As more information becomes available, the blaster-in-charge is expected to adjust the blast area accordingly. Tr. 76-77.

When planning is complete, the blaster-in-charge provides the driller with instructions for drilling holes to match the blast pattern, orientation, distance between holes, and other blast design specifications. Tr. 219-20, 224. The driller then creates blast holes, also called bore holes, which the blaster-in-charge will later load with explosives and stemming. Tr. 132. In the subject blast, the holes were drilled at varying depths, up to 27 feet deep. Res Ex. 13. The driller also generates a drill log, in which the driller records hole specific data, such as the depth, location, and geological composition of each hole. Tr.114. A typical drill log will also note any unusual issues that can affect the blast, such as cracks or voids in the rocks. Tr. 115, 132, 232. The drill log for the subject April 11 blast did not include any voids in the rocks or similar unusual issues. Tr. 232-33.

[8] The minimum distance to the "nearest protected structure" is used by the blaster-in-charge to determine the amount of explosives or "pounds per delay." Tr. 147-48. In order to limit the intensity of ground vibrations and the movement of objects from the blast, the blaster-in-charge uses small time delays between the charges. Tr. 108, 169. The phrase "pounds per delay" indicates the amount of explosives detonated in each time interval. Tr.109, 169. In the subject blast, one bore hole's explosives was detonated every eight milliseconds. Tr. 169.

Once the blast holes are drilled, the blaster-in-charge uses the drill logs and his own observations to confirm that the holes are in accordance with the blast plan. Tr. 231-32. For example, on April 11, the Austin Powder blaster-in-charge checked the depths of the 54 bore holes with a tape measurer and used a twelve-foot loading pole to "feel the dirt and . . . rock" in the hole.[9] Tr. 169, 231, 248. With this information, the blaster-in-charge evaluates the depth at which to load the explosives and stemming, an inert substance put on top of explosives to hold the energy of the explosives in the rock. Tr. 133-34. Generally, the blast is designed to expand horizontally through the production rock or cap stone, breaking up the geological formation. Tr. 183-84. However, when a blast is conducted in an area with significant amounts of dirt, which cannot hold the energy of explosives, the force of the blast becomes more likely to travel back through the bore hole, typically in a vertical direction. Tr. 131, 133-34. If the force of the blast moves vertically, it may force material from the bore hole and surrounding area to move vertically as well. Tr. 134, 183. Therefore, the blaster-in-charge loads stemming where the drill log indicates the presence of dirt, and explosives are loaded only below that level of stemming. Tr. 111-131-33.

At the subject quarry, Austin Powder uses two common materials for stemming, drill cuttings and crushed stone.[10] Tr. 219. Crushed stone is composed of rock with sharp edges that expand and grip the material on the sides of the bore holes. Tr. 94, 111, 184. Drill cuttings are composed of the dirt and rock material expelled from the bore holes. Tr. 111. Drill cuttings are readily available at the blast site, but are not the preferred method for stemming because drill cuttings do not have crushed stones' locking characteristics and are more likely to push out of the hole, "blowing out" vertically through the path of least resistance instead of horizontally through the walls of the bore holes. Tr. 97, 134

As one of the final steps before a blast is initiated, mandatory safety standard Section 56.6306(e) requires that the blast area be cleared of all persons before the triggering mechanisms for the blast are connected or attached, in order to prevent injury from shockwaves, flying material, or gases of the blast. Clearing the blast site consists of alerting the persons within the blast site of the blast and ascertaining that they have taken shelter or moved to an area that is not in danger from the blast. Similarly, Section 56.6306(f) requires that ample warning be provided before a blast and persons be prevented from entering the blast area. Flyrock, such as the 86 pound rock ejected from the April 11 blast at the Cookeville quarry, is one of the dangers addressed under Section 56.6306(e).

[9] Some holes in the April 11 blast were designed to exceed 12 feet in depth, demonstrating limitations to the blaster-in-charge's verification process. Tr. 228.

[10] "Crushed stone" is sometimes referred to in the transcript as "crushed rock." Tr. 219

SECRETARY'S WITNESSES

Roy Douglas Hudgens

Roy Douglas Hudgens is a Senior Technical Advisor at Cummins Filtration in Cookeville, Tennessee. Tr. 29. He and his wife, Sarah Hudgens, reside at 1250 Skyline Drive, Cookeville, Tennessee, their home of 25 years. Tr. 30, 50. Cookeville Limestone Quarry borders the Hudgens' property and conducts mining operations 250 feet to the south of the shared property line. Tr. 30.

On April 11, 2011, at 12:15 p.m., Mr. Hudgens arrived at his home for lunch. Tr. 31. When Mr. Hudgens entered his home, he observed a cloud of dust in the air, appearing to originate from his bedroom. Tr. 31. Once in his bedroom, Mr. Hudgens observed a large rock, later determined to weigh 86 pounds, and a hole in the ceiling, where the rock had entered through the roof. Tr. 32-33. The rock crushed a chest of drawers on impact and caused extensive damage to the home, including knocking out a window, creating cracks on the inside and outside walls of the home, and strewing insulation, remnants of ceiling joists, and other debris across a 10 foot area of his bedroom. Tr. 33, 37. A rocking chair next to the drawers was covered in at least a foot of insulation pulled down from the ceiling by the rock. Tr. 33-34.

The rock was determined to be flyrock propelled from a blast at Cookeville Limestone Quarry. Tr. 49-50. The flyrock landed over 400 feet from the site of the blast. Tr. 36. Previous blasts at the Cookeville Limestone Quarry caused dust to be carried up the hill to his home and neighbors' property, covering cars and porches, but, in those instances, the Hudgens' home was not physically damaged. Tr. 31, 38. Prior to April 11, Mr. Hudgens claimed that he experienced shockwaves and the smell of noxious fumes originating from the quarry at least once a month, though he agreed that he never had to be treated for dust or fume inhalation by a doctor. Tr. 46-7, 50. However, Mr. Hudgens testified that a neighbor, Asher Lefebvre, experienced breathing difficulty due in part to the effect of dust. Tr 41. Mr. Hudgens also testified that shockwaves from blasting caused damage to the doors, windows, and bricks of the Lefebvre home. Tr.42.

