United States of America
OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION

SECRETARY OF LABOR, Complainant, v. AMERICAN PHOENIX, INC., Respondent.	OSHRC Docket No. 11-2969

Appearances:

R. Peter Nessen, Esq., U.S. Department of Labor, Office of the Solicitor, Chicago, Illinois,
For Complainant

William J. Wahoff, Esq. & Nelva J. Smith, Esq., Scott, Scriven & Wahoff, LLP, Columbus, Ohio,
For Respondent

Before: Administrative Law Judge Patrick B. Augustine

DECISION AND ORDER

I. Procedural History

This proceeding is before the Occupational Safety and Health Review Commission ("the Commission") under section 10(c) of the Occupational Safety and Health Act of 1970, 29 U.S.C. § 659(c) ("the Act"). The Occupational Safety and Health Administration ("OSHA") conducted an inspection of American Phoenix, Inc. ("Respondent") that took place between May 4, 2011 and September 1, 2011, at Respondent's facility in Eau Claire, Wisconsin. As a result, OSHA issued a *Citation and Notification of Penalty* ("Citation") to Respondent alleging two other-than-serious violations and 14 serious violations with total proposed penalties of $51,480.00. Respondent timely contested the Citation.

On August 30, 2013, the Court issued an *Order Approving Partial Stipulation and Settlement Agreement*, wherein the parties settled all but Citation 1, Items 1 and 4. In addition, on February 12, 2014, the Court issued a second *Order Approving Partial Stipulation and Settlement Agreement*, wherein the parties resolved Citation 1, Item 4.[1] As a result, the parties agreed to proceed to trial only on Citation 1, Item 1, which is an alleged violation of the General Duty Clause with a proposed penalty of $6,930.00. The trial took place on September 11–13, 2013, in Eau Claire, Wisconsin and on September 24, 2013 in Chicago, Illinois. The parties timely submitted post-trial briefs.

II. Stipulations[2]

The parties stipulated to the following:

1. Respondent admits that, at all times relevant hereto, it was an "employer" as defined under the Occupational Safety and Health Act. (Ex. R-24).

2. Respondent admits that, at all relevant times, it had a workplace at 800 Wisconsin Street, Unit #11, Eau Claire, Wisconsin, 54703. (Ex. R-24).

3. Respondent admits that jurisdiction is conferred upon the Occupational Safety and Health Review Commission by Section 10(c) of the Occupational Safety and Health Act. (Ex. R-24).

4. OSHA's Salt Lake City laboratory received and conducted dust explosibility screening tests on three (3) samples taken from specific locations on the fourth floor, on one (1) sample taken from the Penthouse Hopper Dust Collector located on the fourth floor, on one (1) sample taken from the Pre-Weigh Dust Collector located on the fourth floor, on one (1) sample

1. Although the parties did not file the *Partial Stipulation and Settlement Agreement* until after the trial, the parties agreed to the resolution of Citation 1, Item 4 at the time of trial. The details of the partial stipulation and settlement agreements are contained in the case file.
2. The parties' stipulations can be found in their respective post-trial briefs, as well as in the transcript. (Compl't Br. at 1; Resp't Br. at vii; Tr. at 15–16).

taken from the dust collection ducting feeding into Dust Collector #10 located the first floor, and on one (1) sample taken from the ducting feeding into Dust Collector #9 located on the first floor. With the exception of the sample taken from the ducting feeding into Dust Collector #9, all other sample tests resulted in a positive test indicating that the samples are explosible based on the protocol outlined in OSHA's Combustible Dust National Emphasis Program (Reissued) CPL-00-008 dated 3/11/08, Appendix E—the explosibility screening test described in Appendix E. That protocol provides the maximum normalized rate of pressure rise (dP/dt) and is also known as a Kst test. The samples were received and tested within a 20-liter explosibility testing chamber (Bureau of Mines 20 liter chamber) via suspending the material in the chamber and igniting the material with a 2500 J Sobbe chemical igniter. The moisture content of the samples were [sic] less than 5%, therefore no drying was required. The protocol requires the samples to be tested "as received," therefore no sieving was performed. The sampling protocol requires testing of three to five dust concentrations, from 500 g/m^3 to about 2500 g/m^3, for each sample. The testing was performed per this protocol. The found maximum normalized dP/dt values were plotted versus concentration and the highest value from the plateau of the plot was reported as the Kst. Pressure ratios were also able to be determined from the testing and were reported as well. The laboratory did not test for MIE, MEC, or MIT. (Ex. R-24).

5. The Secretary stipulated that it has no evidence one way or the other that any of the fires referenced during the hearing testimony were the result of combustible dust at Respondent's facility. (Transcript, Vol. 2, p. 376–77).

III. Jurisdiction

Jurisdiction over this action is conferred upon the Commission pursuant to section 10(c) of the Act. The parties have stipulated and the record establishes that at all times relevant to this

action, Respondent was an employer engaged in a business and industry affecting interstate commerce within the meaning of section 3(5) of the Act, 29 U.S.C. § 652(5). (Ex. R-24). *Slingluff v. OSHRC*, 425 F.3d 861, 866–67 (10th Cir. 2005).

IV. Factual Background

Six witnesses testified at trial: (1) Keriann Perna, OSHA Compliance Safety and Health Officer ("CSHO"); (2) Dr. Robert Zalosh, mechanical engineer and expert witness for Complainant; (3) Greg Lewis, Respondent's CFO and COO; (4) Mike Richards, Respondent's Plant Manager; (5) John Radle, Respondent's Plant Engineer; and (6) Steven Luzik, chemical engineer and expert witness for Respondent.

A. Respondent's Operations

Respondent is a manufacturer that produces custom, soft rubber[3] compounds for large-scale, industrial companies, including all of the major North American tire companies, retread companies, belting companies, tread operations, and some automotive parts. (Tr. 384). Respondent owns six separate facilities and employs over 200 employees. (Tr. 57–58, 120, 138). As noted above, the focus of this case is the Eau Claire facility, which employs approximately 130 to 140 employees and is located in a 650,000 square foot space previously occupied by the Uniroyal and Michelin tire companies. (Tr. 386). The Eau Claire facility is primarily responsible for mixing the compounds that form the finished product.[4]

The custom products that Respondent makes are based upon their own recipes or recipes that are provided to them by the customer. (Tr. 414–15). In order to facilitate the production of different types of rubber compounds, Respondent utilizes a series of hoppers and Banbury

3. Respondent does not vulcanize the rubber compounds that it produces. (Tr. 385). Vulcanization is a process whereby a catalyst, coupled with heat and pressure, is added to the rubber to harden it. (Tr. 393).
4. The other facilities, as well as the Eau Claire facility, Pre-Weigh the dry components of rubber that are eventually mixed to create the finished rubber product. (Tr. 57–58, 218–19, 320–21).

mixers. Two of Respondent's mixers, labeled Nos. 100 and 200, also referred to as Number 1 and Number 2, are referred to as "master-batch mixers." (Tr. 393).[5] These mixers handle large, 1,200-pound batches of basic compounds, such as polymers, oil, and Carbon Black.[6] (*Id.*). This part of the process is known as the first pass, or master pass. (Tr. 393–94). After the first pass, depending on the type of rubber being made, the mixture is then placed into a finishing mixer, also referred to as a "Size 11" mixer. (Tr. 394). The finishing mixers handle 400-pound batches and run at a lower temperature than the master-batch mixers, so as to prevent vulcanization. (*Id.*).

Clearly, the larger 100 and 200 mixers perform essentially the same function. The smaller, finishing mixers, however, are quite varied in their operation. Mixer Numbers 4, 6, and 10 are finishing mixers for black rubber compounds that begin in the 100 and 200 mixers. (Tr. 393). Mixer Number 5 is not currently active, nor was it active at the time of the inspection.[7] (Tr. 404). Mixer Number 7, although it is technically a finishing mixer, is solely dedicated to making butyl compounds, which are used to make air-tight rubber like inner tubes and balloons. (Tr. 395–96). It is both a master-batch mixer and finishing mixer because, according to Mr. Lewis, the butyl rubber is "extremely contaminant to the other rubber we use in the plant." (*Id.*). Respondent also has two other specialty mixers, Numbers 8 and 9, which are dedicated to producing whitewall rubber. (Tr. 396). Mr. Lewis testified that mixer Number 9 in particular has been dedicated to whitewall production for at least 15 years because changing back and forth between white and black is labor- and time-intensive process.[8] (Tr. 397).

