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United States of America

OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION

SECRETARY OF LABOR, Complainant, v. BOBCAT CONTRACTING, LLC, Respondent.	OSHRC Docket No. 22-0067

Appearances:

Jennifer Johnson, Esq. & Carmen Elizabeth Fahy, Esq., Department of Labor, Office of Solicitor, Dallas, Texas

For Complainant

Darren S. Harrington, Esq. & Brian L. Hurt, Esq., Steptoe & Johnson PLLC, Dallas, Texas

For Respondent

Before: Judge Christopher D. Helms – U.S. Administrative Law Judge

DECISION AND ORDER

I. PROCEDURAL HISTORY

In the natural gas industry, the pipelines used to transport and distribute natural gas must regularly undergo a process known in the industry as "pigging." (Tr. 223-24, 742, 974-75; *see also* 49 C.F.R. § 192.939). During pigging, different types of "pigs," essentially tubes of various sorts and sizes, are loaded into a "launcher," a pressurized chamber which provides access to the underground gas pipelines. (Tr. 46, 223-24, 247, 250-51, 295, 365, 469-70, 694, 721-22, 963, 966,

970-71, 974-75, 1253; Exs. C-8, at 6; C-18, C-29, at 1 n.2;[1] C-33, at 2; C-39). Pigs vary in both weight and composition and can be used for many purposes including cleaning a pipeline, detecting abnormalities in the pipeline, or collecting data on the pipeline's interior. (Tr. 46-47, 98-99, 225-26, 253-54, 550, 694, 747, 849-50, 870-71, 975; Exs. C-18, C-29, at 1 n.2; C-39).

After a launcher is depressurized, its door can be safely opened, and a pig can be loaded into the launcher's chamber. (Tr. 90, 125, 133-35, 260, 283-84, 305-06, 323-24, 407, 424-25, 432, 440, 496, 620-22, 700-01, 778-81, 816-17, 1302; Ex. C-8, at 4-5 ¶¶ III(C)(1) – (3)). Once the launcher's door is closed and the chamber is repressurized, the pig is then pushed through a length of the pipeline to a "receiver," another chamber often miles away from the launcher, which allows

[1] Following the accident that led to the Citation issued in this case, the National Transportation Safety Board ("NTSB") conducted an investigation. As a result of its investigation, the NTSB issued at least three reports that were introduced as evidence in this case: a "Pipeline Investigation Report" (Ex. C-29); a "Human Performance" report (Ex. C-30); and a "Mobile Phone Records" report (Ex. C-32).

In a pre-trial motion, and again at trial, Respondent objected to the admission of two of these reports, Exhibits C-29 and C-30, based on 49 C.F.R. § 835.3, which governs the admissibility of NTSB reports and witness testimony in certain situations, and further objected based on perceived inadmissible hearsay contained within the reports. (Tr. 517-23). Ultimately, the Court overruled both objections and, in relevant part, admitted the reports under the public records hearsay exception. (Tr. 535-37).

With regard to this exception, Federal Rule of Evidence 803(8)(A)(iii) allows for the admission of "[a] record or statement of a public office if … it sets out … in a civil case … factual findings from a legally authorized investigation …." Under 49 U.S.C. § 1111, the NTSB is an independent investigatory board charged with, among other duties, "investigat[ing] and report[ing] on accidents involving … pipeline[s] …." 49 U.S.C. § 1111(g)(4). Thus, both reports fit this hearsay exception. (Exs. C-29, at 1, 11; C-30, at 1).

To the extent the Court cites to or otherwise relies on these NTSB reports, it does so only to the extent allowed under Rule 803's exception. This exception allows the Court to consider "the factual findings, including opinions and conclusions" of the reports even if they are based on hearsay sources. *See Moss v. Ole South Real Estate, Inc.*, 933 F.2d 1300, 1309-10 (5th Cir. 1991) ("In addition, many government reports, as with many expert witnesses, have to rely in part on hearsay evidence, and the reports are not generally excluded for this reason."). However, any standalone hearsay statements contained in the reports that do not otherwise meet a hearsay exception will not be considered for the truth of the matter asserted. *See* FED. R. EVID. 805; *Moss*, 933 F.2d at 1311-12; Christopher B. Mueller & Laird C. Kirkpatrick, 4 Fed. Evid. § 8:89 (4th ed.) ("While the [public records] exception does embrace findings that rest on statements by outsiders, it reaches only findings made by 'a public office,' which means that the exception does *not* reach conclusions, opinions, or statements reached by the outsiders who talk or report to a public office or agency.").

the pig to be removed from the pipeline. (Tr. 250, 303-05, 333-34, 413-15, 773, 1356; Ex. C-8, at 4-5 ¶¶ III(C)(4) – (6), III(E)). This process is known in the industry as a "pig run." (*E.g.*, Tr. 224-26, 548-50, 745-47).