Prior to April 11, Mr. Hudgens never received a warning from Austin Powder that there would be blasting at the quarry. Tr. 47. However, since the flyrock incident on April 11, Mr. Hudgens always receives a phone call from Austin Powder when a blast will occur within an hour. Tr. 47. Upon notification from Austin Powder, Mr. Hudgens calls his wife, informs her of the blast, and asks her to leave the house or to prepare for the blast. Tr. 47.

Sarah Penelope Prescott Hudgens

On April 11, 2011, Sarah Hudgens was at home, reading in her bedroom rocking chair, until some time after 11:00 a.m. Tr. 52. She left her home at 11:30 a.m. for a lunch date and did not return until approximately 1:00 p.m. Tr. 53. When she returned, she observed extensive

damage to her home caused by the 86 pound rock that entered through her roof. Tr. 53. She described damage to clothes and a bed, as well as the insulation covering much of her bedroom. Tr. 54-5. She testified that she was provided with no warning on the day of the blast or any day prior. Tr. 57. After the April 11 blast, the quarry requested her husband's cell phone number to enable blast notifications. Tr. 58-9. When he is notified of blasts "sometimes [the caller is] Austin Powder and sometimes [the caller is the quarry operator,] Cookeville Limestone." Tr. 59.

Scott M. Blair

Scott M. Blair has worked as an inspector for MSHA at its Knoxville, Tennessee field office for 11 years. Tr. 61. Blair has conducted several thousand inspections for MSHA and estimated that half of his inspections each year involve blasting. Tr. 61. Prior to joining MSHA, Blair worked in underground mining for 30 years. Tr. 61. His career included experience in drilling and blasting. Tr. 62. During the last 12 years of his underground mining career, Blair was a supervisor and a master blaster. Tr. 62. He has been in charge of thousands of blasts over the course of his career. Tr. 62-63.

On April 14, 2011, Blair traveled to the Cookeville Limestone Quarry to determine if a previous citation should be extended or terminated.[11] Tr. 64. Upon his arrival, Randy Livingston, the Cookeville Limestone Quarry manager, told Blair that "he would have to have an extension on the clearing [of] the top of the shot area because the first time they shot it they hit a house off property."[12] Tr. 65. Livingston had not previously notified MSHA that the house had been damaged because there is no reporting requirement for flyrock if there is no injury. Tr. 83-84. Blair discussed the incident with Livingston, Rich McCormick, one of the owners of the quarry, and an unnamed representative from Austin Powder. Tr. 65. Blair reviewed the drill records and the partial shot record that were provided by Austin Powder and examined the blast site. Tr. 65. Blair observed mud in the woods near the blast site, which he attributed to the shot going in the wrong direction.[13] Tr. 66. Blair also reviewed a video of the blast in which he observed the material shooting straight up from somewhere near the center of the blast site. Tr. 94. Blair found this to be an indication that either the drilled holes were overloaded or the stemming failed. Tr. 94

[11] The basis for the previous citation was not specifically addressed and is not relevant to the subject proceeding. Tr. 64.

[12] "[C]learing the top of the shot area" refers to the operator's efforts to blast the cap stone and use the material broken by the blast to create a ramp for equipment and personnel. Tr. 220-21.

[13] Mud is part of the geology of cap stone, but not of solid rock. According to Blair, blasts made into solid rock would not shoot mud into the trees. Tr. 92-93. Therefore, Blair believed that although previous shoots in the area were into solid rock, the April 11 shot was into cap stone. Tr. 93.

Blair testified that he issued Citation Number 8552491 based on his April 14, 2011, visit. Section 56.6306(e) requires that prior to a blast, "all persons shall leave the blast area except persons in a blasting shelter or other location that protects them from concussion (shock wave), flying material, and gases." Blair testified that he found that Austin Powder "hadn't done anything physically to clear [all persons from] the blast site." Tr. 67. Blair assessed the type of injuries that could result from the violation as a person being fatally injured by flyrock. Tr. 68. In Blair's opinion one person, Mrs. Hudgens, was affected, though he acknowledged he could have found that both Mr. and Mrs. Hudgens were affected. Tr. 69. Blair indicated that although the citation was written as "low negligence," he would have written it for "high" or "reckless disregard" after learning more of the facts. Tr. 69. Specifically, he would have issued the citation for a higher level of negligence if he had known the amount of dirt that was drilled through to sink the blast holes and the type of stemming that was used to fill the tops of the holes. Tr. 75-76. Blair also testified that rock was protruding above the ground at the site, which signaled to Blair that the area was "backfilled" with rock and dirt. Tr. 76. Blair believed the backfill mixed with the cap stone increased the potential fly material and should have resulted in the blast area being doubled or tripled in size to avoid injury. Tr. 76-77. Blair also found that the violation was S&S because Blair believed that it was reasonably likely to cause an accident and the injuries were reasonably likely to be serious or fatal. Tr. 69.

Blair testified that if he had been the blaster-in-charge, he would have doubled or tripled the blast area, which would have included the Hudgens' home, to prevent injury. Tr. 72-73. He believed that the blast area should have been extended to at least 800 feet because of "the way they stem the hole[s], [and because of] the loading process of the holes". Tr. 73. He added that an area was cleared 500 feet in the direction of the mine property, but not the same distance in the direction of the Hudgens' home. Tr. 72, 74. He stated that the home was 407 feet from the blast site. Tr. 73.

Blair terminated the citation when Austin Powder changed from using drill cuttings for stemming to crushed stone. Tr. 94. He explained that drill cuttings, used in the April 11 blast, do not have any locking characteristics, but crushed stone expands and grips instead of blowing out. Tr. 97. Blair stated that a blast is more controlled with crushed stone stemming, which would put more "pressure on the rock itself . . . . [i]nstead of shooting straight up." Tr. 95. For these reasons, a blast using crushed stone as stemming does not require as large of a blast area as a blast using drill cuttings as stemming. Tr. 73, 94-95. Blair also considered the company's purchase of blast mats when terminating the citation, although it was not included in the written explanation for terminating the citation.[14] Tr. 95, 96. Blair testified that blast mats placed over the blast hole keep the "rocks from escaping" and thereby reduce the area in which flying material can be expected to travel. Tr. 95.

William Trent Clark

[14] A "blast mat" is defined as "a heavy, flexible, tear resistant covering that is spread over the surface during blasting to contain earth fragments." http://www.answers.com/topic/blasting-mat.