5. Greg Lewis referred to these mixers as the "big 620s". (Tr. 393).
6. Carbon Black is of particular interest to this case because, according to its MSDS, it is a combustible dust when suspended at the right concentration. (Ex. C-7 at 736, C-8 at 743).
7. Mixers 5 and 6 are both connected to the same dust collector. Even though number 5 is not active, both mixers are connected to the same dust collector, which is referred to as dust collector number 5/6. (Tr. 404–405; Ex. C-1).
8. The record is not particularly clear as to mixer number 8. According to Mr. Lewis, he did not believe that it was

Before the ingredients are added to the mixers, there are three separate areas where chemicals are dispensed and combined. (Tr. 405). The first of those areas is known as the Penthouse, where Respondent dispenses its bulk chemicals. (*Id.*). This area contains multiple stages of hoppers that allow Respondent to add multiple ingredients to the line at one time. (Tr. 405, 407). The second is known as the hand-compounding area, where dry chemicals that are not large enough to be put in the bulk system in the Penthouse are combined. According to Mr. Lewis, this is mostly related to master batch type mixing. (Tr. 406). Finally, there is an area known as the Pre-Weigh area, which handles the more potent chemicals that are added to the finishing mixers. (*Id.*). Because of the chemicals' potency and the relatively small amount that is used (approximately 1-2% of the total weight), Respondent uses an automated line to ensure accuracy. (*Id.*).

Each of the foregoing systems, hoppers and mixers alike, is connected to a dedicated dust collector (also known as an air-material separator) which removes dust particles from the air. The air is taken to the dust collectors by using an exhaust fan that draws the air through a series of ducts. (Tr. 174). All of the Banbury mixers (1, 2, 4, 5/6, 7, 8, 9, and 10), as well as the Pre-Weigh and Penthouse hoppers, are connected to dust collectors that use filters that are known as "socks" or "bags".[9] (Ex. C-20 at 6). The dust collects on the surface of the bags, which are then pulsed with a shot of pressurized air at regular intervals determined by the number of bags in the collector. (Tr. 177–79; C-22). The dust that becomes dislodged, or that never adheres to the filter, is then dropped through the bottom of the collector into a hopper. (Tr.

producing "much of anything" at the time of the inspection; though, he admitted that it probably had been used for black rubber prior to then. (Tr. 398). Since there was no countervailing evidence on this point, the Court finds that mixer number 8 was, for all intents and purposes, either non-productive or a whitewall producing mixer at the time of the inspection.

9. The smaller, finishing mixers use smaller dust collectors manufactured by Buhler. The 100, 200, Pre-Weigh, and Penthouse all use larger, custom-built dust collectors. (Tr. 424–25). The primary difference is in their size and number of filters. (*Id.*).

352). The material that falls into the hopper is directed through a rotary valve that either sends the excess dust back towards the mixers or into a bin or bag where the chemicals are recaptured. (Tr. 176; Ex. C-22). The dust that remains on the filter after it is pulsed is known as "filter cake". (Tr. 177). After a certain period of time, this cake reaches equilibrium, whereby no more dust is loaded onto the surface of the bags. (Tr. 177–78, 574–75). It is at this point that the dust collector is working at its most efficient. (Tr. 349). Eventually, however, enough cake has formed on all of the bags so as to reduce the air pressure within the dust collector.[10] (Tr. 288). Once this happens, the bags need to be replaced. (Tr. 682). The hand-compounding area, on the other hand, does not use a filter-based collector. Instead, it uses what is known as a Rotoclone. The Rotoclone uses centrifugal force to force larger dust particles against the wall of the collector. (Tr. 180). Once the particles hit the wall, they slide or fall down the wall into a hopper or dust collection bin. (Tr. 180).

These dust collectors were the target of the OSHA inspection, which is described more fully below.

B. OSHA Inspection

CSHO Keriann Perna first visited Respondent's facility on May 4, 2011, based on a noise monitoring referral. (Tr. 55). She returned to the facility on two more occasions: (1) on June 8, 2011, to conduct respirable dust testing and (2) on June 15–16, 2011, to conduct combustible dust sampling. (Tr. 59–61). It is the last visit that resulted in the citation at issue in this proceeding.

CSHO Perna, along with two Salt Lake City laboratory technicians, returned to conduct combustible dust sampling pursuant to the Combustible Dust National Emphasis Program (NEP).

10. As one might expect, the bags closest to the inlet of the dust collector tend to become dirty more quickly than those at the outlet. That portion of the dust collector is known as the "dirty side". (Tr. 177–78; Ex. C-20, C-21).

(Tr. 61). Over the course of two days, Complainant took seven different dust samples from the following areas: (1) Fourth floor, southeast wall—settled dust located on the floor and window ledge; (2) Fourth floor—from floor area near Banbury hopper #200 hand dump feeder #5; (3) Fourth floor—from floor area near post D33 in the chemical storage area; (4) Fourth floor—from the bottom of the Penthouse hopper dust collector; (5) Fourth floor—from the bottom of the Pre-Weigh dust collector; (6) First floor—from the duct work that connects to dust collector Number 10; and (7) First floor—from the duct work that connects to dust collector Number 9. (Ex. C-3). The samples were sent to the Salt Lake City laboratory and tested for Kst, Class II and Pressure Ratio.[11] (Tr. 73). Kst is a metric that determines how severe an explosion will be by measuring the maximum rate of pressure rise when dust is ignited in an enclosed space. (Tr. 266; Ex. C-3). The pressure ratio divides the maximum pressure reached by the initial rise in pressure to distinguish between combustible and non-combustible dust; a ratio greater than 2 indicates combustibility. (Tr. 182; Ex. C-3). The results indicated that all of the samples, except for the sample from dust collector Number 9, were combustible. (Ex. C-3).

On July 19, 2011, before her investigation had closed, CSHO Perna discovered that a fire had broken out at the throat of mixer Number 200, which is associated with dust collector Number 2. (Tr. 95). This was not the first fire that had occurred on mixer Number 200—CSHO Perna discovered that there had been two other fires. (Tr. 95–96). John Radle, Respondent's plant engineer, testified that there were no flames associated with the fire; rather, the rubber compound became superheated and set off the sprinkler system. (Tr. 434–35). The 100 and 200 mixers were equipped with automatic shutdown equipment that was designed to shut off the mixers once they reached 400-degrees Fahrenheit. (Tr. 433). The shutdown system failed to

11. Class II testing involves an explosion hazard analysis with regard to electrical equipment. Beyond the testing results, the parties did not discuss the Class II results.

work in this instance, which prompted Respondent to install a redundant shutdown system on the 100 and 200 mixers. (Tr. 435). The smaller mixers are also equipped with shutdown systems that are designed to shut down the mixers at 350-degrees Fahrenheit. (Tr. 430).

As a result of the inspection, Complainant issued a citation alleging that Respondent had violated the general duty clause due to the presence of fire and explosion hazards in the dust collectors.

C. The Experts

Dr. Robert Zalosh, who testified on behalf of Complainant, is a mechanical engineer with a Ph.D. in mechanical engineering from Northeastern University. From 1975 to 1990, Zalosh worked with and studied fire and explosion hazards in industrial facilities. From 1990 to 2006, Zalosh worked primarily in academia and conducted research on dust and fire explosions. At present, he currently runs his own consulting business, known as FireExplo. Zalosh is also a member of the National Fire Protection Association, which produced the industry standards at issue in this proceeding, and has published handbook chapters on their behalf. (Ex. C-18).

Steven Luzik, who testified on behalf of Respondent, is a chemical engineer with a bachelor's of science from Notre Dame University. From 1971 to 2006, Mr. Luzik has worked for the Bureau of Mines and the Mine Safety and Health Administration (MSHA), where he participated in large-scale, industrial fire and explosion investigations involving numerous types of fuel. (Ex. R-13). During that time he served as Chief of the Engineering and Testing Division and as Director of the Approval and Certification Center. Like Dr. Zalosh, Luzik now works in the private sector as a consultant.

V. Applicable Law

In order to prove a violation of the general duty clause, Complainant must show that: (1) a condition or activity in the workplace presented a hazard; (2) the employer or industry recognized the hazard; (3) the hazard was likely to cause death or serious physical harm; and (4) a feasible and effective means existed to eliminate or materially reduce the hazard. *Pelron Corp.*, 12 BNA OSHC 1833, 1835 (No. 82-388, 1986); *see also* 29 U.S.C. § 654(a)(1).

A violation is classified as serious under the Act if "there is substantial probability that death or serious physical harm could result." 29 U.S.C. § 666(k). Commission precedent requires a finding that "a serious injury is the likely result if an accident does occur." *Mosser Constr., Inc.*, 23 BNA OSHC 1044, 1046 (No. 08-0631, 2010) (citation omitted); *see Omaha Paper Stock Co. v. Sec'y of Labor*, 304 F.3d 779, 784 (8th Cir. 2002). Complainant does not need to show there was a substantial probability that an accident would occur; he need only show that if an accident did occur, serious physical harm could result. *Id.*

VI. Discussion

A. OSHA's Combustible Dust National Emphasis Program Is Not a Substantive Rule.

Respondent contends that it was improperly cited pursuant to Complainant's National Emphasis Program (NEP). (Ex. R-1). Specifically, Respondent contends that the NEP, in effect, creates a substantive rule that requires employers to comply with the National Fire Protection Association's "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids" (hereinafter "NFPA 654"). This, Respondent contends, was promulgated by Complainant without complying with the

Administrative Procedure Act's ("APA") notice and comment requirements. *See* 5 U.S.C. § 500 *et seq*. Accordingly, it claims, that Citation 1, Item 1 should be vacated.

