

***This case is not a final order of the Review Commission
as it is pending Commission Review***

**UNITED STATES OF AMERICA
OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION**

SECRETARY OF LABOR,

Complainant,

v.

MISSOURI BASIN WELL SERVICE, INC.
and its successors,

Respondent.

DOCKET NO. 13-1817

Appearances:

Ronald Gottlieb, Esq., Office of the Solicitor, U.S. Dept. of Labor, Denver, CO/Washington, DC
For Complainant

David E. Jones, Esq., Ogletree, Deakins, Nash, Smoak & Stuart, P.C., Atlanta, GA
For Respondent

Before: Administrative Law Judge Brian A. Duncan

DECISION AND ORDER

Procedural History

This matter is before the United States Occupational Safety and Health Review Commission (“Commission”) pursuant to Section 10(c) of the Occupational Safety and Health Act of 1970, 29 U.S.C. § 651 *et seq.* (“the Act”). On April 2, 2013, the Occupational Safety and Health Administration (“OSHA”) investigated a flash fire that occurred the previous day at Well Site Ravin 26-35-3H in Watford City, North Dakota (“worksite”). (Tr. 48–50; Ex. C-1). As a result of that inspection, OSHA issued a *Citation and Notification of Penalty* (“Citation”) to Respondent. The Citation alleges a single, serious violation of Section 5(a)(1) of the Act (also

known as the “General Duty Clause”), with a proposed penalty of \$7,000.00. Respondent timely contested the Citation. A trial was conducted in Bismarck, North Dakota on September 9–10, 2014. The parties each submitted post-trial briefs for consideration.

Six witnesses testified at trial: (1) John Young, OSHA Compliance Safety and Health Officer (“CSHO”); (2) Mike Fifer, Respondent’s worksite foreman, also known as a “tool pusher”; (3) Tim Brown, Respondent’s Vice President of Health, Safety, and Environment; (4) Ron Britton, a Petroleum Engineer and Registered Professional Engineer called by Respondent as an expert witness; (5) Brian Bosch, Respondent’s Health, Safety, and Environment Manager for the Workover Rig Division; and (6) Mitchell McGowan, a former employee of Respondent.

Jurisdiction

The parties stipulated that the Commission has jurisdiction over this proceeding pursuant to Section 10(c) of the Act. (Tr. 35). The parties also stipulated that, at all times relevant to this proceeding, Respondent was an employer engaged in a business and industry affecting interstate commerce within the meaning of Sections 3(3) and 3(5) of the Act, 29 U.S.C. § 652(5). (Tr. 35). *Slingluff v. OSHRC*, 425 F.3d 861 (10th Cir. 2005).

Background

Respondent is an oil and gas well-servicing company based in Belfield, North Dakota. (Tr. 458). As is relevant to this case, Respondent operates pulling units, also known as workover units or rigs. (Tr. 379, 398). These rigs are mounted onto 18-wheel trucks, which travel to a customer’s well site. (Tr. 379). Typically, the customer, also known as the “operator”, owns the well and is represented on site by a “company man”. (Tr. 399–400). The company man provides direction to the well-servicing company regarding the job it has been hired to perform. (Tr. 299, 401). In this instance, Respondent was hired by Abraxas Petroleum Corp. to perform well

servicing operations at the Ravin Well. (Tr. 248). On April 1, 2013, Respondent's crew was performing a well circulation, which uses water to clean out impediments inside upper well piping, such as leftover drilling mud and sand. (Tr. 276, 318, 420, 423, 513).

Prior to discussing the specific incident and conditions at issue, it is important to discuss some general oil/gas drilling principles applicable to this case. According to Ron Britton, Respondent's expert, oil wells generally go through four stages: (1) Exploration, negotiation, and preparation of the site for drilling; (2) Drilling, wherein a drilling rig and derrick are moved onto the well site, a hole is drilled from the surface of the earth, and pipe is run into the hole in various lengths and directions; (3) Well servicing, wherein workover units are brought on site to handle smaller pipes, fracking (if implemented), well completion, and other service-type work; and (4) Production, wherein oil and gas are extracted from the earth, separated, and stored. (Tr. 378–380).

The Ravin well is known as a directional well. (Tr. 404). It was first developed by drilling straight down roughly 10,000 feet (nearly 2 miles). (*Id.*). Using a series of attachments, the drill was slowly turned until the hole ran horizontal (parallel with the earth's surface) at a distance of approximately 11,270 feet below the ground. (Tr. 405). The well then continues laterally (parallel to the surface) for approximately 10,000 additional feet, for a total well bore length of 21,350 feet. (Tr. 405; Exs. R-3, R-4). The end product was an L-shaped hole running from the surface of the well site for approximately 4 miles underground. (Tr. 405).

The well contains a series of progressively smaller pipes, including a seven-inch string that stretches from the surface down to the turn at 11,270 feet. (Tr. 408; Ex. R-3). Cement was pumped into the well through the seven-inch pipe, which then flowed out of that pipe and back up toward the surface to a depth of 4,200 feet, in what is known as the "annular space". (*Id.*).