William Clark began working in the mining industry in 1980. Tr. 98-99. In 1987, he became a surface coal blaster for Austin Powder and continued to work there until 1997. Tr. 99. He left for a position with another mining company, but returned to Austin Powder in 2002, and worked for the company until he left to become a MSHA inspector in April 2012.[15] Tr. 98, 100. The Secretary and Respondent stipulated that Clark is an expert on blasting in the mining industry. Tr. 103.

Clark testified that in his opinion the Hudgens' home was in the blast area based on his application of the Section 56.6306(e) requirements to the Austin Powder records of the April 11, 2011, blast. Tr. 126. As previously stated, "blast area" is defined in Section 56.2 as "the area in which concussion (shockwaves), flying material, or gases from an explosion may cause injury to persons." Under Section 56.2, a blast area is determined by considering these seven factors: 1) the geology or material to be blasted, 2) the blast pattern, 3) the burden, depth, diameter, and angle of the holes, 4) the blasting experience of the mine, 5) the delay system, powder factor, and pounds per delay, 6) the type and amount of explosive material, and 7) the type and amount of stemming. Clark's analysis of what constituted the blast area on April 11 focused on three of the seven factors. Tr. 104. In his view, the geology to be blasted, the blasting experience of the mine, and the type and amount of stemming, were inadequately considered before the shot was fired. Tr. 104-106. He did not believe that the other section 56.2 factors were at issue. Tr. 105-06, 109-10.

In examining the first factor, geology to be blasted, Clark reviewed the records and described the pre-blast geology of the drill area as "rock with a lot of dirt." Tr. 105. In Clark's experience, since dirt is not a solid material, the blaster-in-charge must compensate by adding more stemming to the bore hole and by ensuring the explosives are not put into the dirt portion of the bore hole. Tr. 105. Clark also testified that the amount of dirt in the drill area made the geology unpredictable which should have require that the blast area be expanded further than 407 feet in the direction of the Hudgens' home. Tr. 106, 129.

Clark explained that the fourth factor, blasting experience of the mine, refers to the history a miner (blaster) has blasting in an area. If experienced blasters have a routine consisting of similar loads and conditions, the mine and the blaster would expect consistent results. Tr. 107. If the conditions are dissimilar, like the mixed dirt and rock conditions on April 11, Clark expected that the blaster would require an extension of the blast area, as the blaster would find the blast less predictable. Tr. 107-08.

Clark described the seventh factor, type and amount of stemming, as relating to the inert substance that is put in the blast hole on top of the explosives in order to hold the energy of the explosives within the rock. Tr. 111. In his opinion, drill cuttings comprised of dirt and rock, as was used in the April 11 blast, are "not a good stemming material." Tr. 112. Clark testified that

[15]Clark was an employee of Austin Powder when the subject blast occurred although he was not then working at the Cookeville Limestone Quarry. Gov't Ex 26.

the stemming could have significance in how the blast area should have been determined. Tr. 113.

When trying to determine how much stemming was used, Clark encountered inconsistencies between the four Austin Powder April 11 blast records relating to stemming, bore hole depth, and the amount of dirt in the holes. Tr. 114-38. Clark first discussed the drill log, in which the driller recorded the amount of dirt in the holes, but did not include the depths of the holes. Gov't Ex. 15; Tr. 114-15. Clark explained that the record in the log of the depth and content of each hole and any voids or cracks that the driller encounters is important for accurately stemming the holes, assessing the risk of flyrock, and ultimately determining the blast area. Tr. 115, 132. Clark compared the drill log to the initial blast report for the April 11 blast and found they did not match. Tr. 116. In the initial blast report, Clark found that the blaster-in-charge's notes recorded the holes to be 17 feet deep, with only six feet of stemming in each hole. Gov't Ex. 23; Tr. 115. The drill log reported dirt in excess of six feet in several holes, which would indicate more than six feet of stemming was necessary to keep the explosives from being placed into dirt. Tr. 116. Clark also compared the initial blast report to a second blast report created for the April 11, 2011 blast, which contained more detail, including graphic representations of the hole types and four additional pages.[16] Gov't Ex. 17; Tr. 115, 119. Clark found that the pounds per delay, hole depths, and the number of rows were not the same in the two documents. Tr. 121. Clark testified that the discrepancies between the blast reports and drill log would leave the blaster-in-charge without adequate and accurate information to determine the blast area. Tr. 122. Clark reviewed a fourth document containing the hole-loading data,[17] and found that the hole depths and the powder amounts used were also inconsistent with the initial blast report. Gov't Ex. 16, 23; Tr. 137-38.

Clark also compared the four April 11 blast records to the company's stemming guidelines found on the company's website. Tr. 139. He found the stemming recorded in the blast records was not consistent with the company's stemming guidelines. Tr. 139-40. In his opinion, several holes in the April 11 blast did not meet the Austin Powder guideline that there must be seven feet of stemming for every ten feet of burden.[18] Tr. 139-40. Clark testified that the burden in the April 11 blast was ten feet and that several of the holes had less than seven feet of stemming. Tr. 140-42.

Clark believed that the Hudgens' home was in the blast area (Tr. 126) and that Austin Powder should have increased the blast area to include the Hudgens' property after determining there was inconsistent geology in the area. Tr. 127-9. The inconsistency came from varying

[16] The second blast report had a time and date stamp for April 14, 2011.

[17] This document is referred to by the Respondent as the "blast hole data log." Tr. 175.

[18] Clark used the "top stemming length formula" from the Austin Powder Company's Blast Design Formula to determine the standard T= (0.7–>1.3)x B, B=Burden [ft], T= top stemming length [ft]. Tr. 139-141; Gov't Ex. 22.

depths of dirt and rock, which prevented the driller from knowing how much dirt surrounded the bore holes. Tr. 129. Clark stated that if the blaster-in-charge did not know the amount of dirt on the side of a hole and did not have an accurate drill log, the stemming could not be adjusted to hold the energy of the blast. Tr. 129, 134. He explained that without the proper stemming, energy is going to move to the point of least resistance, which is to go up, creating flyrock, instead of moving sideways. Tr. 134. Clark stated that if he had been the blaster and knew of the inconsistencies in the drill area, he would have expected a chance of flyrock, which would also mean an increase in the size of the blast area. Tr. 127. Clark admitted that during his time as a blaster-in-charge, he had unintended incidents of flyrock, but the rocks did not leave the blast area. Tr. 149. Rather, the flyrock landed in an area where he knew it had the potential to land. In his opinion, the blast area was anywhere the flyrock had the potential to land. Tr. 149.