In late June of 2021, a crew of employees working for Respondent, Bobcat Contracting LLC ("Bobcat"), was pigging on a pipeline owned by natural gas distributor Atmos Energy Corporation ("Atmos") at a launcher located in Farmersville, Texas, a small town northeast of Dallas-Fort Worth. (Joint Stipulation Statement ¶¶ I(8) & (9) ("J. Stip."); Tr. 58-59, 223, 241, 255-57, 293, 295, 547-48, 742; Exs. C-12, at 1 & 2; C-14, C-15, C-17). The crew started its pigging operations on June 21 and successfully completed five pig runs in the ensuing week. (Tr. 633-34; Ex. C-28). On the afternoon of June 28, 2021, the Bobcat crew was preparing to load another pig into the launcher for a pig run planned for the following morning. (J. Stip. ¶¶ I(5) & (7); Tr. 76, 763-65; Ex. C-12, at 2).

By midafternoon, the launcher had been depressurized by burning or "flaring" off the gas inside the chamber. (Tr. 84-86, 197-99, 259, 262, 316-17, 773; Ex. C-43). The Bobcat crew then loaded a 139-pound "gauge pig" into the launcher using a combination of a backhoe and a long, steel "push pole" to push the pig to the point where the launcher began to narrow, a point known as the "reducer." (J. Stip. ¶¶ I(16) & (17); Tr. 76, 80-81, 133, 258-60, 440, 537, 571, 584-85, 700-05, 778-81, 784-86, 816-17, 1302; Exs. C-18, C-37 to 39, C-42, C-44A (notation 5)). As the backhoe was reversing and the push pole was being removed from the launcher, a still-unidentified ignition source lit the residual natural gas in the launcher's chamber, causing an explosion. (Tr. 96-97, 134-35, 184-86, 260, 276-77, 587-80, 621-22, 731-32, 773-74, 779, 817-19, 1215-16, 1329-30; Exs. C-6, at 2; C-29, at 3; C-39). The explosion ejected the pig and the push pole from the

launcher, caused the deaths of two workers onsite, and caused serious injury to two others. (J. Stip. ¶¶ I(14) & (19); Exs. C-6, at 3; C-29, at 3; C-38, C-39).

Among the several federal and state agencies that investigated the explosion was the United States Occupational Safety and Health Administration ("OSHA"), which sent a Compliance Safety and Health Officer ("CSHO") to inspect the worksite and conduct interviews in the days and weeks following the accident. (Tr. 939-41, 946-47). As a result of the CSHO's investigation, the Secretary of Labor ("Secretary") issued a one-item serious Citation and Notification of Penalty ("Citation") to Respondent, alleging a violation of section 5(a)(1) of the Occupational Safety and Health Act of 1970 (the "Act"), 29 U.S.C. §§ 651, *et seq.*, a provision of law commonly referred to as the "General Duty Clause."

The Citation alleged that Respondent violated the General Duty Clause by failing to protect its employees from struck-by hazards while engaged in pigging operations. The Citation further alleged that three forms of abatement could materially reduce employees' exposure to this hazard. The Citation proposed a penalty of $13,653 for Respondent's alleged violation.

Respondent filed a timely notice of contest to the Citation thereby bringing this matter before the Occupational Safety and Health Review Commission (the "Commission").[2] The matter was thereafter designated for Conventional Proceedings by the Chief Administrative Law Judge and assigned to this Court.

A trial was held on February 27 to 29, 2024, in Dallas, Texas. The trial was continued on March 18 and 29, 2024, via videoconference. The following individuals testified at trial: (1)

[2] The Commission is an independent adjudicatory agency and is not part of the Department of Labor or OSHA. 29 U.S.C. § 661. The Commission was established to resolve disputes arising out of enforcement actions brought by the Secretary of Labor under the OSH Act and has no regulatory functions. 29 U.S.C. § 659(c).

[redacted], a "skilled laborer" for Bobcat; (2) [redacted], a "pipeline technician" for the contractor hired by Atmos to depressurize the launcher; (3) Christopher Thomas, a senior field construction coordinator for Atmos; (4) Marshall Cross, a superintendent for Bobcat; (5) Marco Rodriguez, an operator/foreman for Bobcat; (6) Glen Carter, the health, safety, and environmental director for Bobcat; and (7) Andrew Bryan Stringer, the Secretary's expert witness on pigging operations.[3]

Both parties submitted timely post-trial briefs.[4] Pursuant to Commission Rule 90, after hearing and carefully considering all the evidence and the arguments of counsel, the Court issues this Decision and Order as its findings of fact and conclusions of law.