The annular space is the gap between the outside of the seven-inch pipe and the walls of the drilled hole. (Exs. R-3, R-4). Once that was completed, the remaining horizontal portion of the hole was drilled, and four-and-a-half-inch pipe was inserted all the way to the end of the hole. (Tr. 409).

The horizontal section of pipe in the Ravin well, known as the “pay zone”, is where hydraulic fracturing or “fracking” had recently occurred. (Tr. 410–411). Fracking was described during the trial as the forcing of sand and water down into a well, then out perforations in well piping, to over-pressurize and expand cracks in the earth around the pipe, then reducing that pressure so that oil/gas will flow back into the pipe and out of the well. (Tr. 158–159, 220–221, 379-380). The pay zone piping is typically divided into 1,000-foot sections, which are fracked in succession. (Tr. 412). Once the flowback of oil/gas ends, typically 2–3 months after the fracking process, the operator calls out a well servicing company like Respondent to circulate the well, which involves flushing water through the upper piping. (Tr. 411-413). It’s the circulation of the well which led to the events that are at issue in this case.

On the morning of April 1, 2013, Abraxas called in Respondent to circulate the well. The first step was to run a “bridge plug” down the four-and-a-half-inch pipe. (Tr. 414). The bridge plug was designed to expand inside the pipe and seal off the pay zone to prevent hydrocarbons (oil/gas) from escaping from the well during the circulation process. (Tr. 415; Ex. R-4). Once the plug was set, it was tested with several thousand pounds of pressure to ensure a proper seal. (*Id.*). A perforating gun was then sent down the four-and-a-half inch pipe to punch an 18-inch diameter hole in the pipe just above the bridge plug. (Tr. 417; Ex. R-4). This hole would allow water to be circulated down through the four-and-a-half-inch pipe and then back up to the

surface through the annular space between the four-and-a-half-inch pipe and the seven-inch pipe. (Tr. 319, 416).

Wells are typically circulated to either improve production or to prepare for the removal of the frack string (the pay zone piping). (Tr. 420). In this particular case, Respondent circulated the well in order to prepare for the removal of the frack string. (Tr. 301). In order to accomplish this, Respondent's crew, led by tool pusher Mike Fifer, set up the circulation equipment the day before the accident. (Tr. 303). The initial set-up included a diesel pump (which pulls water out of a supply tank, forces it down the well, and back out into a receiving tank); a 500-barrel enclosed frack tank (which was supplied by Abraxas and contained the source water that was to be pumped down into the well); and a 120-barrel, open-top tank (which was intended to receive the circulated water after it came back out of the well). (Tr. 302–305, 320).

There is no dispute that the diesel pump, the 500-barrel tank, and the 120-barrel tank were each placed at least 100 feet from the wellhead. (Tr. 80, 306-307). According to Mr. Fifer, the 120-barrel receiving tank was also placed approximately 75 feet away from the diesel pump as a preventative measure to address the possibility that fumes or vapors from the tank might travel toward the diesel pump motor, which is a potential ignition source.¹ (Tr. 252, 306).

The next day, however, Mr. Fifer's original equipment configuration was overridden by Abraxas' company man, Scott Hutzenbiler.² (Tr. 264). Mr. Hutzenbiler wanted to use 500-barrel frack tanks for both the water supply tank and the circulated water receiving tank, because the 120-barrel open top tank would have to be emptied two or three times during this process, which

1. Mr. Fifer testified that he had learned this practice during his time with two previous well-servicing companies, but that Respondent did not have such a spacing requirement with respect to the frack tank and mud pump. (Tr. 262-263, 305, 468).

2. Mr. Hutzenbiler was not called as a witness by either party.

would cost Abraxas more money. (Tr. 310, 431). The water in the 500-barrel supply tank had been delivered by trucks at the direction and control of Abraxas. (Tr. 250-251).

Mr. Hutzenbiler also instructed Mr. Fifer and his crew to move the diesel pump closer to the tanks. (Tr. 264–265; Ex. C-1(c), (j), (p)). Mr. Fifer expressed reservations about these instructions, because of his 75-foot spacing preference. However, he consented because he could keep the top hatch of the receiving tank closed, and allow any possible gases or vapors to escape through the vent line at the back of the frack tank, which, in his estimation, was still 75 feet away from the diesel pump. (Tr. 264–266, 308–309, 311; Ex. C-1(k), (l), and (p)). As an added precaution, Mr. Fifer directed his crew to keep the top hatch of the receiving tank closed during the circulation process. (Tr. 265-266). This was confirmed by crew member Mitchell McGowan, who testified that Mr. Fifer told the crew to “stay away from that hatch.” (Tr. 526). According to Mr. Fifer, the top hatch of the receiving tank was closed when they began to circulate the well. (Tr. 268).

The well circulation process began by “topping off” the well with 60 barrels of water, which came from the 500-barrel water supply tank. (Tr. 279). Once the diesel pump was in operation and water was being forced into the well, Mr. Fifer went to sit in his work truck. After approximately one hour, Mr. Fifer got out of his truck and began walking back toward the pump. (Tr. 270-271). As he was walking, he observed “sparkly things” in the air above the diesel pump. (Tr. 271, 280-281). Almost immediately afterward, “it just flashed up into a big ball of fire.” (*Id.*).