Clark also testified that the duties contained in both Sections 56.6306(e) and (f) are meant to apply to the protection of all persons in the blast area, not just to miners or to persons on mine property. Tr. 123-128. Clark stated that when he was a blaster-in-charge, his practice was to notify the mine operator prior to the detonation so the operator could alert its employees to evacuate (Tr. 153, 154), but Clark recognized that the blaster-in-charge is ultimately responsible for the safety of the blast. Tr. 128.

COMPANY'S WITNESSES

John Capers

John Capers is a corporate technical manager for Austin Powder Company. Tr. 160. His duties include training and working with the 230 blasters at Austin Powder. Tr. 160. Capers also teaches at a blaster certification training program conducted throughout the country. Through this program, Capers has provided classes for the FBI, ATF, and other federal organizations. Tr. 162. Capers has been practicing in the field of explosives and blasting for 40 years and he is a licensed blaster in Ohio. Tr. 161. Capers was admitted to testify as an expert in the field of explosives. Tr. 163.

Capers explained Austin Powder's application of the seven Section 56.2 factors for determining a blast area. Tr. 164-71. In addressing the geology of the area, Capers provided examples of geological formations, and explained that within a quarry, the geology is slightly different on each bench. Tr. 164. He stressed that blasters are limited to what they can see visually in determining the stability of the geology of the blast area. Tr. 166.

Capers explained that the blast pattern is developed based on the "nearest protected structure" to minimize damage, which he believes was done in preparation for the April 11 blast.[19] Tr. 166. As to burden, depth, diameter, and angle of the holes, Capers explained that the

[19] The "nearest protected structure" is the term used by Austin Powder blasters to identify the nearest dwelling that people inhabit, such as a home or a school. Tr. 148. The blaster then

holes in quarry blasting are drilled vertically to limit "casting" the material.[20] Tr. 167-68. Regarding the blasting experience of the mine, Capers testified that Austin Powder keeps the same blasters in the same quarries "day in and day out, year after year" so they understand the rock strata at a particular quarry. Tr. 168-69. Discussing delay system, powder factor, and pounds per delay, Capers testified that the delay system used in April 11 was non-electric and the system was designed and used correctly.[21] Tr. 169. Capers also described Austin Powder's policy of tailoring explosives to the type of rock masses and stated that in this blast, the blaster-in-charge used ANFO "the most popular and [one of the] most simplistic explosive out there." Tr. 169-70. Lastly, Capers asserted that the amount of stemming used, rather than the type of stemming, was critical. Tr. 170-71. Stemming is used to "plug" the blast hole for a few seconds to force the rock to move horizontally out into the pit instead of vertically. Tr. 183. In his expert opinion, using crushed stone does not necessarily prevent flyrock and drill cuttings "would have probably performed just as well" as crushed stone. Tr. 170-71, 184. However he also stated, "crushed stone locks in to rock very well" to form a plug due to the sharp angles of the rock. Tr. 183-84. When using drill cuttings, Capers, adds one foot of stemming more than he would use with crushed stone. Tr. 184. After reviewing the drill log and blast report, Capers testified that he could not tell whether the blaster-in-charge, John Frady, used sufficient stemming on April 11. Tr. 185. Capers stated that drill cuttings are used as stemming in 80 percent of all bore holes in the United States. Tr. 170. Later in his testimony, he explained that he came to this conclusion because 80 percent of the explosives consumed in the United States are consumed by coal mines, who virtually always use drill cuttings.[22] Tr. 182-83.

Capers testified that the April 11 blast was an "overburden/stripping blast," which is used to remove waste material and that the stemming used in such a blast may differ from a blaster's "production" stemming. Tr. 172-73. He stated that the stemming may be adjusted in a stripping blast depending on the geology of the blast area because the blaster must put stemming in the areas surrounded by dirt and the explosives must be below the level of the dirt. Tr. 173-74. Capers emphasized that a blaster would fill the part of the hole surrounded by dirt with

---

determines the minimum distance to that building and adjusts the blast pattern and pounds per delay to minimize "specific ground vibration and motion to those structures" and "to ensure that we [Austin Powder] don't cause damage." Tr. 148, 166-67, 215.

[20] Capers described "casting" as physically throwing the material into an open area. Tr. 167-68.

[21] A delay system controls the timing of the detonation for each hole. Tr. 108. As mentioned previously, small delays between charges are used to limit the intensity of ground vibrations and the movement of objects in the blast. Tr. 108, 169.

[22] Capers justified the use of drill cuttings for stemming in the subject quarry based on his belief that 80 percent of mines, all coal mines, use drill cuttings. Tr. 182-83. When questioned about the Austin Powder guideline that requires stemming to be at least 70% of the burden (7 feet of stemming for every 10 feet of burden), Capers indicated the formula was designed specifically for coal mines, not for quarries. Tr. 200.

stemming, not explosives because if the explosives were placed in dirt the ensuing blast would create a crater. Tr. 173-74. Tr. 173-74.

Capers reviewed the four records previously addressed by Clark's testimony (drill log, two blast records, and hole-loading data log) and commented on the purposes behind each of the documents. Capers testified that the blaster-in-charge factors in the drill log data to get an idea of the rock mass and the condition of the bore hole. Tr. 172. He explained that the drill log gives the best information on the condition of the bore holes. Tr. 172. Capers testified that the blast report demonstrates that the blaster-in-charge knew the nearest protected structures, private residences including the Hudgens' home, were to the north and the blast was directed due south away from the structures. Tr. 181.

Capers concluded the flyrock originated from a group of underground broken rocks located six to twelve inches away from the solid bore hole, but he could not determine if the fly rock came from the explosive area or the stemming area. Tr. 186. Capers later contradicted his testimony and said "the rock did not come from the stemming area," in support of his statement that crushed stone stemming would not have prevented the flyrock. Tr. 188. Capers testified that the driller "physically drilled through a solid area" that was very near the broken material, but he had no way of being aware of fractured material, as the drill log indicated there were no problems with the holes. Tr. 186-77. Capers testified that after watching the video of the blast, he concluded the flyrock was caused by a hole located toward the rear of the shot. Tr. 186. However, upon cross examination, Capers testified the flyrock incident was not a "blast back," when the rock goes in the opposite direction, because the flyrock "wasn't caused by material ejecting to the rear of the shot. The flyrock was from the evacuation of a hole almost in the center of the blast [and] went straight up."[23] Tr. 194.