Complainant contends, however, that the NEP does not require Respondent to do anything; rather, it "simply provides guidance to OSHA Area Offices on how to determine whether an employer, upon inspection, is in violation of the General Duty Clause." (Complainant's Post-Hearing Br. at 18). With respect to NFPA 654, Complainant points out that the NEP only states that it "should be consulted to obtain evidence of hazard recognition and feasible abatement methods." (Ex. R-1 at 2). Based on what follows, the Court finds that the NEP is not a substantive rule that required notice and comment.

The APA defines a "rule" to include "an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy . . . ." 5 U.S.C. § 551(4); *see also Simpson, Gumpertz & Heger, Inc.*, 15 BNA OSHC 1851 (No. 89-1300, 1992). Notice and opportunity for comment is required for the promulgation of a rule except for "interpretive rules, general statements of policy, or rules of agency organization, procedure, or practice." 5 U.S.C. § 553(b)(3)(A). According to the Act, a standard is defined as a rule that "requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment." 29 U.S.C. § 652(8). The determination of whether a pronouncement is a standard is made by reference to its "basic function." *Chamber of Commerce of the U.S. v. Dep't of Labor*, 174 F.3d 206, 209 (D.C. Cir. 1999). If the basic function of a pronouncement is to "address[] . . . a specific and already identified hazard" and is not a "purely administrative effort designed to uncover violations," then the rule is a standard. *Louisiana Chemical Ass'n v. Bingham*, 657 F.2d 777, 782 (5th Cir. 1981). It has been noted that the Act's definition of a

standard "simply posits a distinction between new legal obligations and enforcement of obligations that have long been in place." *Steel Erectors Ass'n of America, Inc.*, 636 F.3d 107, 116 (4th Cir. 2011). A policy/enforcement directive, on the other hand, "merely reiterat[es] the requirements of an existing standard for enforcement purposes." *Id.* at 114.

The NEP, although it specifically references NFPA 654, does not "require conditions, or the adoption or use of one or more practices, means, methods, operations or processes, reasonably necessary or appropriate to provide safe or healthful employment." 29 U.S.C. § 652(8). Rather, amongst other administrative matters regarding the scheduling of inspections, it identifies industries in which combustible dust may present a hazard; provides CSHOs with guidance as to how to identify whether combustible dust is present; and provides criteria to determine whether the dust presents a deflagration,[12] explosion, or fire hazard. (Ex. R-1). With respect to the issuance of citations pursuant to the general duty clause, NFPA 654 is only referenced for two purposes: (1) evidence of industry recognition of the hazard; and (2) evidence of feasible means of abatement. (Ex. R-1 at 18). In that regard, Complainant's use of NFPA 654 is in accord with a long line of general duty clause case law. *See, e.g.*, Titanium *Metals Corp. of America*, 579 F.2d 536 (9th Cir. 1978) (recognition established by NFPA standard drafted with assistance of respondent employee); *Kokosing Constr. Co*., 17 BNA OSHC 1869 (No. 92-2596, 1996) (holding that voluntary industry codes may be used to demonstrate industry recognition). Accordingly, the NEP is an "administrative effort designed to uncover violations" that merely reiterates the requirement that employers furnish employment and a place of employment free from the recognized hazard posed by the presence of combustible dust.

12. According to the NFPA, the primary concern regarding deflagrations, which can be considered the precipitating event prior to an explosion, is a "propagating flame front or pressure increase that can cause personnel injuries or rupture of process equipment or buildings." (Ex. C-14 at § A.3.3.7).

Louisiana Chemical Ass'n, 657 F.2d at 782; *Steel Erectors Ass'n of America, Inc.*, 636 F.3d at 114.

Respondent's reliance upon *Petro Hunt, LLC*, Docket No. 11-0873 and *Chamber of Commerce v. U.S. Dept. of Labor*, 174 F.3d 206 (D.C. Cir. 1999), is misplaced. In *Petro Hunt*, the Court determined that the enforcement policy at issue specifically required the use of fire-resistant clothing, thereby transforming the performance-based PPE standard into a specific standard. In this case, the NEP does not contain a specific requirement that Respondent, or similarly situated employers, comply with NFPA 654; rather, NFPA 654 is referenced for the purpose of establishing industry recognition and feasible means of abatement. In other words, the NFPA is being used as evidence in support of a violation, not as a measuring stick. Similarly, the directive in *Chamber of Commerce* required specific action on behalf of an employer that, if not complied with, would subject the employer to a comprehensive inspection. 176 F.3d at 208. No such requirement exists in this case, wherein the NEP merely prescribes a method by which citations may be issued for failure to abate a recognized (via NFPA 654) hazard.

The Court finds that Respondent's contention that the Combustible Dust NEP is a substantive standard is without merit. The NEP merely provides inspection guidance regarding combustible dust hazards and uses NFPA 654 to establish industry recognition of the hazard and outlines feasible means of abatement. Accordingly, the Court rejects Respondent's argument that the Citation should be vacated on this basis.

B. OSHA's Failure to Promulgate a Combustible Dust Rule Did Not Deprive Respondent of Fair Notice.

In conjunction with its argument that Complainant improperly promulgated a substantive rule, Respondent also argues that Complainant's failure to promulgate a specific rule regarding combustible dust deprived Respondent of fair notice and establishes that Respondent lacked knowledge of combustible dust hazards at its facility. The Court disagrees.

Complainant's failure to promulgate a combustible dust rule does not relieve Respondent of its obligations, pursuant to section 5(a)(1), to provide a safe workplace. The following passage is instructive:

> [I]f . . . an employer knows a particular safety standard is inadequate to protect his workers against the specific hazard it is intended to address, or that the conditions in his place of employment are such that the safety standard will not adequately deal with the hazards to which his employees are exposed, he has a duty under section 5(a)(1) to take whatever measures may be required by the Act, over and above those mandated by the safety standard, to safeguard his workers.

Int'l Union, United Auto., Aerospace and Agr. Implement Workers of America v. Gen. Dynamics Land Systs. Div., 815 F.2d 1570 (D.C. Cir. 1987); *see also Titanium Metals Corp.*, 579 F.2d at 543 ("The fact that no precise standard exists as to what level of accumulation is dangerous in the § 5(a)(1) sense, far from relieving petitioner of the burden of minimizing accumulations, arguably imposes an even greater duty on petitioner, faced with the obligation of taking feasible measures to assure the safety of its employees, to err, if at all, on the side of greater, not lesser, caution."). Even in those circumstances where a specific standard partially applies to a condition or activity, an employer is obligated to protect against recognized hazards not specifically addressed by a particular standard. Nor, for that matter, does the lack of a specific standard imply lack of knowledge or recognition of a hazard. As will be shown later, and as discussed

above, the existence of an industry standard can supplant lack of direct knowledge or recognition of a hazard.

In the absence of a specific standard, Complainant is certainly free to cite an employer pursuant to the general duty clause; however, it must be recognized that doing so imposes a greater burden on Complainant to establish a violation. Complainant's burden of proof is more difficult, in that it must identify a discrete hazard that is likely to cause death or serious physical injury, prove that it exists at Respondent's workplace, establish that Respondent or its industry recognized that hazard, and show a feasible means of abating that hazard. 29 U.S.C. § 654(a)(1).

C. The Alleged Violation

Complainant alleged a serious violation of the Act in Citation 1, Item 1 as follows:

> Section 5(a)(1) of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to dust deflagration, explosion, or other fire hazards as the result of working at or near dust collection systems, which were handling combustible rubber compounding additive dust, not designed to prevent or minimize damage in the event of a deflagration or other uncontrolled fire event.

(Ex. C-1 at 6). The Citation alleged that each of the air-material separators (dust collectors) presented one or more of the following hazards: dust deflagration, explosion, or fire. (*Id.*). Specifically, Complainant identified all of the dust collectors referenced above as presenting a dust deflagration or explosion hazard. (*Id.*). However, only the Penthouse, Pre-weigh, and Rotoclone dust collectors were identified as presenting a fire hazard. (*Id.*).

1. Fire Hazard

a. Nature of the hazard

The hazard "must be defined in a way that apprises the employer of its obligations, and identifies conditions or practices over which the employer can reasonably be expected to

exercise control." *Arcadian Corp.*, 20 BNA OSHC 2001 at *7 (No. 93-0628, 2004). It is not defined in terms of the absence of a particular abatement method; rather, it is defined "in terms of the physical agents that could injure employees . . . ." *Chevron Oil Co.*, 11 BNA OSHC 1329, 1331, n.6 (No. 10799, 1983). In that regard, it should be noted that the Commission may define the hazard on its own. *See, e.g.*, *Davey Tree Expert Co.*, 11 BNA OSHC 1898, 1899 (No. 77-2350, 1984).