Unfortunately, one of Respondent’s crew members, D.B., was standing next to the pump and experienced second degree burns on his head and neck from the flash fire.³ (Tr. 271–272). The fire quickly dissipated, and co-workers helped D.B., but he missed 33 days of work as a

3. D.B.’s full name is not being used due to privacy concerns.

result of his injuries. D.B. has since returned to full time employment with Respondent. (Tr. 85, 272). After the accident, Mr. Fifer observed a “lazy flame” hovering over the top hatch of the circulated water receiving tank, which was open at that point. (Tr. 65, 272, 333).

The accident was reported to OSHA, and CSHO John Young traveled to the worksite the next day: April 2, 2013. (Tr. 48). CSHO Young met with both Respondent and Abraxas representatives, interviewed employees, and took photographs of the worksite, which illustrate the layout of the pump, wellhead, and frack tanks as they were on the day of the accident. (Tr. 49; Ex. C-1). After completing his investigation, CSHO Young recommended the issuance of the violation at issue in this case:

Citation 1, Item 1

Section 5(a)(1): 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 fire and explosion hazards:

- (a) On or about April 1, 2013, an employee received hand and face burns from a vapor explosion during a down hole well cleaning operation at Well Site 26-35-3H, Watford City, ND. The employer did not ensure that an ignition source, the generator pumping unit it used during the down hole well cleaning operation, was located a safe distance from discharges of oil and gas to the atmosphere from the frack tank used for the cleaning operation. The generating pump unit was less than thirty feet from the frack tank.⁴

Abatement Note: Among other methods, on feasible and acceptable method to abate this hazard would be to ensure that: “Discharges of oil and gas to the atmosphere should be to a safe area, preferably on the downwind side of the well and a minimum of 100 feet (30.5 m) from the wellhead, open flame, or other sources of ignition.”, [sic] as described in Section 12 of the America Petroleum Institute Recommended Practice 54, “Occupational Safety for Oil and Gas Well Drilling and Servicing Operations”.

The cited provision in the Act provides:

Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees

4. As amended by *Order* dated July 1, 2014.

29 U.S.C. § 654(a)(2).

Applicable Law

To establish violation of the general duty clause, Complainant bears the burden of proving, by a preponderance of the evidence, that: (1) a condition or activity in the workplace presented a hazard; (2) the employer or industry recognized that 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); 29 U.S.C. § 654(a)(1); *see also Fabi Constr. Co. v. Sec’y of Labor*, 508 F.3d 1077, 1081 (D.C. Cir. 2007) (“In other words, ‘the *Secretary* must prove that a reasonably prudent employer familiar with the circumstances of the industry would have protected against the hazard in the manner specified by the *Secretary’s* citation.’” (quoting *L.R. Willson & Sons, Inc. v. OSHRC*, 598 F.2d 507, 513 (D.C. Cir. 1983))). Complainant must also prove that Respondent knew, or with the exercise of reasonable diligence, could have known, of the violative condition. *Tampa Shipyards*, 15 BNA OSHC 1533, 1535 (Nos. 86-360, 86-469, 1992).

A violation is “serious” if there was a substantial probability that death or serious physical harm could have resulted from the violative condition. 29 U.S.C. § 666(k). Complainant need not show that there was a substantial probability that an accident would actually occur; he need only show that if an accident occurred, serious physical harm could result. *Phelps Dodge Corp. v. OSHRC*, 725 F.2d 1237, 1240 (9th Cir. 1984).

Discussion

The focus of the violation alleged in this case is on the physical placement of the 500-barrel circulated water receiving tank less than 100 feet from the diesel pump.⁵ To be clear, the issue is *not* the distance of any piece of equipment from the wellhead itself. It is undisputed that the pump and tanks were all at least 100 feet from the wellhead. (Tr. 307; Ex. R-25 at 17). In addition, as with most OSHA cases, the actual cause of the accident is not the issue to be decided, it is whether the working conditions and practices in place prior to accident were violated the requirements of the Act.

The decision in this case was a difficult one. On one hand, Complainant has demonstrated legitimate concerns about the safety and health of employees in an industry that both parties agree, is inherently dangerous due to the ever-present risks associated with flammable liquids and gaseous hydrocarbons. Complainant advocates for practices and procedures which might minimize or even eliminate fires and employee injuries in this industry. On the other hand, Respondent established that it is an employer who recognizes and works diligently to address all of the possible hazards associated with oil and gas field work; has worked to be an industry leader in safety and health by hiring over 100 health, safety, and environment (HSE) employees and managers; was already in the process of building an 80-acre accident prevention training facility to avoid work-related accidents; and had implemented the use of fire-resistant clothing (FRC) at its well sites *prior to* OSHA issuing a memorandum mandating the same. (Tr. 196, 441, 469-473, 481; Exs. R-7 through R-14, R-20A).

A Condition in the Workplace Presented a Hazard which was Recognized by the Employer

“A safety hazard at the worksite is a condition that creates or contributes to an increased risk that an event causing death or serious bodily harm to employees will occur.” *Baroid Div. of*

5. This is best illustrated by the amended Citation language described in Complainant’s June 16, 2014 *Motion to Amend Complaint*: “The generator pumping unit was less than thirty feet from the frack tank.”