For the reasons discussed below, the Citation is VACATED.

II. STIPULATIONS

The parties stipulated to various facts, applicable law, and the Commission's jurisdiction over this proceeding. *See* J. Stip. (filed July 7, 2023). Rather than set forth the parties' stipulations in the Joint Stipulation Statement in their entirety, the Court cites to them as is relevant and appropriate. In addition to the stipulations set forth in the parties' Joint Stipulation Statement, the parties stipulated to the following additional facts at trial: 1) "Bobcat crew members were not wearing their personal 4 gas monitors provided by Bobcat at the time of this incident." (Tr. 11); and 2) "The term 'trap' is the same thing as 'launcher.'" (Tr. 61).

[3] After extensive *voir dire*, and over objection from Respondent, the Court certified Mr. Stringer as an expert in "oil and gas operations specifically with respect to pigging operations," "work practices, analysis of hazards, what the industry practice is, what abatements the industry has used," and "specific pigging procedures that would be useful." (Tr. 1074; *see also* Ex. C-47, at DOL001279-86, DOL001522-28).

[4] Any affirmative defenses not raised at the trial or briefed post-trial are deemed waived by Respondent. *See, e.g.*, *Simon v. United States*, 891 F.2d 1154, 1159 (5th Cir. 1990). The only affirmative defense raised by Respondent in its post-trial brief is that OSHA's authority over this worksite was preempted by regulations issued by the United States Department of Transportation's Pipeline and Hazardous Materials Safety Administration ("PHMSA"). *See generally Chao v. Mallard Bay Drilling, Inc.*, 534 U.S. 235 (2002) (describing how another federal agency can preempt OSHA's authority over certain working conditions under section 4(b)(1) of the Act); *see also* Subpt. B to 49 C.F.R. (setting forth the authority and operations of the PHMSA).

III. JURISDICTION

Based on the Joint Stipulation Statement and the trial record, the Court finds the Commission has jurisdiction over this action pursuant to section 10(c) of the Act, 29 U.S.C. § 659(c). *See* J. Stip. ¶¶ I(1) & (3), II(A). Further, the Court obtained jurisdiction over this matter under section 10(c) of the Occupational Safety and Health Act (the "Act") upon Respondent's timely filing of a notice of contest. *See* 29 U.S.C. § 659(c); *see also* J. Stip. ¶ I(3). The Court also finds 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(3), (5). J. Stip. ¶ I(1).

IV. FACTUAL BACKGROUND[5]

A. Bobcat Contracting

Bobcat is a construction contractor which, at the time relevant to this case, employed approximately 500 people.[6] (Tr. 377, 645). Bobcat is a "diverse company," with divisions engaging in electrical "overhead and instrumentation" (work related to power lines), crane operations, hydrovac work, and a "specialty tool division." (Tr. 646; *see also* Tr. 364). However, the majority of Bobcat's work, approximately 70 percent, relates to the construction and maintenance of oil and natural gas pipelines owned and operated by energy distribution companies.

[5] After a careful review of the record, the Court bases its factual findings on the evidence it has found credible, probative, and reliable. To the extent there is evidence in the record contrary to an explicit factual finding, the Court does not credit that evidence.

[6] According to Mr. Carter, the number of employees working for Bobcat at the time of the trial was closer to 800. (Tr. 645).

(Tr. 364-65, 377, 646, 679-80). Of Bobcat's work related to pipelines, a substantial amount involves pigging. (Tr. 48, 364, 646).