Both parties, as well as their experts, agree that in order for a fire hazard to exist, there must be three elements present: (1) fuel, (2) an oxidant (typically oxygen), and (3) an ignition source. (Tr. 342, 561; Ex. C-21 at 9, R-20). In his report, Respondent's expert, Steven Luzik, concluded that, "In the case of the other collectors [not #9], there will always be fuel present . . . ." (Tr. 631–32; Ex. C-21 at 15). Further, Mr. Luzik's report also states that Respondent's dust collectors use plant air to transport dust to the collectors. (*Id.*). Air, the report continues, contains 21% oxygen, "which is more than adequate to create an oxidizing atmosphere when mixed with a combustible dust cloud." (*Id.*). Thus, the parties agree that two of the elements required for a fire hazard are present in the Penthouse, Pre-Weigh, and Rotoclone dust collectors. The only remaining element is an ignition source.

Although Mr. Luzik found that potential ignition sources existed upstream of the dust collectors servicing the Banbury mixers, he found that "[t]here are no known sources of friction, electrical energy, or heat associated with mixing or dispensing operations present" upstream from the Penthouse, Pre-Weigh, and Rotoclone dust collectors. (Ex. C-21 at 10, 15). Thus, he concluded that "[a] credible ignition source does not exist upstream of these units and therefore the likelihood of a fire event is considered to be extremely small." (*Id.*).[13] Notwithstanding that

13. For the reasons stated the Court gives the testimony and conclusions of Mr. Luzik as to sources of ignition little

finding, Mr. Luzik still recommended that Respondent implement a "hot work" rule, which would require all dust collectors to be shielded or shut down if hot work was performed within a 35-foot radius.[14] (Tr. 637–38; Ex. C-21 at 3). Mr. Luzik made this recommendation to remove the potential for an ignition source, such as a hot spark or glowing ember, to be drawn into a dust collector that was pulling in air. (Tr. 637). According to Mr. Luzik, no such rule was in place, and Respondent did not present any evidence to suggest otherwise. (Tr. 638).

Complainant's expert, Dr. Robert Zalosh, also identified potential ignition sources for the Penthouse, Pre-Weigh, and Rotoclone dust collectors specifically. With respect to the Pre-Weigh, Dr. Zalosh noted the presence of sulfur near the collector. (Tr. 219; Ex. C-2u). According to Dr. Zalosh, sulfur is an easily ignitable material, which is confirmed by the MSDS. (Tr. 219; Ex. C-6). Dr. Zalosh opined that the transportation of or the opening of bags of sulfur could result in an electrostatic discharge that could potentially ignite the sulfur being fed into the Pre-Weigh system. (Tr. 220, 322, 335). Mr. Luzik disagreed with this assessment, stating that studies have been performed that illustrate an electrostatic discharge of the type described by Dr. Zalosh would not cause sulfur to ignite. (Tr. 602–603; Ex. R-15 at 11). Dr. Zalosh further testified that tramp metal could find its way into the system and cause friction or impact sparks that could ignite the sulfur or other flammable compounds. (Tr. 217, 220). According to Dr. Zalosh, the tramp metal could enter the system through periodic maintenance, which requires that the system be opened up, or through small pieces of metal found in the bags of dry chemicals that are added at the Pre-Weigh hoppers. (Tr. 214–15, 450).

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weight.

14. "Hot work" would include such activities as cutting and welding using Oxyacetylene torches, grinding operations, and other work that would produce sparks, fire, or energy. (Tr. 637).

With respect to the Penthouse dust collector, Dr. Zalosh noted that it services multiple unloading areas where chemicals are added to the hoppers. (Tr. 218). Due to the multiple inlets to the Penthouse collector, there is an increased possibility that a mishap in one of the unloading areas could introduce foreign material into the collector and cause a fire. (Tr. 218). It should be noted, however, that John Mr. Radle, the plant engineer, testified that the Penthouse hoppers are equipped with magnetic grating in order to prevent tramp metal from entering the ductwork. (Tr. 450). Similarly, Dr. Zalosh testified that foreign materials, similar to those described above, could enter into the Rotoclone collector. (Tr. 221–22).

Respondent contends that the ignition sources identified by Dr. Zalosh were largely speculative and that none of the above-mentioned events ever occurred at Respondent's facility. Although Dr. Zalosh did not specifically identify a piece of tramp metal entering into the system through maintenance or through the unloading of chemicals into the hoppers, he did identify a number of instances in other industries where this has occurred and resulted in a fire. (Tr. 220–22, 243, 711). Further, Mr. Radle testified that the magnetic grating has "caught some stuff", which implies that foreign materials can and do enter into the dust collecting system. (Tr. 450). Respondent's own expert recommended restrictions on hot work because of the potential for burning embers and hot sparks to enter the ductwork for the dust collectors. Finally, Respondent's own insurance company conducted a risk analysis and recommended the installation of sprinklers on the Pre-Weigh and Penthouse collectors. (Tr. 441).

Contrary to the arguments of Respondent, the Court finds that a credible ignition source was present at Respondent's facility at the time of the inspection. The lack of hot work restrictions coupled with the fact that foreign materials can and do enter the ductwork leads to the conclusion that a fire hazard existed. This conclusion is not premised on a "freakish or

utterly implausible set of circumstances"; rather, it is based on a significant possibility that was recognized, albeit in different way, by both parties' experts, *National Realty & Constr. Co.*, 489 F.2d 1257, 1265 n.33 (D.C. Cir. 1973), and in other industries where a fire and/or explosion hazard has been recognized.[15] Furthermore, Respondent's argument that a fire like the type described above has never happened before is rejected: "The goal of the Act is to prevent the first accident, not to serve as a source of consolation for the first victim or his survivors." *Mineral Industries & Heavy Constr. Group v. OSHRC*, 639 F.2d 1289, 1294 (5th Cir. 1981). Accordingly, the Court finds that a fire hazard existed in the Penthouse, Pre-Weigh, and Rotoclone dust collectors.

b. Recognition of the hazard

"A hazard may be recognized by either the individual employer itself or its industry." *Wiley Organics, Inc.*, 17 BNA OSHC 1587, 1591 (No. 91-3275, 1996). "An activity or practice may be a 'recognized hazard' even if the employer is ignorant of the existence of the activity or practice or its potential for harm." *Titanium Metals Corp.*, 579 F.2d at 541 (citing *National Realty*, 489 F.2d at 1265 n.32). In that regard, courts and the Commission have looked to industry standards to determine whether a particular industry recognizes the hazard cited. *See Bethlehem Steel Corp. v. OSHRC & Marshall*, 607 F.2d 871 (3d Cir. 1979) (safety officer admitted that advisory ANSI standard represented industry consensus); *Betten Processing Corp.*, 2 BNA OSHC 1724 (No. 2648, 1975) (holding judge erred in failing to consider ANSI standard as evidence of industry recognition). "Where a practice is plainly recognized as hazardous in

15. "Where a practice is plainly recognized as hazardous in one industry, the Commission may infer recognition in the industry in question." *Arcadian Corp*., 20 BNA OSHC 2001 at *11 (citing *Kelly Springfield Tire Co. v. Donovan*, 729 F.2d 317 (5th Cir. 1984)). Kelly Springfield involved the recognition of a fire and explosion hazard in the rubber industry, and Respondent's activities fall squarely in that industry. *See also Titanium Metals Corp. of America*, 579 F.2d 536 (9th Cir. 1978) (affirming Commission's decision upholding violation of general duty clause involving combustible titanium dust); *Beaird-Poulan*, 7 BNA OSHC 1225 (No. 12600, 1979) (upholding violation of general duty clause involving combustible magnesium dust).

one industry, the Commission may infer recognition in the industry in question." *Arcadian Corp.*, 20 BNA OSHC 2001 at *11 (citing *Kelly Springfield Tire Co. v. Donovan*, 729 F.2d 317 (5th Cir. 1984)).

Respondent contends that it did not recognize a fire hazard at its facility. First, Respondent argues that, because there had been no fires or explosions at its facility, it lacked actual awareness of a fire hazard. Second, Respondent claims that the rubber mixing industry in general does not recognize a fire or explosion hazard. As to this second argument, the Court disagrees. The rubber industry, of which rubber mixing is a component, has recognized such hazards since *Kelly Springfield*, *supra*, was decided in 1984.

Respondent operates hoppers and mixers that utilize dry chemicals to make rubber. Connected to these machines are dust collectors that filter the air to capture fugitive dust and return clean air to the facility. According to the MSDS sheets, a number of the chemicals that are used in this process indicate that they are flammable, and in some cases, explosive if certain conditions are present. (Exs. C-6, C-8, C-9, C-11, C-12). Further, the Buhler safety manual, which addresses a number of the dust collectors at Respondent's facility, provides multiple warnings regarding the potential for dust explosions (depending on the material) and precautions that should be taken to prevent them.[16] (Ex. C-15). Regardless of how Respondent characterizes the industry in which it operates, it is clear that it is engaged in the manufacturing, processing, and handling of combustible dust. (Ex. C-14, R-1).