NL Indust., Inc., 660 F.2d 439, 444 (10th Cir. 1981); *Otis Elevator Co.*, 21 BNA OSHC 2204 (No. 03-1344, 2007). Although an employer may not foresee the precise circumstances of a specific accident, the focus is on whether the employer knew the potential dangers associated with the location where its employees were working. *Id.*; *Associated Underwater Svcs.*, 24 BNA OSHC 1248 (No. 07-1851, 2012) (finding that, in an underwater diving accident, the hazard was that a piling could fall, not that the jaws of a vibratory hammer were too small for the pad-eye to hold the piling). However, “[h]azards 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.” *Pelron Corp.*, 12 BNA OSHC 1833 (No. 82-388, 1986) (citing *Davey Tree*, 11 BNA OSHC 1898, 1899 (No. 77-2350, 1984)).

On a basic level, and stripped of context in this case, the general hazard identified in the Citation is one that is very familiar to OSHA and the oil and gas industry—the existence of possible ignition sources on oil well worksites where flammable hydrocarbon vapors are typically present in some quantity. (Tr. 212; Ex. C-23). Both parties agree that fire and explosion hazards from hydrocarbon vapors are always a primary safety concern for employees working at oil well sites and can never be completely eliminated. (Tr. 206, 448; Ex. C-23; *Resp’t Br.* at 7, 10, 27). Unfortunately, the constant presence of this hazard on oil well sites was illustrated by the flash fire and employee injury which occurred on April 1, 2013.⁶

Respondent Implemented Numerous Protective Measures to Address the Hazard

6. Respondent also argues, as a general challenge to the legal sufficiency of the Citation, that 5(a)(1) violations cannot be based on non-mandatory industry standards. This argument is rejected, as “[i]t is well established that voluntary industry standards are admissible and probative evidence of industry recognition of hazards.” *Cargill*, 10 BNA OSHC 1398 (No. 78-5707, 1982). The Court does recognize, however, that under certain circumstances, the fair notice doctrine may prevent non-mandatory industry standards from being enforced under Section 5(a)(1). *The Ruhlin Co.*, 2006 WL 6936753 at *6–7 (No. 04-2049, 2006).

The Court accords the testimony of Ronald Britton, an expert witness called by Respondent, significant weight. Mr. Britton has over 50 years of experience in the oil and gas industry; holds numerous oil and gas industry certifications; is a board-certified forensic examiner in oil and gas technology; serves on two American Petroleum Institute subcommittees; and has consulted and testified on behalf of both industry employers and OSHA in proceedings before the Commission. (Tr. 374–387, 395). In summary, Mr. Britton testified that Respondent did everything that a safe oil well servicing company should have done at this worksite to mitigate, and attempt to eliminate, fire hazards from flammable hydrocarbon liquids and gases. (Tr. 442).

More specifically, before the accident, Respondent had implemented the following measures, programs, and actions in an attempt to protect employees from a variety of oil well worksite hazards, including fire and explosion hazards:

- 1) Locating the water supply tank, the circulated water receiving tank, and the diesel pump at least 100 feet from the wellhead, pursuant to multiple industry guidelines (Tr. 307; Ex. R-25 at 17);
- 2) Training employees on fire prevention and control (Tr. 204–205, 321);
- 3) Ensuring the use of blowout preventers on the well to keep sudden, uncontrolled hydrocarbon emissions from coming up the well and affecting the entire well site (Tr. 198, 321);
- 4) Using a diesel pump equipped with spark arresters, to keep sparks from escaping the muffler (Tr. 195, 320, 509–510; Exs. C-24 at § 9.15, C-25, R-24);
- 5) Requiring all employees on the work site to wear Fire Resistant Clothing (FRC) (Tr. 205-206);

- 6) Using a diesel pump equipped with a kill switch, immediately shuts down the engine upon activation (Tr. 195, 320; Exs. C-24 at § 9.15, C-25);
- 7) Implementing and enforcing work rules prohibiting smoking, except in certain designated safe areas (199–200, 301);
- 8) Banning open flames on location (Tr. 201, 322);
- 9) Prohibiting cell phone use (Tr. 202, 322);
- 10) Training employees on well control issues (Tr. 197, 321);
- 11) Ensuring that fire extinguishers were available and accessible on location (which were immediately used in this case to extinguish the flames on D.B.) (Tr. 203, 323);
- 12) Establishing emergency action plans (Tr. 203, 320; Ex. R-12);
- 13) Conducting a Job Safety Analysis for the well circulation operation (Tr. 300-301, 320);
- 14) Constructing and training its employees at an 80-acre accident prevention training center, which Mr. Britton testified, was the only one of its kind to his knowledge (Tr. 441).

CSHO Young even acknowledged Respondent's overall implementation of safety measures to protect employees from hydrocarbon gas vapor fires: "They had installed prudent measures to—what was your term—mitigate vapor explosions or fires, yes." (Tr. 205). Complainant, however, argues that Respondent's implemented safety measures were not enough. Complainant argues that, in addition to the actions above, the circulated water receiving tank should have been placed at least 100 feet from the diesel pump.