B. <u>Pigs, Pigging & Pig Launchers</u>

Pigging involves the insertion of various types of pigs, which stands for "pipeline inspection gauge," into an oil or gas pipeline. (Tr. 46, 223-24, 247, 365, 694, 963, 966, 970-71, 974-75, 1253; Ex. C-8, at 3-5). Pigs vary significantly in their weight, weighing 10s, 100s, or even 1000s of pounds. (J.Stip. ¶ I(17); Tr. 156, 440-41, 537, 1148; Ex. C-18). Pigs also vary significantly in their composition, being comprised of diverse materials such as foam, aluminum, steel, or plastic. (Tr. 46-47, 225-26, 254, 489, 492, 1331-32). The purpose of various types of pigs also varies significantly. (Ex. C-29, at 1 n.2). Some types of pigs, such as "brush pigs," "foam pigs," or "mandrel pigs," are used to clean the buildup and debris that accumulates during the normal operation of a gas pipeline. (Tr. 46-47, 225, 253, 694). Other types of pigs, known as "gauge pigs," "gauge plate pigs," or "caliper pigs," are used to detect any irregularities in a pipeline or to confirm uniformity in the diameter of the pipeline. (Tr. 98-99, 226, 253-54, 550, 577, 870-71; Exs. C-18, C-39). Still other types of pigs, known as "smart pigs" or "intelligent pigs," are "computerized tools" used to take measurements of, and collect other data on, the interior of the pipeline wall to ensure its structural integrity during regular operation of the pipeline. (Tr. 226, 254, 747, 849-50, 871, 975).

For the routine maintenance of a pipeline,[7] as was occurring on the length of pipeline involved in this case, a typical pigging job proceeds in the following order. First, the pipeline is

[7] Regulations promulgated by the PHMSA require pipeline operators to "reassess" various metrics of "covered pipeline segments" at least every seven years. *See generally* 49 C.F.R. § 192.939; *see also* Tr. 156, 223-24, 242-43, 974-75.

cleaned of excess fluid and debris using some combination of foam, brush, and mandrel pigs.[8] (Tr. 46, 225, 253, 257, 548-49, 567-68, 694, 747, 964, 975; Ex. C-12, at 2 ¶ (D)). Once the pipeline has been sufficiently cleaned, gauge plate or caliper pigs are used to detect any irregularities on the interior surface or in the diameter of the pipeline so that a smart pig can be run without interference. (Tr. 226, 253-54, 550, 870-71; Exs. C-12, at 2 ¶ (D); C-18, C-39). Finally, a smart pig is launched and collects data on the interior of the pipeline. (Tr. 225-26, 254, 567-68, 747, 849-50, 871, 975; Ex. C-12, at 2 ¶ (D)).

To facilitate maintenance on their pipelines, operators build in both launchers and receivers at certain points along the pipeline.[9] Launchers and receivers are essentially above-ground lengths of pipe leading to the underground gas pipeline. (Tr. 250-51, 295, 469-70, 721-22; Exs. C-8, at 6; C-29, at 1 n.2; C-33, at 2; C-34A (notation 2), C-35, C-44). The launcher allows for a pig to be inserted into the pipeline so that it can be sent underground through a segment of the pipeline to the receiver, which can be miles away. (Tr. 223, 240-41, 295-96, 439-40, 490, 745, 752-53; Ex. C-12, at 2).

As to pig launchers, one of which is at the center of this case, the setup and arrangement of any given launcher varies based on different factors, such as the age of the launcher or the pipeline on which it is installed. (Tr. 263-64, 283-85, 303, 307-08, 386-87, 795, 801-02, 834; Ex.

[8] According to Mr. Thomas, "the first run you make … is either a bullet nose polly[sic]-type pig or foam pig. And it will have crisscross brushes on it. It's not only used for clearing but if there is a blockage in the pipe … we can still move through it." (Tr. 225). After the foam pig, a mandrel pig, which "has the magnetics [and] wire brushes for cleaning the cups, the front cups and the drive cup with gas to push it" is typically the next pig to be run. (Tr. 225). The mandrel pig is a "much heavier tool" than the initial bullet nose or foam pig. (Tr. 225).

[9] Some witnesses at trial alternatively referred to launchers and receivers as "pig traps" throughout the trial. (*E.g.*, Tr. 61, 250, 414 1286). The parties stipulated that these terms refer to the same entities. (Tr. 61). The Court will use the terms "launcher" or "receiver" throughout this decision for the sake of clarity and consistency.

C-8, at ¶ (III); *compare* Ex. C-8, at 6, *with* Exs. C-15, at 3 & 4; C-44). As a general matter,[10] however, a launcher typically has various valves including a mainline valve that controls the gas flow from the main pipeline to the launcher, a "kicker line" that is used to refill the launcher with natural gas to launch a pig, various "bleeder valves" or "purge points" that can be opened to release gas from the launcher's chamber, and a door that allows access to the launcher for the purpose of, as is relevant here, loading and launching pigs. (Tr. 167-68, 250-51, 263-64, 268, 284-87, 343-44, 756, 774-75, 834; Exs. C-8, at 3 to 6; C-33, at 2; C-41, C-44A).