Both Mr. Luzik and Dr. Zalosh testified that NFPA 654 governs the manufacturing, processing, and handling of combustible dust. (Tr. 192, 647). Further, they both testified that

16. Although the Penthouse, Pre-Weigh, and Rotoclone dust collectors are not made by Buhler, the fact that other dust collectors at Respondent's facility warn of a fire or explosion hazard provides some measure of notice to Respondent that such a hazard exists at their facility.

Respondent's activities are governed by that standard. Dr. Zalosh, as one of the authors of NFPA 654, testified that he believed NFPA 654 applies to the work activities of Respondent. (Tr. 193). Mr. Luzik's report states "NFPA 654 is the principal consensus standard governing the types of dusts that are generated as part of the rubber manufacturing process." (Ex. C-21 at 9). The fact that two experts, testifying for different parties, agree regarding the applicability of NFPA 654 to Respondent, is sufficient evidence in and of itself to establish that Respondent's industry recognizes a hazard. *See Kelly Springfield*, 729 F.2d at 322 (holding that expert testimony established recognition of hazard); *National Realty*, 489 F.2d at 1265 n.32 (holding that recognition standard centers on "the common knowledge of safety experts who are familiar with the circumstances of the industry or activity in question."). Because NFPA 654 was adopted in 2006, Respondent should have been aware of the hazard, as it had been in place for 5 years prior to the inspection at issue. It is of no consequence that NFPA 654 has a grandfathering provision, which limits its applicability to those facilities constructed after the institution of the standard.[17] *See Cargill, Inc.*, 10 BNA OSHC 1398 (No. , 1982) ("The fact that this particular voluntary standard applies to facilities erected in 1973 or later and undergoing major replacement or renovation has no bearing on its relevance to industry awareness of certain hazards associated with grain dust and grain handling equipment.").

In addition to NFPA 654, there were other sources that indicated Respondent's industry recognized the fire and explosion hazard presented by combustible dust and the use of dust collectors. The NEP, which was implemented in 2008, provided notice to workplaces that handle combustible dust. (Ex. R-1). Although it does not specifically mention the rubber-

17. The Court concludes that the grandfather provision of NFPA 654 was never intended to apply its hazard recognition and assessment provisions to those facilities constructed after its enactment. To do so would result in a bifurcated set of standards for hazard determination and recognition based upon when the facility was constructed. Such an interpretation would undermine the purpose of the Act, which requires an employer to maintain its workplace free of recognized hazards regardless of when the facility was constructed.

mixing industry, the Abstract provides a non-exhaustive list of combustible dusts to which it applies. (*Id.*). Principal among those were "coal and other carbon dusts". (*Id.*). One of the primary ingredients in Respondent's rubber recipes is Carbon Black. (Tr. 414; Ex. C-7, C-8). In addition, *Kelly Springfield*, although dealing with the manufacture of rubber tires, provided notice to the rubber industry about the potential for fire and explosion hazards.[18] 729 F.2d 317.

Finally, the Court finds that Respondent had actual knowledge of the hazard or, at the very least, should have been aware of the hazards that its use of combustible dust presented. Prior to the OSHA inspection, Respondent was inspected by its insurance company, which recommended that sprinklers be installed on its dust collectors. (Tr. 441). Further, as noted above, Respondent used ingredients that, according to their respective MSDS, presented fire and explosion hazards. Respondent was further warned of this hazard in the Buhler safety manual. It is not enough to argue that fires and explosions have not occurred in the past, because history is not a guarantee of future performance. *See Titanium Metals*, 579 F.2d at 542, *citing Allis-Chalmers Corp. v. OSHRC*, 542 F.2d 27, 31 (7th Cir. 1976) ("(A)lthough the fact that petitioner had an accident-free or injury-free record could properly be considered in determining the gravity of the violation for which it was cited, we are not impressed with petitioner's argument that its past record is dispositive in light of the Commission's finding that there existed a general fall hazard, and in light of the Act's declared policy to prevent the occurrence of accidents and injury."). Based on the foregoing, the Court finds that Respondent's industry, as well as Respondent itself, recognized the fire and explosion hazard associated with its use of combustible dusts.

18. Although the process for manufacturing tires is somewhat different than the process for mixing rubber, the Court finds that they are similar enough to establish recognition, especially in light of the other sources indicating industry recognition. Though Respondent takes issue with *Kelly Springfield's* assessment of an explosion hazard (which will be dealt with in section VI.C.2.a), the case nonetheless provides proof that the ingredients associated with the making of rubber present fire and explosion hazards.

c. Likely to cause death or serious physical harm

"When evaluating whether the hazard presented the likelihood of serious physical harm, we do not inquire into whether the absence of the abatement method was what presented the likelihood; we remain focused on the hazard alone, and a hazard is likely to cause serious physical harm if the likely consequences of employee exposure would be serious physical harm." *Morrison-Knudsen Co./Yonkers Contracting Co.*, 16 BNA OSHC 1105, 1122 (No. 88-572, 1993).

With respect to the Penthouse, Pre-Weigh, and Rotoclone dust collectors, CSHO Perna identified individuals that worked on the fourth floor, where these machines were located. (Tr. 91–94). According to CSHO Perna, if a fire (or explosion) were to break out, employees could suffer from serious second- or third-degree burns. (Tr. 91). In some instances, CSHO Perna noted, second- and third-degree burns can result in death. "No one questions whether an explosion, fire, or 20-foot fall can injure employees, i.e., whether these events, if they occur, pose a significant risk of causing death or serious physical harm. The question in those cases usually involves whether the hazard exists . . . ." *See Waldon Healthcare Center*, 16 BNA OSHC 1052, 1060 n.5 (No. 89-2804, 1993). The Court has already established that a fire hazard exists at the Pre-Weigh, Penthouse, and Rotoclone dust collectors. Given that Respondent's employees, as well as maintenance workers, work on or in close proximity to the listed dust collectors, the Court finds that the fire hazard was likely to cause serious physical harm or death.

d. Feasible means of abatement

"Feasible means of abatement are established if 'conscientious experts, familiar with the industry' would prescribe those means and methods to eliminate or materially reduce the recognized hazard." *Arcadian*, 20 BNA OSHC 2001 at *13 (quoting *Pepperidge Farm, Inc.*, 17

BNA OSHC 1993, 2032 (No. 89-0265, 1997)). "[T]he Secretary need only show that the abatement method would materially reduce the hazard, not that it would eliminate the hazard." *Morrison-Knudsen*, 16 BNA OSHC at 1122.

With respect to the fire hazard, there were numerous examples of feasible abatement methods. First, and perhaps most prominently, is the fact that Respondent's insurance company recommended, and Respondent installed, sprinkler systems for its dust collectors. Second, Mr. Luzik made specific recommendations in his report. Some involve reducing the fuel available to burn: regular checks of machinery, more thorough housekeeping program, and an alarm and blower shutdown system that will detect loss of pulsing air pressure. Some involved reducing the number of potential ignition sources, such as restrictions on hot work. (Ex. C-21 at 3). Third, NFPA 654, which both experts agree applies to Respondent, provides multiple means of abatement, including the sprinklers that Respondent has already installed. (Ex. C-14 at Ch. 10). As evidenced by Respondent's installation of sprinklers, and by its implementation of a more thorough housekeeping plan, there are feasible and effective means of abatement available to Respondent to materially reduce the fire hazard. Accordingly, the Court finds that Complainant has established a violation of section 5(a)(1) with respect to the fire hazard identified on the Penthouse, Pre-Weigh, and Rotoclone dust collectors.

2. Explosion Hazard

Unlike the fire hazard discussed above, an explosion hazard has been alleged with respect to each of the dust collectors at Respondent's facility. (Ex. C-1). Complainant contends that combustible dust was present in sufficient concentration to cause an explosion in Respondent's dust collectors. Respondent, on the other hand, argues that Complainant failed to prove the existence of a hazard in the first place.

a. Nature of the hazard

Both of the parties' experts agree that, in order for an explosion to occur, there must be five elements: (1) an oxidant, (2) confined space, (3) ignition source, (4) fuel, and (5) suspension at or exceeding the minimum explosible concentration (MEC). (Tr. 274, 561–62; Ex. C-14 at § A.3.3.4, R-21). Respondent takes issue with the Commission's description of the required elements to establish an explosion hazard. *See Kelly Springfield Tire Co.*, 1982 WL 917447 (No. 78-4555, 1982). Specifically, Kelly Springfield only requires four elements: (1) confined space, (2) oxygen, (3) fuel, and (4) an ignition source. *Id.* at *4. In light of the experts' agreement, which is consistent with the plain language of NFPA 654, an explosion also requires suspension above MEC. Due to the relative age of *Kelly Springfield*, which was decided prior to the enactment of NFPA 654, the Court finds that the parties should be held to the criteria clearly established in NFPA 654 and agreed upon by the experts in this case in determining the existence of an explosion hazard. *Kelly Springfield* is no longer controlling on this point.