**The Additional Protective Measure Argued by Complainant in the Citation
was not Recognized by the Employer or the Industry**

None of the witnesses called by either party at trial had knowledge of this specific type of accident ever occurring before. (Tr. 141). While the occurrence or non-occurrence of an accident does not prove or disprove a violation, the fact that no witness from either side had ever heard of this type of accident occurring is relevant to a determination of whether this configuration of diesel pump and circulated water receiving tank was a prohibited practice under the Act.

Both parties agreed that fire hazards are extremely difficult, if not impossible, to completely eliminate from oil well worksites. In a memorandum issued in March of 2010 regarding the use of FRC, OSHA stated that “[i]nherent flash fire hazards are associated with oil and gas well drilling, servicing, and production-related operations.” (Ex. C-23). Further, in stressing the importance of FRC, OSHA also noted, “Engineering and administrative controls serve to reduce, but do not eliminate, the potential for flash fires occurring during...well servicing...Flammable liquids or gas could be released and migrate to ignition sources because of an inadequacy or failure in these engineering and administrative controls.” (*Id.*).

According to Mr. Britton, Respondent engaged in normal tank and pump placement for well circulation, with several other protective measures implemented to minimize fire hazards to employees. The additional protective measure Complainant advocates for in this case was simply not industry practice. (Tr. 438-440). “To permit the normal activities in such an industry to be defined as a “recognized hazard” within the meaning of section 5(a)(1) is to eliminate an element of the Secretary’s burden of proof and, in fact, almost to prove the Secretary’s case by definition, since under such a formula the employer can never free the workplace of inherent risks incident to the business. To respect Congress’ intent, hazards must be defined in a way that appraises the employer of its obligations, and identifies conditions or practices over which the

employer can reasonably be expected to exercise control.” *See Pelron, citing Davey Tree*, 11 BNA OSHC at 1899.

Complainant cites to several published guidelines from the Association of Energy Service Companies (“AESCC”) and the American Petroleum Institute (“API”) to support its position. These references are problematic for several reasons. First, the Court finds that none of the referenced provisions from either of these industry publications specifically deal with the factual conditions alleged to violate the Act in this case: failure to separate a diesel pump (as a possible ignition source) and a circulated water receiving tank (as a possible source of oil/gas vapors) by a distance of 100 feet.

For example, the Citation itself references Section 12 of the American Petroleum Institute Recommended Practice 54, “Occupational Safety for Oil and Gas Well Drilling and Servicing Operations”. Specifically, CSHO Young discussed Section 12.1.8 during his testimony, which states:

Discharges of oil or gas to the atmosphere should be to a safe area, preferably on the downwind side of the well and a minimum of 100 ft (30.5 m) from the wellhead, open flame, or other sources of ignition. At locations where this recommendation may be impractical, appropriate safety measures should be implemented.

(Ex. C-24, API Recommended Practice 54, “Occupational Safety for Oil and Gas Well Drilling and Servicing Operations § 12.1.8).

The Court agrees with Respondent that this and other API and AESCC references address discrete hazards—discharges of oil and gas into the atmosphere, and storage or circulation of flammable hydrocarbons—and provide guidelines for abating those hazards, including, amongst other things, adequate spacing from the wellhead. (Exs. C-24, C-25). The two tanks used in the well circulation process by Respondent, which were delivered to the site by Abraxas, were supposed to contain water (supply tank) and receive water (discharge tank). There was no

evidence of any intentional, or known, “discharge of oil and gas into the atmosphere” as discussed by industry standards referenced by Complainant. (Exs. C-24, C-25).

Mr. Britton further explained that well servicing operations, such as those performed by Respondent in this case, do not fall under the rubric of “special services”, under which API 12.1.8 falls. (Tr. 419; Ex. C-24). Mr. Britton said this particular standard is directed towards a discrete hazard; namely, the use of flare lines during the flowback stage. (Tr. 438). During flowback, oil and gas run through a separator, with oil intentionally directed into to a battery of receiving tanks while the separated gas vapors are burned off. (Tr. 438–439).

The Court notes that the spacing recommendations referenced in the API and AESC publications referenced by Complainant are all based on a 100-foot distance *from the wellhead*, which represents the primary source of hydrocarbons at a well site.⁷ (Tr. 440; Exs. C-24, C-25). Complainant’s position seems to be that the wellhead as a source of oil/gas is no different from any other possible source of oil/gas at a worksite. Mr. Britton agreed that there are several industry-recognized practices which recommend 100-foot spacing *from the wellhead*; however, he also testified that there is no published rule or recommendation requiring an additional 100 feet of lateral spacing between a circulated water receiving tank and an ignition source such as a diesel-powered pump.⁸ (Tr. 440). Although Complainant continues to reference various API and AESC standards in its argument, it stopped just short of acknowledging the lack of a specific, on-point, industry standard for the configuration at issue in this case: “It is thus immaterial that, as Mr. Britton testified, the industry does not have a mandatory 100-foot spacing rule for discharge tanks and mud pumps.” *Compl’t Br. at 30*.

7. CSHO Young also discussed API Recommended Practice 54 § 9.11.1, which similarly refers to distances of equipment *from the wellhead*.