C. <u>Struck-by Hazards of Pigging</u>

The Citation alleges the existence of "struck[-]by hazards when conducting pigging operations." Citation 6. In that regard, the record establishes two potential struck-by hazards associated with the process of loading and launching a pig.[11] The more prominent struck-by hazard is the result of pressure inside the launcher. In their default state, launchers are pressurized with natural gas at a pressure ranging from 100 pounds per square inch ("PSI") to as much as 1,100 PSI.[12] (Tr. 427, 976, 1078, 1087-88). The launcher involved in this case, for example, is typically pressurized at around 600 to 800 PSI. (Tr. 427, 1078, 1087-88). Thus, if a launcher is not properly depressurized prior to opening its door, the door could forcefully swing open from the sudden release of pressure and strike an employee working in the door's vicinity. (Tr. 52-53, 91-92, 171,

[10] The Court will detail the functionality of the particular launcher involved in this case when recounting the events leading to the issuance of the Citation. *See* Part IV(F)(2)(b)(i), *infra.*

[11] There are other hazards associated with launching a pig, such as pinch points formed by moving machinery on the launcher or excessive noise, which are not implicated in the struck-by hazard alleged in the Citation. (Tr. 557, 678; Ex. C-8, at 3 ¶ II(A)). Additionally, while the hazards associated with the launching and receiving sides of pigging are substantially similar, there are additional "NORM" or "natural occurring radioactive material" hazards associated with the receiving end of the process that are not implicated by the struck-by hazards alleged in the Citation. (Tr. 626-27, 1266-67, 1333-34; Ex. C-8, at 2 & 3 ¶ II(A)(3)).

[12] As a reference point for the intensity of this pressure, atmospheric pressure, i.e., air pressure at ground level, is approximately 14.7 PSI. (Tr. 1088).

321, 365, 432-33, 557, 591, 677-78, 707-08, 857, 924, 934, 976, 1078-79, 1333; Ex. C-8, at 3 ¶ II(A)(8); *id.* at 4 ¶ III(C)(4)).

The second, more attenuated struck-by hazard associated with pigging is the result of employees working in an environment with combustible gas. Even when properly depressurized, a pig launcher has a residual concentration of natural gas in its chamber.[13] (Tr. 93-94, 136-37, 320, 589-90, 617, 1092). When working in an environment where natural gas is present, there is always the potential of ignition and/or an explosion if the "fire triangle" of fuel, oxygen, and an ignition source is completed. (Tr. 380, 874, 1141-42; Ex. C-8, at 3 ¶ II(A)(1)). Thus, if the fire triangle is completed inside the launcher, an explosion can occur. (Tr. 54-55, 93-94, 157, 373-74, 433, 558, 589-90, 678, 975, 1117-18, 1129, 1333). As evidenced by the facts of this case, such an explosion can eject materials from inside the launcher, like a loaded pig or a push pole, and, in that way, potentially expose employees working near the launcher to a struck-by hazard. (Tr. 98-99, 596-97, 785, 901, 938, 1079, 1129, 1217; Exs. C-8, at 3 ¶ II(A)(5), C-38, C-39).

Bobcat was aware of both of these hazards and took measures to reduce employee exposure to each of them. As to the hazard posed by the sudden release of pressure at the launcher door when pigging, the procedure was to depressurize the launcher prior to opening the door, thus eliminating the hazard. (Tr. 52-54, 171, 208-09, 282-85, 305-06, 321, 375, 406-07, 424-25, 432-33, 678-81, 806 865, 924, 934, 1089, 1181, 1295-96; Ex. C-8, at 3 ¶ III & at 4 ¶ III(C)(1)). At least on some occasions, Bobcat's employees would use a pressure gauge to confirm a launcher had been depressurized prior to opening the launcher's door. (Tr. 49-50, 366-67, 396-97, 562).

[13] Mr. Thomas emphasized the distinction between pressure and volume of natural gas in a launcher chamber, noting that even if "there's no pressure left on the line … you could still have [a] volume [of gas] to take up the space, just not under pressure." (Tr. 320-21). As Mr. Rodriguez and Mr. Carter noted, there is residual gas "seepage" that is essentially "baked into the [permeable] walls" of a natural gas pipeline. (Tr. 617, 694).

All employees on the worksite were on alert for the sound, smell, sight, or feel of escaping gas as the door was being opened, which might indicate the chamber had not been properly depressurized. (Tr. 123, 127, 129-30, 271-72, 324, 427-28, 719, 778, 822). Further still, employees were instructed to stand opposite from the swing of the door as it was being opened and to minimize time spent in front of the door. (Tr. 105-06, 113-14, 128-29, 375-76, 389-90, 494-95, 590-91, 628, 704-08; Ex. C-8, at 4 ¶ III(C)(3)).