In a corrective action plan to abate state violations for the April 11 incident, Capers testified that Austin Powder identified two probable reasons for the incident, the unidentified geological fault and the stemming material.[24] Tr. 198-99. As part of the abatement, Austin Powder agreed that all blasters will use nine feet of crushed stone stemming, for any hole of four and a quarter inches, and crushed stone will be used in all blasts. Tr. 199. Capers also testified that Austin Powder never had a flyrock incident reported from the blaster-in-charge or the company prior to the April 11 incident. Tr 189-90.

John Travis Frady

John Frady is employed by Austin Powder Company in Dunlap, Tennessee. Tr. 210. He began working at Austin Powder in 2004. Tr. 210. In 2005, he attended a week of training in

[23] This testimony seems to contradict an opinion Capers expressed that the flyrock originated from the rear of the shot. Tr. 186.

[24] The April 11 incident was also investigated by State of Tennessee inspectors who issued several citations for violations of state regulations. Tr. 198-99.

Alabama and received his license as a blaster. Tr. 211. He worked as a blaster in coal mines for four years. Tr. 211. Subsequently, Frady has worked as a blaster at the subject quarry, other quarries, and on various construction sites. Tr. 211.

The parties stipulated that Frady was the blaster-in-charge at the Cookeville quarry on April 11, 2011. Stip 12. Frady testified he has considerable experience blasting at the quarry and that he is familiar with how all of the benches react when blasted because the benches have been established for years. Tr. 217-18. Frady described his blast experience at the quarry as primarily production shots, which require different precautions than the April 11 overburden/stripping blast. Tr. 218-19. Frady also testified that he usually uses crushed stone for all stemming in production shots, as production shots are flat and easy to access for the trucks which haul in crushed stone. Tr. 219. Frady explained he was not able to use crushed stone on April 11 because the steep terrain made it unsafe for a truck to deliver crushed stone to the bench where the blast occurred. Tr. 219-22.

In preparing for the blast, Frady assessed the geology of the mine as "a lot of dirt [and] a lot of cap rock" on top of the production rock. Tr. 212-13. Frady testified that he considered the nearest protected structures when he designed the pattern, in addition to the geology. Tr. 214. Frady explained how he used the drill log and how the drill log correlated to the blast report. Tr. 229-33. Frady testified that the drill log was not completely accurate, but he verified holes with a loading pole and could differentiate between dirt and rock. Tr. 231-32.

Frady acknowledged the chance that rock would not travel in the direction he intended, but he did not consider it a "reasonable" or "likely" possibility. Tr. 255. Frady emphasized that the blast design was for "nothing to go back" and that there were no previous reports of flyrock in the wooded area around the quarry. Tr. 255, 247-48. When clearing the blast area, Frady stated that he only checks the direction that he designed the shot to shoot. Tr. 257. Therefore he cleared the mine shop, which was located 400 to 500 feet to the south of the blast, in accordance with the blast design. Tr. 241, 255.

Frady acknowledged that he was ultimately responsible for clearing the blast area, but indicated that after he notifies the mine management before a blast, the superintendent of the mine takes responsibility for clearing the blast area. Tr. 235-37. Further, Frady stated that the superintendent is responsible for notifying homeowners of the blasts at Cookeville, as is the case for each of the superintendents at the other fifteen rock quarries for which Frady has performed blasts. Tr. 254.

Frady testified that he ensured that the Cookeville Limestone Quarry workers left the quarry with their equipment at 11:30 a.m. on April 11, and that he shot the blast at 11:45 a.m. Tr. 237; Gov't Ex. 17. When asked why he did not inform the homeowners of the blast, Frady said he did not know the local homeowners because he was "going to a different quarry every single day in a different county." Tr. 253. Frady recorded the initial blast report immediately after the blast, but explained that he made changes to the original blast report sometime after

5:00 p.m. on the night of April 11, 2011. Tr. 247. He made the changes to give more detailed information on the blast and to update the report to include the flyrock incident. Tr. 259-61. In Frady's opinion, the flyrock came from "sort of the middle of the shot in the back corner[,] [b]ut it almost look[ed] like it c[ame] just in the middle." Tr. 261.

Frank Randall Livingston

Frank (Randy) Livingston is employed as the quarry manager and supply superintendent at Cookeville Limestone Quarry. Tr. 263, 264. Livingston began at Cookeville in 2004. Tr. 264. Livingston testified that Austin Powder blasts at the quarry twice a month on average. Tr. 264. Livingston indicated that the section of the quarry where the April 11 blast occurred had been blasted before on different levels, although he could not recall how many times.[25] Tr. 269. Livingston acknowledged that "a fly rock of any size can go at any time off of any shot loaded by anybody." Tr. 278. Livingston also acknowledged a responsibility for notifying all persons on mine property and any person who notifies the mine that they would like to be notified of blasting. Tr.270, 275-6.

Before Cookeville Limestone quarry began any blasting, management conducted a pre-blast survey that allowed residents to sign up for blast notifications from the mine. Tr. 271. Prior to the April 11 blast, Livingston followed through with the commitment when he notified the state forestry service, which previously requested notification. Tr. 278. The state forestry service building was 500 feet away from the blast and located outside of the mine property. Tr. 278. The forestry service was the only property owner outside of the mine that requested to be notified. Tr. 278.

THE ISSUES

The issues are: (1) whether there was a violation of Section 56.6306(e), and, if not, whether there was a violation of section 56.6306(f), (2) if there was a violation, whether the violation was S&S, and (3) if there was a violation, the amount of the civil penalty that must be assessed for the violation, taking into consideration the civil penalty criteria set forth in section 110(I) of the Act. 30 U.S.C. § 820(I).