8. Neither party disputes that the diesel pump, even with spark arresters and a kill switch, was a possible ignition source. (Tr. 86–95, 455–456; Exs. C-24, C-25).

Complainant offered several speculative theories during the trial of how flammable vapors could have been generated in this case. *Compl't Br.* at 12. Complainant's initial contention was that the well circulation process must have caused oil and gas contaminants to be flushed out of the well and into the receiving tank. (Tr. 70). Mr. Britton testified, however, that the bridge plug, installed before the circulation process began, completely prevented the release of hydrocarbon vapors during well circulation and any amount of fugitive oil and gas remaining in the section of pipe being circulated would have been too small to measure considering the 365 barrels of water pumped in. (Tr. 161, 421–426, 428, 457). Mr. Britton reiterated this point multiple times throughout the course of his testimony. Complainant now appears to have abandoned this theory.

Complainant's alternative theories are that: (1) the receiving tank itself was contaminated with hydrocarbon residue from previous use; or (2) that the water supply tank was contaminated with hydrocarbon residue from previous use; or (3) that the delivered water was already infused with hydrocarbons when it was delivered by Abraxas. (Tr. 71–73, 96–98; *Compl't Br.* at 14, 27). However, these key facts, as well as the precise cause of the fire, are still undetermined. The Court notes that during OSHA's investigation: (1) neither the supply water or the discharge water were ever sampled or tested; (2) the tank interiors were not examined or tested; (3) no documentation concerning prior worksite uses for either tank was introduced; (4) no invoices concerning the source of the delivered water was introduced; (5) it was never conclusively determined how, when, or why the top hatch of the receiving tank was opened; and (6) no witnesses from Abraxas were called to testify by either party. (Tr. 268–270, 443, 497–498, 526; *Compl't Br.* at 18, Nos. 76 & 78).

In an effort to connect the referenced industry standards, which deal with discharge of oil and gas to the atmosphere, Complainant argues that “[R]egardless of whether discharge tanks are always classified as tanks used to circulate flammable liquids, the record—including Mr. Britton’s testimony—show that the industry views discharge tanks as potential sources of discharges of combustible vapors” *Compl’t Br.* at 29. In other words, when a tank of water is received at an oil well worksite, and an empty tank is set up to receive circulated water, Complainant urges that both should be *presumed* to contain flammable liquids because there is always the possibility they were used to hold hydrocarbons previously. This argument runs afoul of the holding in *Pelron*, wherein the Commission held that “defin[ing] the alleged hazard as the ‘possibility’ of accumulations of unreacted [flammable] is to define it in a way that it can never be prevented, since the ‘possibility’ would always exist unless there were absolutely no chance at all that unreacted vapors could accumulate. Defining the hazard as the ‘possibility’ that a condition will occur defines not a hazard, but a potential hazard.” *Pelron*, 12 BNA OSHC 1833.

Tim Brown, Respondent’s Vice President of Safety, Health, and Environment, testified that such a presumption would be inappropriate, as there is an industry practice of maintaining tanks in the same line of service, such as well circulation. (Tr. 482). According to Mr. Brown, this is standard practice because it’s “incredibly difficult to change services in anything whenever you pollute or contaminate it.” (*Id.*). Mr. Brown’s testimony was supported by Mr. Britton, who stated that he, and others in the industry, would have assumed that Abraxas provided pure water. (Tr. 252, 428-430). In other words, based on industry practice, when an operator provides a well servicing company with delivered water, and tanks to supply and receive that water, it reasonable to assume that it is water they are getting. (Tr. 482–483). CSHO

Young acknowledged that a frack tank containing water, with an ignition source nearby, “doesn’t raise any red flags.” (Tr. 194).

In addition, though not dispositive, Respondent is correct that the AESC and API publication references are couched in aspirational language—“*Recommended* Safe Procedures and Guidelines” and “API *Recommended* Practice 54”. Section 12.1.8 of the API Recommended Practices indicates what *should* be done with respect to discharges of oil and gas to the atmosphere, while further indicating that alternative measures are sometimes acceptable if the recommended practice is “impractical.” (Ex. C-24 § 12.1.8); *see also id.*, Foreword (defining “should” as a “recommended practice: (1) where a safe comparable alternative practice is available; (2) that may be impractical under the circumstances; or (3) that may be unnecessary for personnel safety under certain circumstances”). Likewise, the AESC publication also states that “mud pits and tanks *should* be set a minimum distance of 100 ft (30 m) *from the well*”, but also states that “[e]quivalent safety measures should be taken where . . . conditions do not permit maintaining such distance.” (Ex. C-25 at 95); *see also id.* (defining “shall” as “not optional” and should as “recommended”).

Complainant also argues that, even if the industry does not mandate the abatement method in the Citation, Respondent specifically recognized a 75-foot spacing requirement between tanks and pumps, through the actions and testimony of Mr. Fifer, the toolpusher and crew supervisor. (Tr. 261). Because Mr. Fifer was a supervisory employee at the time, Complainant asserts that his knowledge and recognition of the hazards associated with this pump/tank configuration should be imputed to Respondent. *See St. Joe Minerals Corp. v. OSHRC*, 647 F.2d 840, (8th Cir. 1980); *Peter Cooper Corps.*, 10 BNA OSHC 1203 (No. 76-596,

1981); *but see Deep South Crane & Rigging Co.*, 535 Fed. Appx. 386, 24 BNA OSHC 1089 (5th Cir. 2013).