There is no dispute regarding the first two elements. As noted previously, Respondent uses plant air to ventilate its dust collection systems. Air contains approximately 21% oxygen, "which is more than adequate to create an oxidizing atmosphere when mixed with a combustible dust cloud." (Ex. C-21 at 15). With respect to the second element, both parties agree that the dust collectors are confined spaces. (Tr. 259–60, 357–61; Ex. C-21 at 15)

With respect to the third element—an ignition source—the Court incorporates by reference its findings regarding ignition sources in section VI.C.1.a. In addition, the Court also finds an additional ignition source that is specific to the dust collectors servicing the Banbury mixers. Respondent contends that the Banbury mixers do not present a legitimate ignition source because they have automatic shutdown systems, which are designed to shut down the mixers

once they reach a specific temperature (350-degrees Fahrenheit for the small mixers; 400-degrees for the 100 and 200 mixers). (Tr. 430, 433). Respondent points out that the shutdown temperatures are below the minimum ignition temperature for Carbon Black, one of the principal ingredients in many of the rubber mixtures. (Ex. C-7, C-8). Respondent also points out that, according to Mr. Radle, there have been no fires in the mixers due to combustible dust in his 46 years at the facility. (Tr. 431–32).

The Court is persuaded by the report submitted by Respondent's own expert, who performed a risk/hazard analysis at their facility.[19] (Ex. C-21, R-15). Mr. Luzik addressed the shutdown systems in his report; however, he also noted that "[i]n spite of these systems, under an upset or mixer malfunction condition, a fire can occur and provide ignition sources for a downstream fire inside the dust collectors." (C-21 at 10). Accordingly, he concluded that "[p]otential ignition sources exist upstream of the dust collectors servicing the Banbury mixers . . . ." (*Id.* at 15). It is important to note that an upset or mixer malfunction condition is not some speculative possibility—on July 19, 2011, a fire broke out in the throat of the 200 mixer even though it had an automatic shutdown system.[20] (Tr. 95). Thus, the Court finds that Complainant established that a credible ignition source existed at Respondent's facility.

As to the fourth element, the Court also gives great weight to the assessment of Mr. Luzik, who indicated in his report that "[i]n the case of the other collectors, there will always be fuel present . . . ." (Ex. C-21 at 15). His determination was based upon the testing conducted by OSHA's Salt Lake City laboratory, which found that all but one sample were combustible. (Ex. C-3). The one sample that did not indicate combustibility came from the ductwork of dust

19. The Court gives great weight to this report in its determination of an ignition source for the Banbury mixers.
20. Since that time, Mr. Radle testified that he had installed a redundant shutdown system on both of the large Banbury mixers. (Tr. 435).

collector Number 9. This explains why Mr. Luzik refers to the "other collectors". Nevertheless, Complainant still cited Respondent for an explosion hazard on Number 9 because of the possibility the mixer could be switched from a whitewall producing mixer back to a black rubber mixer, which would presumably contain Carbon Black. (Tr. 87). Lewis testified that Number 9 has been a whitewall dedicated mixer for over 15 years and that the process to convert from a whitewall mixer to a black rubber mixer was a labor- and time-intensive process. (Tr. 396–97). The Court finds that Complainant's allegations regarding Number 9 are speculative and without merit. It is not the province of the Court to uphold citations for violations that have not yet occurred. Because there was no fuel found in the sample taken from Number 9, the Court finds that Complainant has failed to prove a violation of the general duty clause as to that dust collector.

The primary point of contention between the two parties is the fifth element—suspension of combustible dust above MEC. To be clear, the parties do not dispute that dust is, at some point, suspended within the dust collectors—the fact that air carries the dust through the ductwork to the dust collectors and is used to remove excess dust from the filters establishes as much. The dispute, rather, centers on the manner in which dust concentrations in the dust collectors were calculated by the parties' respective experts.

Prior to addressing the specific calculations, however, we have to understand the underlying data. First, Complainant conducted tests on 7 different samples. (Ex. C-3). Of those samples, only four came from a dust collector or the ductwork leading to it. (Ex. C-3). Those four dust collectors were the Penthouse, Pre-Weigh, Number 9, and Number 10. The remaining samples came from: (1) the floor and ledge near the location where dry chemicals are dumped into a hopper; (2) the floor area near a different hopper where dry chemicals were dumped; and

(3) the floor where dry chemicals are stored and transported by forklift. (Ex. C-3). As noted previously, all of the samples but Number 9 tested positive for combustibility. (Ex. C-3).

Based upon the samples, Complainant cited each of the dust collectors. Complainant alleges that at the time of the inspection the dust in collectors 6 and 8 were interchangeable with the dust in 10, which was found to be combustible.[21] Further, because the mixers servicing dust collectors 1, 2, 4, and 7 were using Carbon Black, they were presumed to contain combustible fuel without measurements being performed. Respondent pointed out, however, that it can run as many as 50 different recipes, with each recipe containing varying amounts of ingredients. According to Respondent's Plant Manager, Mike Richards, each of those 50 recipes contains approximately 12 ingredients. (Tr. 414). Carbon Black is used in approximately 90% of the recipes and each recipe contains anywhere from 10 to 50% of it and averages approximately 20%. (Tr. 414–15). With respect to some of the other combustible compounds identified by Complainant, Richards testified that ingredients such as sulfur and stearic acid, which are used in the finishing mixers, comprise approximately 0.25–3% of a given recipe. (Tr. 415–17). Although some of the recipes contained similar ingredients, no evidence has been proffered to show that the particular mix found in one dust collector would be the same as another. Absent such evidence, the Court gives little weight to the attempt of the Secretary to meet its burden of proof by arguing that dust collected, but not tested, from one dust collector was interchangeable with dust collected and tested from another dust collector. CSHO Perna did not inquire as to the different recipes nor did she and the Salt Lake City technicians take samples from the various dust collectors that Complainant chose to cite. (Tr. 140).

21. By way of clarification, the Court would point out that there is no dust collector number 5; rather, there is a dust collector number 5/6, which services mixers 5 and 6. As noted previously, mixer number 5 was and has been out of service. Further, the Court would also point out that there was no evidence regarding a mixer number 3 or an associated dust collector. Accordingly, the Court concludes that number 3 either does not exist or was not the subject of the inspection.

The dispute in calculating MEC stems in part from Dr. Zalosh's emphasis on the Temporary Interim Amendment ("TIA") to NFPA 654, which states:

> **6.1.1.5** An explosion hazard shall be deemed to exist in enclosed process equipment where all of the following conditions are possible:
>
> (1) Combustible dust is present in sufficient quantity to cause enclosure rupture if suspended and ignited.
>
> (2) A means of suspending the dust is present.

(Ex. C-20 at 7).

The Court notes that the TIA is roughly the same formulation as the five-part explosion analysis contained in NFPA 654; however, it does seem to drop the oxygen and MEC requirements. Nonetheless, the Court can infer oxygen is required for an explosion to occur based upon the testimony of both experts in this case, who testified that oxygen is a required element. *Okland Construction Co.*, 3 BNA OSHC 2023, 2024, (No. 3395, 1976) (reasonable inferences can be drawn from circumstantial evidence). As to MEC, the TIA states "combustible dust present in sufficient quantity", which is to say, concentrated to the point of potential explosion. Again, the Court infers that the phrase "combustible dust present in sufficient quantity" is the equivalent of MEC. Both experts, in applying the TIA, used the MEC as the basis for its calculations as to whether combustible dust was present in an amount sufficient to cause an explosion. Thus, the Court concludes there is no practical difference in determining an explosion hazard under the TIA or NFPA 654.[22]

Dr. Zalosh, applying the TIA, contends that the proper calculation of the amount of combustible dust takes into consideration both the incoming dust and the cake dust that has

22. Complainant contends that the proper interpretation of the TIA is that the determination of a fire hazard only requires a sufficient amount of combustible dust and a means of suspension. Regardless of the proper formulation, the primary dispute centers on whether there was a sufficient amount of combustible dust *in suspension* to propagate an explosion. The Court finds that either formulation of the criteria still imposes a burden on Complainant to establish MEC.

adhered to the bags. (Tr. 249; Ex. 20 at 8–9). Armed with that metric for determining the amount of available fuel, Dr. Zalosh used various studies to estimate the amount of cake dust based on certain assumptions about the inlet concentration of dust, filter media (bag) characteristics, air pressure drop across the filter as measured by magnahelic gauge, and the interval between air pulses used to remove excess dust from the bags. (Ex. C-20 at 10). Due to Complainant's assertion as to its commonality amongst the various dust collectors, Carbon Black was used as the baseline by both experts. (Ex. C-20 at 11–12, C-21 at 11). Carbon black has a MEC of 50 g/m^3 and a particle density of 2 g/cm^3. (*Id.*). Assuming the dust concentration entering the dust collector is 10 g/m^3, Dr. Zalosh calculated a dust load of 200 to 450 g/m^2. (Ex. C-21). Based on the conservative dust load of 200 g/m^2, Dr. Zalosh determined that the ratio of the calculated dust concentrations for the dust collectors to the MEC for Carbon Black ranged from 11:1 to 45:1. (Ex. C-20 at 11). He admitted that "actual suspended dust concentrations in different areas of the baghouses are likely to be much different than the calculated values" due to non-uniformities. However, he concluded that the TIA criterion for an explosion hazard is satisfied in each of Respondent's dust collectors. (*Id.* at 12).