THE VIOLATION

First, I must determine whether the company violated Section 56.6306(e). As has been noted, Section 56.6306(e) requires that "[i]n electric blasting prior to connecting to the power source, and in nonelectric blasting prior to attaching an initiating device, all persons shall leave the blast area except persons in a blasting shelter or other location that protects them from concussion (shock wave), flying material, and gases." Section 56.2 defines the term "blast area" as "the area in which concussion (shock wave), flying material, or gases from an explosion may

[25] However, when Frady described the geology of the area blasted on April 11, he said "it's not been touched. It's the way the good Lord put it." Tr. 213.

cause injury to persons." In *Lakeview Rock Products* 34 FMSHRC 244, 249 (Jan. 2012) (ALJ), Administrative Law Judge William Moran interpreted the phrase "may cause injury to persons" to require a reasonable expectation of an injury. Judge Moran found it unreasonable to apply to "*any* possibility [of causing an injury] no matter how small," and the Court agrees. 34 FMSHRC at 249.

In order to comply with Section 56.6306(e) the operator or its agent must correctly determine the extent of the blast area. To do so, Section 56.2 provides seven factors that must be considered: "(1) Geology or material to be blasted, (2) Blast pattern, (3) Burden, depth, diameter, and angle of the holes, (4) Blasting experience of the mine, (5) Delay system, powder factor, and pounds per delay, (6) Type and amount of explosive material, (7) Type and amount of stemming." 30 C.F.R. § 56.2. In addition, and as Judge Moran stated, "[t]he list does not purport to exclude other relevant factors." *Lakeview Rock Products*, 34 FMSHRC at 246.

In this case, I conclude there was a violation of Section 56.6306(e). The blast area was not cleared of all persons, at least in part because the blast area was not correctly determined by the Austin Powder blaster-in-charge. I credit Frady's testimony that he considered some factors, such as type of explosive, delay system, and burden, and I find that he subsequently made adjustments in hole size, burden spacing, and blast design and that in this regard Frady met the duty imposed on him by Section 56.2. Tr. 219. However, I find that the following three factors were not adequately considered by the Frady or by any other representative of Austin Powder: the geology or material to be blasted, the blasting experience of the mine, and the type and amount of stemming.

Geology or Material to be Blasted

Neither Frady nor any other agent of Austin Powder adequately considered the geology or material to be blasted when determining the blast area. Although Frady testified that he considered the geology, specifically that there was dirt and rock surrounding the bore holes, the evidence suggests that neither Frady nor anyone else considered the effect of the type of blast being conducted (an overburden/stripping blast) on the surrounding geology. Tr. 212. Witnesses for the Secretary and the Respondent testified that the geology on a cap stone, where weathering has taken place, is unpredictable. Tr. 106, 124, 166. The Respondent's expert witness, John Capers, testified there was no way to tell the composition of the cap stone, which is not a solid formation, without "x-ray vision." Tr. 166. Thus, the blaster did not know what material made up the cap stone, specifically if the material contained broken rock. Tr. 166, 187. Capers provided expert testimony that the broken rocks that were launched from the blast site were "perhaps six inches or even a foot away from one or two of the solid drill holes" and "the broken rock would not have been identifiable during drilling or loading the explosives because it did not intersect the drill hole.[26]" Tr. 186-87. Capers explained that the force of the explosion propelled

[26] Capers stated that it was "by bad luck of the driller, we'll call it bad luck, he did not intersect those broken areas when he drilled it." Tr. 187. However, based on the evidence presented, it was the inadequate consideration of Section 56.2 factors by the blaster-in-charge that resulted in the incident and it was by the "good luck" of all parties involved that Mrs. Hudgens made plans

the broken rock out of the ground. Tr. 187. While the blaster-in-charge did not know this would happen, he should have been aware of the potential presence of broken rock and the likelihood that the explosion would propel the broken rock in any given direction.

The Secretary's expert, William Clark, also testified that the amount of dirt reported in the drill area indicated that the geology was not consistent. Tr. 129. Clark found that the drill log, though incomplete as to the depth of each hole, indicated that different amounts of dirt were found in bore holes throughout the blast area. Tr. 129-30. Clark explained that explosives need to be in solid material, which will hold the energy of the explosives, so the blaster needs to know the amount of dirt in a bore hole and the amount of dirt around the bore hole to adjust the stemming for the blast. Tr. 129-31, 133. When the dirt amount is consistent, the stemming could be adjusted to that amount of dirt, but if one hole has four feet of dirt and the one next to it has six feet of dirt, the blaster can not predict where the dirt increases between the holes or know what to adjust in the stemming and explosives. Tr. 133. Clark testified that the blaster should have accounted for inconsistency in the dirt by extending the blast area. Tr. 127, 129, 133. I accept Clark's expert testimony.

Frady, as the blaster-in-charge, testified that his experience was primarily related to production, but included "stripping shots," and that he "knew how the rock was a lot different than what [he] had been doing."[27] Tr. 218-19. Frady acknowledged that the geology was unpredictable. Yet, the blast area design only included clearing persons for 500 feet to the south of the blast, including the mine shop. Tr. 74, 242, 278. Frady correctly and reasonably concluded that the blast was capable of sending shockwaves, flyrock, and gases at least 500 feet away, but he should have also reasonably expected that blasting in unpredictable geology could produce flyrock with the potential to travel to the north, not just south of the blast. I credit the Secretary's blasting expert, Clark, that the dirt was inconsistent in areas, that there were indications of more dirt on the side of the blast requiring an increase in the blast area, and the Hudgens' home should have been considered in the blast area. Tr. 106, 127, 129. The house was located 407 feet north of the blast, well below Frady's anticipated blast range of 500 feet, though in the opposite direction. Tr. 75, 124, 242.

The Blasting Experience of the Mine

Clark believed the blasting history of a blast site should be considered when determining the blast area because it is reasonable to expect that similar loads of explosives and stemming under similar conditions, would yield similar results. Tr. 107. Austin Powder's commitment to repeatedly use the same blaster in the same quarry is undoubtedly an advantage toward

---

for lunch that day and narrowly avoided a serious or fatal injury.