Mr. Fifer testified that his preference, derived from two past employers during his 45 years working in this field,⁹ was to space discharge tanks at least 75 feet away from a pump engine. (Tr. 247, 284). He stated that his practice was a preventative measure because he believes there is always a possibility that flammable vapors could come from tanks. (Tr. 261-262). Mr. Fifer also testified, however, that “I did not know we were going to get gas like that.” (Tr. 252, 262). The Court’s conclusion from Mr. Fifer’s testimony is that he was discussing a personal practice and preference that he believed made his worksites safer. There was no industry standard or Respondent-specific work rule upon which it was based. While he is to be commended for his cautious approach, the question is whether or not his practice and preference should be legally interpreted as a recognized standard to which this employer is held in an OSHA enforcement proceeding.

Mr. Britton strongly disputed Mr. Fifer’s personal practice and preference as being any type of recognized practice in the industry:

They put them all distances. Some of them [pumps] are put up right next to it [frack tank], 4 and 5 feet away, some put it 30 or 40. I don’t know anybody that strings 100 foot of iron to get it 100 foot away, because they’d have to put it 100 foot away from the frack tank as well as 100 foot away from the well, and so they don’t do that. (Tr. 438).

Now, when you’re talking about from the frack tank to the reverse unit [pump], that’s what I’m telling you, that there’s no standard that I’m aware of in 60 years in the oil business that says you have to do that. There are people, like the tool pusher, who says, well, he uses 75 feet. It’s his rule. Some people use 50. Some use other figures, but there really isn’t a rule that I’m aware of that is mandatory for us to use. (Tr. 440).

9. There were no details about when he learned that practice, or how that practice was conveyed to him. Complainant also refers to Respondent’s reference to a 75 foot rule in its post-accident investigation report, but the Court is convinced that reference came from Mr. Brown’s conversations with CSHO Young. (Tr. 347, 466-467; Ex. C-3).

The Commission and courts have been reluctant to rely solely on voluntary safety efforts by employers, or their employees, to find that an employer recognized a hazardous condition. *Pepperidge Farm, Inc.*, 17 BNA OSHC 1993 (No. 89-265) (citing *General Motors, Corp., GM Parts Div.*, 11 BNA OSHC 2062, 2065–66 (No. 78-1443, 1984), *aff'd*, 764 F.2d 32 (1st Cir. 1985); *Cotter & Co. v. OSHRC*, 598 F.2d 911, 914–15 (5th Cir. 1979); *Diebold, Inc. v. Marshall*, 585 F.2d 1327, 1337–38 (6th Cir. 1978)). The Sixth Circuit explained its rationale in *Diebold* as follows:

Considered simply in terms of probative value, an employer's attempts to render machinery or working premises more safe, without anything more, cannot reasonably support an inference that the attempts were made because the employer believed them to be legally required. Further, the drawing of such an inference would be repugnant to the purposes of the Act. Congress expected that safety in the nation's workplaces would be achieved as much by the voluntary efforts of employers as by the enforcement programs of the government. *See Dunlop v. Rockwell International*, 540 F.2d 1283, 1292 (6th Cir. 1976). If employers are not to be dissuaded from taking precautions beyond the minimum regulatory requirements, they must be able to do so without concern that their efforts will later provide the sole evidentiary basis for an adverse finding of the sort urged here.

See Cape and Vineyard Div'n of New Bedford Gas Co. v. OSHRC, 512 F.2d 1148, 1154 (1st Cir. 1975).

The Commission has applied the same rationale to analyses of general duty clause violations. *See Pepperidge Farm*, 17 BNA OSHC 1993. In the present case, unlike many of those cited above, there was no evidence of prior accidents or injuries from this pump/tank configuration; no memoranda or warnings regarding this configuration; and no independent sources indicating that the industry or specialists in the field recognized this configuration as a prohibited practice. In fact, during his deposition, CSHO Young testified, "Hindsight is 20/20.

They realized it immediately, but at the time I don't think it was a cognitive thought.” (Tr. 135–137).

Complainant failed to introduce sufficient evidence justifying the imputation of Mr. Fifer's personal practice and preference in this situation to Respondent as a recognized industry, or employer, practice. Accordingly, the Court finds that Complainant failed to prove that Respondent, or its industry, recognized a requirement to space water well circulation receiving tanks at least 100 feet away from possible ignition sources, as an additional protective measure required beyond the fourteen measures (listed above) already implemented by Respondent.