Mr. Luzik approached the calculation of dust loading in the collectors in a much different manner.[23] Using the same baseline MEC of 50 g/m^3, Mr. Luzik sought to "estimat[e] the concentrations of dust clouds that are possible based on dust collection rate, exhaust blower volumes and amount of dust that becomes suspended when the filter bags (socks) are cleaned." (Ex. C-21). Mr. Luzik directed Respondent to measure dust loading on bags taken from various points within each of the collectors over the course of one week and compared it to a six-month

23. Although Luzik's testing took place after the OSHA inspection, Mr. Lewis testified that the rubber recipes at the time the Luzik samples were gathered were substantially similar to those that were being mixed at the time of the inspection. (Tr. 408–409). Thus, the Court finds that the results reflect the conditions at the time of the inspection.

period of time. (Tr. 582; Ex. R-15 at 5). Within one week, 80–90% of cake was established and, at its thickest, measured approximately 0.4 mm.[24] The relative stability of the dust cake led him to make the assumption that all of the dust collected on the bag would be removed when the bag was pulsed. (Ex. C-21 at 12). Thus, the volume of dust used by Mr. Luzik to determine its concentration was based on how much dust entered and exited the collector over a specified period of time, taking into consideration the volume per unit of time (in cubic-feet per minute) at which the blower is moving dust towards the collectors. (Tr. 679–80; Ex. C-21 at 12, R-15). He then applied that information to different dust loading scenarios, including if the blower shut down. (Ex. C-21 at Table 3). According to his calculations, only one of the dust collectors showed concentrations above MEC: Number 7. (*Id.*).

Luzik's calculations, however, revealed some other interesting data about dust collectors 1, 2, and 4. According to Luzik and Zalosh, NFPA 69, which is referenced in NFPA 654 and was discussed by Mr. Radle, incorporates a safety factor of four when determining fuel loading relative to MEC. (Tr. 316–17, 564; Ex. C-21, R-15). In other words, NFPA 69 requires a maximum fuel loading of 25% of MEC if control of fuel is used as a method to prevent an explosion hazard. (Ex. R-25 at § 8.3.1). In certain scenarios, Luzik's results showed that collectors 1, 2, and 4 all had concentrations in excess of 25% of MEC. (Ex. C-21 at Table 4). Notwithstanding those conclusions, Luzik determined that 1, 2, and 4 did not present an explosion hazard. As noted by Zalosh, this conclusion is at odds with Luzik's use of the safety factor, which is referenced multiple times in his report. (Ex. C-21 at 13, 15, and 16).

24. This also corresponds with the range calculated by Dr. Zalosh, whose calculations determined a filter cake height range of 0.1 to 0.5 mm. (Ex. C-20 at 11). Mr. Luzik's measurements were called into doubt in light of Mr. Radle's testimony that the bags were pulsed approximately 30 times before being removed, thus removing dust that might otherwise stick. (Tr. 464). Given the correspondence with Dr. Zalosh's estimated height values, and the relative stability of the cake thickness over time relative to the number of pulses, the Court finds that Mr. Radle's "over-pulsing" had little to no effect on the measurements.

Dr. Zalosh criticized Mr. Luzik for his assumption that "all of the dust collected on the bags/socks is removed when the bags/socks are pulsed with compressed air." (Ex. C-20 at 8). Mr. Luzik testified, however, that the assumption was based on the fact that the bags accumulate dust to a point of equilibrium, whereby the dust has caked to the bag and the amount remains relatively static. (Tr. 574–75; Ex. R-15 at 4). This type of dust, however, does not have the potential to become suspended due to its consistency, falling off in chunks rather than dust. (Tr. 576). Dr. Zalosh agreed as much with respect to how much dust would, in reality, become suspended; however, he held steadfast to the methodology provided in the TIA. (Tr. 358–60). "The dust load just before air pulsing is the load that should be used to determine whether there is sufficient combustible dust in the collector to cause an explosion induced rupture *per the NFPA 654-2006* criterion." (Ex. C-20 at 10) (emphasis added). Mr. Luzik pointed out, however, that NFPA 654 defines combustible dust as that which can become suspended. (Ex. C-14 at § 3.3.4). If the dust cake cannot become suspended, then it does not make sense to include it as part of the calculation, especially if that reason hinges on adherence to a set of criteria that does not comport with what actually happens. Based on Mr. Luzik's test results, and Dr. Zalosh's admission that cake dust would not become suspended, the Court finds that Mr. Luzik's calculations represent the most accurate picture of the hazard present at Respondent's facility and therefore gives its great weight and uniformly applies its application to Dust Collectors 1, 2 and 4.

Dr. Zalosh also opined that a partial-volume deflagration also posed a hazard within the dust collectors. A partial-volume deflagration occurs when a small area within the dust collector reaches the minimum explosive concentration and is ignited. (Tr. 208–11, 347). This, in turn, could cause a secondary explosion sufficient to rupture the dust collector. Mr. Luzik testified

that it is possible that a small, concentrated cloud could ignite, but if the volume of the cloud is less than 10-15% of the total volume, it will not cause a rupture of the dust collector, which is the ultimate result of an explosion hazard. (Tr. 592). The Court agrees with the conclusions of Respondent's expert on this point and gives it great weight. This dispute is predicated on the debate over the proper calculation of available dust relative to MEC. Zalosh's concerns are premised on the loading of the dust on the bags nearest the inlet, which tend to accumulate dust more quickly. In his report, he opined that a flaming dust particle, entering the dust collector just prior to the pulsing of the bags near the inlet, had the potential to cause an explosion. (Ex. C-20 at 12). This, of course, assumes that the total amount of dust on the bags has the potential to become suspended, which both experts testified does not actually happen. Based on the calculations from Luzik, only three dust collectors had partial-volume, or puff cloud, concentrations about 25%—1, 2, and 7. (Tr. 570–71; Ex. C-21 at Table 3).

One of the primary reasons the Court is persuaded by Mr. Luzik is that Dr. Zalosh's conclusions are premised on insufficient data and published studies, which were admittedly based on different chemicals. (Tr. 719). Mr. Luzik, on the other hand, gathered real-world data from Respondent's dust collectors in order to determine the actual conditions within the dust collectors. (Ex. R-15 at 5). In terms of their respective CVs, it is clear that both are eminently qualified; however, the Court was impressed by the fact that Mr. Luzik had extensive experience working with explosion hazards for both MSHA and OSHA and even participated in setting up the Salt Lake City laboratory. (Tr. 524). All things ultimately being equal in terms of experience, however, the Court is more convinced by the conclusions of Mr. Luzik, which were buttressed by the analysis of conditions that existed at Respondent's facility. Therefore, the Court gives his opinion great weight.

As noted earlier, Mr. Luzik's hazard analysis revealed that Dust Collector Number 7, which produces butyl rubber compounds, constituted an explosion hazard. He recommended the implementation of explosion protection measures to be installed and maintained in accordance with either NFPA 68 or 69, both of which are referenced in NFPA 654 and the NEP. (Ex. C-14, Ex R-1). Dr. Zalosh also concluded that Number 7 constituted an explosion hazard. (Ex. C-20). According to either calculation, Number 7 had concentrations of dust that were significantly above the baseline MEC of 50 g/m^3. (Ex. C-20 at Table 4, Ex. C-21 at Table 3). Number 7, as discussed earlier, was a smaller Banbury that served as a master-batch mixer instead of a finishing mixer. Thus, it included all of the first run chemicals, such as Carbon Black, as well as finishing run chemicals. Based on the conclusions of the experts, the Court finds that Number 7 constitutes an explosion hazard.

In addition, the Court also concludes that dust collectors 1, 2, and 4 also present an explosion hazard. In his report, Luzik repeatedly referred to the safety factor of 25% of MEC and compared his calculations with it. He also testified that he "used the 25 percent of MEC for a couple of my calculations to determine if the hazard existed." (Tr. 564; Ex. C-21). None of the dust collectors, other than 7, had expected concentrations greater than the MEC of 50 g/m^3; however, 1, 2, and 4 all had concentrations greater than 25% of MEC in one or more scenarios. (Ex. C-21 at Table 3). In light of Luzik's use of the NFPA 69 safety factor, Zalosh expressed confusion regarding Luzik's conclusions as to 1, 2, and 4. (Tr. 263). The Court is equally confused.