[27] As of April 11, 2011, Austin Powder credited Frady with conducting 787 blasts in the position of a blaster. Tr. 203. He has four years as a blaster working at the Cookeville Quarry and fifteen other quarries, and he has five years of experience assisting another Austin Powder blaster. Tr. 203.

preventing accidents when there were similar loads and conditions. Tr. 168-69. Frady supported this policy when he stated that he knew "how all of the Cookeville benches act" because the benches have been "laid out for years." Tr. 218. However, in this case, the testimony from both of the parties indicates that this specific area had not been blasted before,[28] and that no one was aware of the makeup of the geology blasted. Tr. 106, 166. In addition to working in a new area of the quarry with unknown geology, Frady chose to deviate from the normal type of stemming used in the quarry blasts.[29] Tr. 218-19. This was not a routine blast, with conditions that could be categorized as consistent or similar to previous experiences. Tr. 213. Yet, Frady hoped that he could restrict all harmful gases, shockwaves, or flyrock to 500 feet to the south and his plan did not acknowledge that those harmful effects might go to the north. That was unreasonable. With his experience at the quarry, he knew and acknowledged the ground he was blasting was different. The court heard testimony that experienced blasters would anticipate flyrock and expand the blast area. Tr. 76-77, 127. Frady anticipated the blast could send debris 500 feet away. Tr. 241-42. He should have cleared a blast area extending, at a minimum, 500 feet in all directions, which would have included the Hudgens' home.

Type and Amount of Stemming

As to type and amount of stemming, the court finds that the use of drill cuttings rather than crushed stone, had an effect on the blast that could and should have been anticipated. Frady explained that he normally uses crushed stone when blasting at the quarry and most of his blasts are targeting solid production rock, not cap stone. Tr. 218-19. Frady defended the use of drill cuttings instead of crushed stone for the April 11 blast because the area was too steep for a truck to bring crushed stone to the drill holes. Tr. 219, 268. The Secretary's expert credibly testified that the drill cuttings lacked the locking capability that crushed stone provides in the blast making fly rock in all direction more likely. Tr. 111. The Secretary's expert and the inspector testified that because of this effect the blast area should have included the area to the north of the blast. Tr. 126-27. I credit the Secretary's expert witness and the inspector's testimony that the change from crushed stone to drill cuttings likely changed the course of the blast. Tr. 111. I agree with the Secretary's expert, Respondent's abatement plan (approved by the state), and the inspector's opinion that the stemming used by Frady on April 11 called for expanding the dimensions of the blast area to the north of the shot. Tr. 198-99.

Other Considerations

[28] Frady described the area as untouched, although he blasted in areas nearby. Tr. 219. Frady also told the court that he works at "a different quarry every single day in a different county" and while he has extensive experience at Cookeville Quarry working on six benches, he never worked on the area he blasted on April 11, 2011. Tr. 253.

[29] Frady indicated that he usually used crushed stone stemming and did not typically use drill cuttings as stemming. Tr. 219.

Since the Respondent failed to adequately consider 56.2 factors in determining the "blast area," it therefore failed to warn and clear persons who should have been properly considered to be in the "blast area." The court emphasizes that the blast area is not simply the area that the effects of the blast are designed to go, but rather "the area in which the concussion (shockwaves), flying material or gases from an explosion may cause injury to persons." 30 C.F.R. § 56.2. Frady determined 500 feet was a reasonable distance for the blast area, but the Court concludes the record fully supports finding it was reasonable that flyrock could travel 500 feet in all directions including the approximate 400 feet to the north of the blast, an area that contained the Hudgens' home.[30]

Summary

Upon considering the three factors discussed above, the Court concludes the record supports finding that neither Frady nor any other agent of Austin Powder adequately considered the geological composition of the blast site, the different experience to be expected when conducting an "overburden stripping" blast, and the possible effects of using drill cutting to stem such a blast in the drilled geological area. The court further concludes Austin Powder did not adequately determine the blast area of the April 11 blast and in so doing that it failed to comply with section 56.2. Had the company adequately considered all of the specified criteria in section 56.2 it would have determined the blast area should extend 500 feet in all directions around the blast site.

As I have determined the blast area should have been understood to include the Hudgens' home, the second issue is whether the Respondent acted to provide warning and clear all persons in the blast area except persons in a blasting shelter, prior to initiating the blast. It is undisputed that Mrs. Hudgens was home at 11:30 when Frady was prepared to blast. Tr. 53, 237. As Chief Judge Robert J. Lesnick stated in *Orica USA, Inc*. 32 FMSHRC 709, 712 (May 2010) (Order denying Mot. To Dis.) the Respondent's duty to protect persons in accordance with section 56.6306(e) does not stop at the legal boundary of the mine.[31] Here, Austin Powder had the duty to

---

[30] The Respondent's witness, Livingston, demonstrated some awareness that the area to the north was at risk when he stated that he notified the state forestry office, to the north of the blast, several hours before the blast to ensure their employees were not walking around the woods, also to the north of the blast. Tr. 272.

[31]

> Orica is not absolved of its duty to protect people in the blast area from injury merely because the blast area extended beyond the legal property line of the Pattersonville mine. To only include flyrock injuries on roadways that are "private" and/or "appurtenant to" a mine would allow blasting operators to escape liability for violations of Section 56.6306 that result in injuries simply because the injuries occur off of the mine property.

32 FMSHRC at 712.

comply with the statute for all persons in the blast area. Since Mrs. Hudgens was not given ample warning or cleared of the blast area, I find that the Respondent violated section 56.6306(e).

30 C.F.R. § 56.6306(f)

The court granted the Secretary's Motion to Plead in the Alternative a violation of 30 C.F.R. § 56.6306(f), which requires that "[b]efore firing a blast - (1) Ample warning shall be given to all persons to be evacuated. . . ." *Id.* Although the Secretary's alternative argument is not before the Court due to its finding that Austin Powder violated section 56.6306(e), the Court observes that had it been required to rule on the issue, the Court would have no difficulty in finding Austin Powder violated section 56.6306(f), by failing to give Mrs. Hudgens the ample warning that would have allowed her to evacuate.

S&S AND GRAVITY

An S&S violation is a violation "of such nature as could significantly and substantially contribute to the cause and effect of a . . . mine safety or health hazard." 30 U.S.C. § 814(d). A violation is properly designated S&S "if, based upon the particular facts surrounding that violation, there exists a reasonable likelihood that the hazard contributed to will result in an injury or illness of a reasonably serious nature." *Cement Div., Nat'l Gypsum Co.*, 3 FMSHRC 822, 825 (Apr. 1981). As is well recognized, in order to establish the S&S nature of a violation, the Secretary must prove: (1) the underlying violation; (2) a discrete safety hazard – that is, a measure of danger to safety – contributed to by the violation; (3) a reasonable likelihood that the hazard contributed to will result in an injury; and (4) a reasonable likelihood that the injury will be of a reasonably serious nature. *Mathies Coal Co.*, 6 FMSHRC 3-4 (Jan. 1984) *accord Buck Creek Coal Co., Inc. v. MSHA*, 52 F.3d 133, 135 (7th Cir. 1995); *Austin Power Co., Inc. v. Sec'y of Labor*, 861 F.2d 99, 103 (5th Cir. 1988) (approving *Mathies* criteria).