**Complainant Failed to Prove that the Abatement Method in the Citation
Would have Eliminated or Materially Reduced the Hazard**

In order to establish a violation of the general duty clause, Complainant must “specify the proposed abatement measures and demonstrate both that the measures are capable of being put into effect and that they would be effective in materially reducing the incidence of the hazard.” *Arcadian Corp.*, 20 BNA OSHC 2001 (quoting *Beverly Enters., Inc.*, 19 BNA OSHC 1161 (No. 91-3144 *et al.*, 2000)). “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.” *Id.* (quoting *Pepperidge Farm, Inc.*, 17 BNA OSHC 1993)). Where an employer has taken steps to abate the recognized hazard, Complainant must show those measures are inadequate. *Alabama Power Co.*, 13 BNA OSHC 1240 (citing *Cerro Metal Prods. Div., Marmon Grp., Inc.*, 12 BNA OSHC 1821, 1822 (No. 78-5159, 1986)). Complainant submits that the measures Respondent took to protect employees from fire hazards associated with hydrocarbon vapors and ignition sources were inadequate, and alleges in the

Citation that Respondent should have also maintained a 100-foot distance between the diesel pump and the tanks.¹⁰

CSHO Young acknowledged, however, that Respondent took significant measures to protect employees from vapor fires and explosions: “They had installed prudent measures to—what was your term—mitigate vapor explosions or fires, yes.” (Tr. 205). CSHO Young also said that he believes the hazard would have been materially reduced had the top hatch of the circulated water receiving tank remained closed and the gases vented only out the back, as intended and ordered by Mr. Fifer. (Tr. 121–122; 179–180). The Court notes that the approximate distance from the rear vent of the circulated water receiving tank to the diesel pump was 75–80 feet, only 20–25 feet closer than the abatement method identified in the Citation. (Tr. 116–117, 121–122; *Compl’t Br.* at 16; *Resp’t. Br.* at 14).

At least with respect to the facts of this case, there was little dispute that maintaining a 100-foot distance between the pump engine and the receiving tank is both technologically and economically feasible.¹¹ Additionally, both sides acknowledged the general principle that longer distances create greater opportunities for flammable vapors to dissipate. (Tr. 116, 347, 448). That does not mean, however, that Complainant proved that spacing the equipment 100 feet apart would have materially reduced the hazard in this case.

10. Respondent also added at trial (though not in the Citation), that four-gas meters or an intrinsically safe pump engine would also abate the condition. Complainant did not pursue the intrinsically safe pump engine abatement method in post-trial argument. With regard to the four-gas meter, the Court accepts Mr. Britton’s and Mr. Brown’s testimony about the multitude of problems inherent in using them as an additional preventative measure for this type of work. (Tr. 446–447, 464–465, 515).

11. Even with that in mind, both the AESC and API publications indicate that, in certain circumstances, the 100-foot spacing guidelines may not be practicable. (Ex. C-24, C-25). In those instances, industry guidelines indicate that alternative, equivalent measures to abate the hazard should be used. (*Id.*). The Court points this out only to note that the 100-foot spacing rule for intentional discharge of oil/gas (as opposed to circulated water) is not a panacea.

CSHO Young testified that, regardless of whether the spacing was 75, 100, or 150 feet, he could not conclusively determine whether the hazard could have been avoided. (Tr. 179–180, 234). When asked whether such distances would have abated the hazard, or even reduced the risk of a fire by fifty percent, CSHO Young stated, “Conclusively, no...in this condition, without knowing what’s in the tank, I cannot.” (Tr. 180, 234). The Court is very concerned with these responses, and other unanswered investigative questions discussed above. As Mr. Britton pointed out, “I think [CSHO Young] just didn’t go far enough. I think he should have done samples, more measurements. I commend him for what he did. I just think that we could have had a lot of answers had we gone a little bit further in the inspection of the site.” (Tr. 443).

In response to similar questions regarding whether spacing of 75, 100, or 150 feet would have materially reduced the hazard, Mr. Britton stated:

Maybe. That’s a possibility, but I don’t deal in possibilities in safety on oil fields. To me—nobody’s talked about the wind direction. What direction is the wind coming from? Are you putting the tank in a direct line where it would blow back over the frack tank, or is it going to be the opposite, is the frack tank blowing directly towards the reverse unit?

If the pump and the motor is 100 feet away downwind from the frack tank, then you’re going to blow the fumes right over it. Even if it’s 100 feet away, you’ll probably have an accident there.

(Tr. 442-443). Mr. Britton also noted that wide swings in temperature impact the dissipation and transmission of flammable vapors. (Tr. 447). Again, even Respondent’s expert, with extensive experience in the oil and gas field, including certification as a forensic examiner in oil and gas, could do no more than speculate as to the efficacy of the spacing requirement espoused by Complainant.

Considering the totality of circumstances and evidence presented in this record, the Court finds that Complainant failed to prove that a 100-foot spacing requirement would have

eliminated or materially reduced the hazard of a hydrocarbon vapor flash fire during this well circulation operation.

Conclusion

The Court is not convinced that Respondent failed to implement reasonably prudent measures to protect its employees from recognized fire and explosion hazards during the well circulation process performed on April 1, 2013, or that the recommended abatement measure of 100-foot spacing between the diesel pump and the circulated water receiving tank would have eliminated or materially reduced the hazard.

ORDER

Based upon the foregoing Findings of Fact and Conclusions of Law, it is ORDERED that Citation 1, Item 1 is hereby VACATED.

Date: March 23, 2015
Denver, Colorado

/s/ Brian A. Duncan

Judge Brian A. Duncan
U.S. Occupational Safety and Health Review Commission