As to the possibility of an explosion occurring in a launcher, Bobcat's employees worked as if the launcher had a "100 percent" concentration of natural gas at all times. (Tr. 465-66, 475-76, 684; *see also* note 13, *supra*). The main method Bobcat's employees used to address this hazard when loading a pig was to use a magnetic bonding cable, which was connected to both the steel push pole and the steel body of the launcher. (Tr. 93-94, 133-34, 212, 276-77, 732, 815-16; Exs. C-8, at 5 ¶ III(C)(2)(i); C-40). The Court discusses the function of this bonding cable in more detail in describing the pig loading process. *See* Part IV(F)(2)(b)(iii)(3), *infra.*

D. <u>Bobcat's Training for Pigging</u>

Bobcat trains its employees for pigging operations and to recognize the hazards associated with pigging in a few different ways:

1. Operator Qualifications

Bobcat's employees are primarily trained using "Operator Qualifications" or "OQs," which consist of a mix of classroom, computer, and video instruction, followed by an exam. (Tr. 44-45, 139-40, 381, 559, 670-72, 674-75; Exs. C-9, C-20). New employees go through an on-boarding process consisting of at least two days of OQs, and current employees are required to recertify their OQs periodically. (Tr. 44, 140, 381). OQs are meant to address "each task that [an employee] could perform on a pipeline" ranging from specific tasks like "torquing a bolt" to more general

subjects like "Preventing Accidental Ignition" and "Recogniz[ing] and React[ing] to Generic Abnormal Operating Conditions."[14] (Tr. 230-32, 379, 559-60, 672; Ex. C-9, at 1, 2, 5-7). At the time of the accident, there was no OQ specific to pigging,[15] but content from other OQs was considered transferable for working on pigging projects. (Tr. 1343, 1356-57; Ex. C-9).

Pipeline operators maintain databases of Bobcat's employees' OQs, and certain OQs are required to work on different types of projects, including pigging projects. (Tr. 140, 227-28, 290-91, 559, 672; Exs. C-14, at 5; C-20, at 1). Typically, pipeline operators ensure that a contractor's employees assigned to a given project have the proper OQs to work on that project, and the contractors are expected to "police themselves as well."[16] (Tr. 227-28, 290-91, 673; Ex. C-14, at 5).

2. Other Training

On top of the OQs, Bobcat's employees receive additional training specific to pigging. First, following training with the OQs, Bobcat's employees are taken to a practice pigging facility to be observed and evaluated before being certified in a particular OQ. (Tr. 233, 381, 672, 1278-79). Additionally, Bobcat hires a contractor called T.D. Williams to administer pigging classes to

[14] According to Mr. Thomas, these latter two OQs "[u]sually … go together" and cover similar subject matter on abnormal operating conditions in pipeline work such as "the escape of natural gas, uncontrolled release of natural gas[, n]o natural gas" or a valve leak and how to "recognize and react to those conditions." (Tr. 230-32). The parties stipulated that all three of the Bobcat employees working on the pigging project here had completed these two OQs. (J. Stip. ¶ I(10); *see also* Tr. 1343, 1356-57). The training records for these three employees show several other additional OQs "that wouldn't necessarily be for [a pigging] operation but they are still required to have them to be on any ATMOS job site regardless of what specific tasks are required." (Ex. C-20, at 1; *see also* Tr. 657-58; Ex. C-9).

[15] Since the accident, employees are trained on the "M23" OQ, which directly addresses pigging. (Tr. 1279, 1343).

[16] Each pipeline operator develops their own system for ensuring the contractors on its worksites are qualified to complete the tasks required for a particular job. (Tr. 673). Thus, while some "operators share common covered tasks" such that an OQ might be transferable between multiple pipeline operators, there appears to be no standardized system in the industry. (Tr. 673).

its employees. (Tr. 1278-79). Finally, newer employees receive on-the-job training from more experienced employees. (Tr. 49, 139).