I have found a violation of the cited safety standard. I further find a discrete safety hazard existed in that I credit Inspector Blair's testimony that following a blast, the hazards of gas, dust or flyrock could harm people in the blast area, and that the flyrock especially poses the danger of crushing or fatal injuries. Tr. 68, 77.

Regarding the third element, the Secretary must prove "a reasonable likelihood the hazard contributed to will result in an event in which there is an injury." *U.S. Steel Mining Co., Inc.*, 7 FMSHRC 1125, 1129 (Aug. 1985). I find there is a reasonable likelihood that flyrock will cause injury to a person in a blast area. It is uncontested that flyrock in the blast area is possible. The court notes that in this case, flyrock entered the Hudgens' home with sufficient force to break a hole in the roof and smash several pieces of furniture, interior walls, and windows. Indeed, the 87 pound rock landed within a few feed of where Mrs. Hudgens had been sitting. If she had not left her bedroom shortly before the blast, it is reasonable to conclude she would have been seriously injured or killed.

Finally and obviously, there was a reasonable likelihood that the injury in question would be of a reasonably serious nature. I credit Inspector Blair's obvious observation that flyrock can crush a person and produce a fatality. Tr. 68. The violation was S & S.

The violation was very serious. I credit the inspector's testimony that fatal injuries could result from not warning and clearing persons in a blast area and thus allowing them to evacuate. Tr. 68. Persons affected by the violation are subject to the hazards of flyrock. The inspector found that one person usually is affected, based on his opinion that "most of the time it's only one person that gets hit." Tr. 68. In this case, the person was Mrs. Hudgens. Tr. 69.

NEGLIGENCE

The inspector indicated that although the citation was written as "low negligence," he would have written it for higher negligence if he had known all the facts regarding the blast. Tr. 69. However the inspector elected not to modify the citation. I find that the fact Frady considered some factors in determining the blast area indicates he acted with a degree of requisite care, but unfortunately he did not consider all relevant factors and therefore he did not exercise all of the care required by the circumstances. Therefore, I find his and Austen Powder's negligence was "moderate."

REMAINING CIVIL PENALTY CRITERIA

HISTORY OF PREVIOUS VIOLATIONS

The parties stipulated that the assessed violation history report, noted as Secretary's Exhibit S-5, accurately sets forth the history of violations relevant to this case. Tr. 21. Although the history of violations presented by the Secretary provided 241 violations between January 4, 2007 and April 20, 2011, I will only consider the 62 violations that occurred in the 15 months prior to the subject violation.[32] Gov't Ex. 5. Under 30 C.F.R. § 100.3(c), the maximum penalty points are assessed when an independent contractor's overall history of violations exceeds 29 violations. Therefore, under the Secretary's penalty regulations, Austin Powder's history of previous violations is deemed to be large, and I so find.

SIZE

The parties stipulated that mining operations at the Cookeville Limestone Quarry are small, accounting for 18,979 working hours in 2010. Tr. 19. However, the relevant information for determining the penalty assessment for Austin Powder is not the size of the Cookeville

[32] 30 CFR 100.3(c) considers the operator's history of previous violations based on the total number of violations and the number of repeat violations of the same citable provision of a standard in a preceding 15-month period.

Limestone Quarry, but the "size of the business of the operator charged." 30 U.S.C. § 820(i). Under 30 C.F.R. §100.3(b), the size of an independent contractor is measured by the total hours worked at all mines. Although the parties did not stipulate the size of Austin Powder, the testimony of the Respondent's expert witness John Capers indicated that there are at least 230 blasters that work for the company. Tr. 160. Mr. Frady testified that he is working in "a different quarry every day", which is presumably a full work week. Tr. 253. Based on this information, I calculate Austin Powder to have a minimum of over 300,000 annual hours worked at all mines.[33] Mr. Capers also stated that Austin Powder has multiple product lines and works through the United States as well as internationally. Tr. 160. Under 30 C.F.R. § 100.3(b), 20 out of a possible 25 penalty points are assessed when an independent contractor has worked between 300,000 and 500,000 annual hours worked at all mines. I find that Austin Powder is a large company.

ABILITY TO CONTINUE IN BUSINESS

The parties stipulated that the proposed penalty will not adversely affect the Austin Powder's ability to continue in business. Tr. 22.

GOOD FAITH ABATEMENT

The parties stipulated that the Respondent, in good faith, attempted to achieve prompt abatement of the cited condition. Tr. 22. In addition to the abatement described in the citation, the Respondent initiated a system of notifying the neighboring properties after the April 11 blast. Tr. 236.

CIVIL PENALTY ASSESSMENT

CITATION NO.	DATE	30 C.F.R. §	PROPOSED ASSESSMENT
8552491	4/19/2011	56.6306(e)	$4,689.00

I have found that the violation existed, that it was very serious, and that the negligence of the company was moderate, rather than low. Given these findings and the other civil penalty criteria, I assess a penalty of $5,000.00.

ORDER

Within 40 days of the date of this decision, Austin Powder is **ORDERED** to pay a civil penalty totaling $5,000.00 for the violation of section 56.6306(e) set forth in Citation No.

[33] 230 blasters x 50 weeks a year x 40 hours a week = 460,000 hours.

8552491. Payment **SHALL** be sent to the: Mine Safety and Health Administration, U.S. Department of Labor, Payment Office, P.O. Box 790390, St. Louis, MO 63197-0390. Upon payment of the penalty, this proceeding **IS DISMISSED**.

/s/ David F. Barbour
David F. Barbour
Administrative Law Judge

Distribution: (Certified Mail)

Noelle Lagueux-Alvarez, Esq., U.S. Department of Labor, Office of the Solicitor, 61 Forsyth Street, S.W. Room 7T10, Atlanta, GA 30303

Nichelle Young, Esq., Law Office of Adele L. Abrams, PC, 4740 Corridor Place, Suite D. Beltsville MD, 20705