According to Zalosh, the safety factor provided in NFPA 69 was not originally intended to apply to combustible dust as evidenced by the use of the term "lower flammable limit" or LFL. (Tr. 316–17). LFL, he continues, is used for gasses and vapors. (Tr. 317). He goes on to

say, however, that the current edition goes on to describe how that paragraph could be used in dust collectors. (Tr. 316). In support of the use of the 25% safety factor found in NFPA 69, Luzik testified that "in the field, the terms LFL, MEC and even a term LEL, lower explosible limit, these terms are used, like, synonymously." (Tr. 564). In light of Zalosh's admission that NFPA 69 now describes how to apply the safety factor to dust collectors, and in consideration of Luzik's own admission that the industry uses terms such as LFL and MEC interchangeably, the Court finds that the safety factor should be consistently applied in the present case. Regardless of the terminology, the focus of this analysis is *fuel*. Whether LFL with respect to gasses and vapors, or MEC with respect to combustible dusts, the focus of this analysis is the concentration of fuel and whether it is present in sufficient amounts to constitute a hazard. In applying the safety factor to the calculations performed by Luzik, the Court finds that dust collectors 1, 2, and 4 also present an explosion hazard.[25]

The Court also finds that, with respect to dust collectors 1, 2, 4, and 7, Complainant has established a violation of the general duty clause. For the sake of brevity, the Court incorporates by reference its findings in sections VI.C.1.b, c, and d, which address industry recognition of the hazard, knowledge, and feasible means of abatement. The same standard, NFPA 654, applies with equal force to both fire and explosion hazards and, thus satisfies the elements of industry recognition and feasible means of abatement. Similarly, with respect to industry recognition, the safety factor referenced in NFPA 69 also applies, because both experts testified as being applicable to dust collectors. The Court also finds that an explosion at the dust collector would

25. With respect to credibility, the Court gave credit to Luzik's conclusions because he analyzed the physical conditions at Respondent's facility. Accordingly, the Court accepted his conclusions regarding dust loading and available fuel based on their connection to actual conditions. By concluding that 1, 2, and 4 present an explosion hazard, the Court is merely taking Luzik's findings to their logical (and consistent) outcome based upon his stated metric—NFPA 69—for determining dust calculations relative to MEC. This is no different, of course, than holding Complainant to the burden of establishing the agreed-upon elements—as defined by the NFPA and Complainant's own NEP—required to prove that an explosion hazard exists.

be likely to cause serious physical injury. *See Waldon Healthcare Center*, 16 BNA OSHC 1052, *supra*. CSHO Perna, testified that an explosion could cause serious struck-by and burn injuries. (Tr. 89).

With respect to the Rotoclone, which is not a media collector, Dr. Zalosh conceded that it "is a special case that is not amenable to the calculation methods in the Chilworth report or this report." (*Id.* at 14). He concluded that it "does not represent a dust explosion hazard in the cyclone during normal operation." (*Id.*) However, he noted that the Rotoclone's dust retention compartments and upset conditions should be considered when making a determination as to whether an explosion hazard exists. (*Id.*). Notwithstanding Dr. Zalosh's conclusion, Complainant still maintains that an explosion hazard exists. In his brief, Complainant argues, "As Dr. Zalosh testified, unless an employer can demonstrate, via the TIA, that no hazard exists, he would presume a hazard." (Compl't Br. At 24). The Court cannot make such a presumption. Respondent is under no obligation to prove to the Court that no hazard exists; that is Complainant's burden under section 5(a)(1). The Court also agrees with the conclusions of Mr. Luzik, who found that the dust loading within the Rotoclone was at 0.01% of MEC. (Ex. C-21 at Table 3).

VII. Conclusion

With respect to the dust collectors that did not represent an explosion hazard, the primary problem for Complainant is one of proof. The general duty clause requires proof of the existence of a hazard. According to the agreed-upon criteria for a dust explosion, Complainant failed to prove a critical element to establish the hazard—the MEC. (Tr. 274). Complainant could have inquired as to the different rubber recipes and taken more representative samples. In this case, it was not enough to show that combustible dust existed in the dust collectors or that some of the

elements for a dust explosion are present. In the absence of a specific standard, which often presumes a hazard if certain conditions are met, Complainant is forced to cite based on the general duty clause. *See Bunge Corp.*, 638 F.2d 831 (5th Cir. 1981). The general duty clause, though, places a higher burden on Complainant because he must prove elements that are otherwise assumed when an employer is cited pursuant to a specific standard under section 5(a)(2). In this case, Complainant failed to meet that burden.

Compounding Complainant's evidentiary problems is the lack of clarity over the proper method of establishing a hazard. At one point, Zalosh testifies that NFPA 654 requires a calculation of MEC to determine whether an explosion hazard exists. (Tr. 274). In his brief, however, Complainant dismisses the requirements of the NFPA's criteria for determining a dust explosion hazard, stating, "It is important to remember that OSHA is not arguing that the NFPA must be followed by either party in order to find a hazard." (Compl't Br. at 17 n.2). This is disingenuous at best. First, according to the NEP, upon which Complainant relies, MEC is specifically mentioned as a requirement for an explosion. (Ex. R-1 at 11). Second, Complainant, through its expert, criticized Luzik for failing to use the metric found in the TIA. This is, of course, odd because Complainant both argues that he is not bound by the requirements of the NFPA and, in the same breath, criticizes Respondent's expert for not properly applying it. When the Secretary cannot affirmatively decide whether a particular standard or criteria applies to determine the existence of a hazard, it renders his burden of proof all the more difficult.

Based on the foregoing, the Court finds that Complainant established a violation of the general duty clause in the following respects: (1) The Rotoclone, Pre-Weigh, and Penthouse dust collectors all represent a fire hazard; and (2) Dust Collector Numbers 1, 2, 4, and 7 represent an explosion hazard.

Penalty

In determining the appropriate penalty for affirmed violations, section 17(j) of the Act requires the Commission to give due consideration to four criteria: (1) the size of the employer's business, (2) the gravity of the violation, (3) the good faith of the employer, and (4) the employer's prior history of violations. 29 U.S.C. § 666(j). Gravity is the primary consideration and is determined by the number of employees exposed, the duration of the exposure, the precautions taken against injury, and the likelihood of an actual injury. *J.A. Jones Constr. Co.*, 15 BNA OSHC 2201, 2214 (No. 87-2059, 1993). It is well established that the Commission and its judges conduct *de novo* penalty determinations and have full discretion to assess penalties based on the facts of each case and the applicable statutory criteria. *E.g.*, *Allied Structural Steel Co.*, 2 BNA OSHC 1457, 1458 (No. 1681, 1975); *Valdak Corp*., 17 BNA OSHC 1135, 1138 (No. 93-0239, 1995), *aff'd,* 73 F.3d 1466 (8th Cir. 1995).

For the most part, the Court agrees with the gravity assessment of Complainant. First, Respondent is a medium-sized company with approximately 200 employees. (Tr. 120). Second, the Court finds that the violation is of high gravity. Although Complainant could not definitively prove that each of the dust collectors constituted a fire or explosion hazard, that does not diminish the potential for serious injury or even death. The Court found that fire hazards existed in three dust collectors and explosion hazards in four. A fire can have serious consequences, but an explosion can be catastrophic in terms of potential injuries. The expected concentration of combustible dust in dust collector Number 7 alone dramatically increases the probability of an accident occurring. Finally, though lack of prior fires or explosions is not a defense, the Court finds that the plant's history of 46 years without a fire or explosion entitles Respondent to a

modest reduction. Accordingly, the Court finds that a gravity-based penalty of $6,000.00 is appropriate.

ORDER

The foregoing Decision constitutes the Findings of Fact and Conclusions of Law in accordance with Rule 52(a) of the Federal Rules of Civil Procedure. Based upon the foregoing Findings of Fact and Conclusions of Law, it is ORDERED that:

1. Citation 1, Item 1 AFFIRMED in part and VACATED in part as a violation of Section 5(a)(1) of the Act and a penalty of $6,000.00 is ASSESSED. The Citation is affirmed and/or vacated in the following respects:
    a. With respect to subpart (a), the Court AFFIRMS that an explosion hazard exists with respect to Dust Collector Number 4 and 7. The Court VACATES as to Dust Collector Numbers 5/6, 8, 9, and 10.
    b. With respect to subpart (b), the Court AFFIRMS that a fire hazard exists with respect to the Penthouse Dust Collector. The Court VACATES as to the explosion hazard.
    c. With respect to subpart (c), the Court AFFIRMS that a fire hazard exists with respect to the Pre-Weigh Dust Collector. The Court VACATES as to the explosion hazard.
    d. With respect to subpart (d), the Court AFFIRMS that a fire hazard exists with respect to the Rotoclone Dust Collector. The Court VACATES as to the explosion hazard.
    e. With respect to subpart (e), the Court AFFIRMS that an explosion hazard exists with respect to Dust Collectors 1 and 2.

SO ORDERED

/s/ Patrick B. Augustine

Date: March 13, 2014
Denver, Colorado

Patrick B. Augustine
Judge, OSHRC