E. Bobcat's Safety Policies for Pigging

Three of Bobcat's safety policies at the time of the accident are implicated by the Secretary's proposed abatement methods in the Citation:

1. Use of Pressure Gauges

First, at the time of the accident involved in this case, Bobcat supplied its pigging crews with pressure gauges, which are approximately 4-inch dials with needles indicating the pressure in a given environment. (Tr. 279, 366, 395-96, 552, 656, 755-56, 813, 1080, 1084-85). These pressure gauges could be installed on certain valves on a pig launcher to measure the pressure inside the launcher's chamber.[17] (Tr. 49-50, 53, 279, 312-14, 366, 552-53, 614, 755-56, 811, 1080, 1084-85; Ex. C-44A (notation 3)). Bobcat's employees were trained in installing and reading pressure gauges on pig launchers, and its pigging crews sometimes used pressure gauges to measure the pressure in launchers. (Tr. 49-50, 366-67, 396-97, 562). However, Bobcat's practice at the time did not require the use of pressure gauges during pigging; rather, the determination on whether to use a pressure gauge during any given pigging job was made on a "case-by-case basis" or "whenever it was applicable." (Tr. 367).

2. Use of Personal Four-Gas Monitors

Second, at the time of the accident, Bobcat supplied some of its employees with personal four-gas monitors, "a small square tube probably 2-inch-by-2-inch electronic device that clips onto

[17] Mr. Stringer, the Secretary's expert, explained as a general matter that "[t]he way that [pressure gauges are] typically used is to find a port on the pig launcher where you can install a gauge. They screw in just like you would screw in a screw with a screwdriver. They will screw into a port and then they will monitor the pressure there." (Tr. 1080).

the shirt or onto your collar and is capable of detecting natural gas,[18] [hydrogen sulfide gas], oxygen levels … [a]nd carbon monoxide." (Tr. 327; *see also* Tr. 51, 371-73, 420, 469, 655, 820, 1165-66, 1265-66; Ex. C-47, at DOL001273). These monitors draw in gas from an approximately 10-inch radius and have an audible alarm if the level of any of the four gases reaches an unsafe concentration. (Tr. 372, 469, 1237, 1267-68). At the time of the accident, Bobcat required employees to use personal four-gas monitors during certain activities, like excavations, but not while pigging. (Tr. 11, 102, 347-48, 373, 468, 561, 632-33, 655-56). Since the accident, Bobcat now requires its employees to wear personal four-gas monitors while pigging. (Tr. 51, 373, 655, 724).

3. Use of Cell Phones

Third, Bobcat had no policy against the use of cell phones while its employees were pigging, although employees other than foremen were instructed to keep their cell phones in their trucks while working. (Tr. 147, 490-91, 590, 1320-21). Bobcat's foremen would use their cell phones to take a photograph of a redressed pig to "show what the pig looked like entering the line," and again "at the receiver showing what it looks like exiting the line." (Tr. 490-91). Additionally, foremen would use their cell phones to take photographs of a "white board," which is a "board that tells you what pig we're running, the date, what type of run it is and the name of the line." (Tr. 575, 711). Finally, foremen were expected to keep their cell phone on their person in case of an emergency at the worksite. (Tr. 1321-22).

[18] For natural gas, a four-gas monitor measures the gas's "lower explosive limit" or "LEL," which is the smallest concentration of gas that could possibly ignite or explode. (Tr. 1157, 1165, 1265, 1267-68). A hydrocarbon gas like natural gas (methane) has an LEL of approximately five to ten percent. (Tr. 1112-13, 1267-68).

F. The Farmersville Project & Worksite

1. Atmos Energy Corporation

Atmos, a large natural gas distributor, was the owner and operator of the pipeline and the launcher involved in the explosion giving rise to this case. (Tr. 48, 222, 1358). Atmos is also one of Bobcat's largest clients. (Tr. 647-48). Accordingly, Bobcat's employees, including those who testified at the trial, have worked on many projects for Atmos and have more than a passing familiarity with many of Atmos's internal policies and procedures. (Tr. 377, 546, 647-48, 1282-84, 1358-59). A few of these policies and procedures are implicated by the events and arguments raised in this case and therefore warrant further discussion.

a. Field Construction Coordinators

Atmos sends at least one "Field Construction Coordinator" ("FCC") to each worksite where pigging is being conducted to act as the "boots on the ground" and coordinate with the contractors onsite. (Tr. 116-18, 120-21, 134-35, 138-39, 143, 190-91, 222-23, 228, 247-48, 251-52, 344, 386-87, 400, 423, 545-46, 552, 568, 575, 578, 589, 611-12, 621, 637, 672, 676-77, 686, 705-06, 722, 792, 852, 1283, 1288, 1304). For a maintenance pigging project, like the project involved here, an FCC's role proceeds thusly:

> [The pigging project] normally comes down from our engineers and our compliance managers who let us know what the schedule is going to be for which different lines we are going to be doing.
>
> At that point an engineer will be assigned to that line. They will pull up the past running data. They will research that. They will put together what is a stakeholders call. The schedule will be sent out to the contractors that we are going to be using.
>
> A stakeholders call will be called to facilitate the run date to get everybody on the same page. They will go through a whole outline of information on that. Once the run dates and all the technical stuff is worked out then it's moving equipment. Getting everything set up onsite. Make sure there's no challenges and everything gets put in place.

> Then we go ahead and start with our gas run. I have gas cleaners prior to those dates. Alerting our gas control that we are going to be doing our maintenance activity. And then we show up onsite and we begin the [pigging] process.

(Tr. 237-38).

On a day-to-day basis during a pigging project, the Atmos FCCs are responsible for leading a daily safety meeting at the launcher and receiver. (Tr. 139, 243, 272, 766; Ex. C-12, at 2 ¶ (E)). The FCCs also "coordinate with the contractor[s]. Make sure all of the tools and equipment [are] onsite … [B]e there during the move in time where the flare and the piping for that [are] set up." (Tr. 251-52). And, as the Court details more fully below, the FCCs had final authority over Atmos's worksites, including when to proceed at various points in the pig loading and launching process. *See* Part IV(F)(2)(a)(ii), *infra.*

b. ISNetworld

Atmos is connected to a database called "ISNetworld," which is a "large database that [pipeline] operators around the world use." (Tr. 675, 1284). ISNetworld houses several kinds of records including contractors' insurance certificates, safety manuals, safety statistics, and safety training records. (Tr. 675, 1284). Bobcat uses ISNetworld to connect with Atmos by uploading such documents, including OQ records for its employees, into ISNetworld, thus giving Atmos on-demand access to these records for any given project. (Tr. 672-73, 675, 1284). Likewise, if Atmos updates an internal safety policy, the written policy is usually uploaded into ISNetworld, and Bobcat is notified of the update.[19] (Tr. 675, 1283-85). Of the Bobcat employees involved in the

[19] At the time of the accident, when Atmos updated a policy, Mr. Carter, Respondent's Health, Safety, and Environmental Director at the time of the accident, would receive: 1) an invitation to attend a conference call to discuss the update in the policy; and 2) an email notifying him that the new written policy had been uploaded to ISNetworld. (Tr. 1283-84).

events of this case, only Mr. Carter appears to have had direct access to the documents uploaded into ISNetworld.[20] (Tr. 247-48, 484-85, 1284).

c. Appendix R

Appendix R to Atmos's "Pipeline Integrity Management Plan" ("Appendix R") addresses, in relevant part, procedures for "Loading and Launching a Pig."[21] (Ex. C-8). The various sections of Appendix R, which were discussed at length at trial, address potential hazards associated with pigging, set forth safety procedures to address those hazards, and are meant to provide a "basic set of instructions that can be followed or implemented" when loading and launching a pig. (Tr. 247; *see also* 277-84, 315-17, 325-26, 353-54, 486-87, 488-89, 497-99, 511-16, 593-95, 628-29, 696-97, 707-09, 714-18, 720-23, 769-71, 838-39, 897-99, 915-18, 1120-22, 1218-21, 1235-36, 1263-66, 1289-93, 1296-98; Ex. C-8).

Under the "Safety" section of Appendix R, several suggested safety measures are listed, three of which are specifically implicated by the abatement methods proposed in the Citation. In this regard, Appendix R directs employees engaging in pigging to "[e]liminate all sources of ignition (i.e. cell phones) during loading" ,[22] to use "[m]onitoring devices or equipment for oxygen,

[20] Mr. Thomas previously believed Bobcat employees had access to Atmos's safety policies through ISNetworld but "since then found out that they don't have complete access to that." (Tr. 248). Mr. Cross had no experience accessing ISNetworld and "would have to ask [Atmos] directly, typically to get the procedures from them myself." (Tr. 484-85).

[21] Only the portion of Appendix R related to loading and launching a pig was entered into evidence. (Ex. C-8). Neither a full copy of the Plan, nor the remainder of Appendix R, which relates to "receiving a pig," were offered or entered at trial. (Ex. C-8, at 1).

[22] Despite Appendix R's nominal direction restricting the use of cell phones on Atmos's worksites, the Atmos FCCs regularly used their cell phones for communication during various stages of the pigging process and did not restrict Bobcat's employees from using cell phones while on the worksite. (Tr. 146 477-78, 488, 709, 808-09, 1311; *see also* Ex. C-32).

hydrocarbons, [hydrogen sulfide gas] …",[23] and to "[v]erify a pressure gauge and purge point has been installed to monitor and relieve pressure inside the barrel [of the launcher]." (Ex. C-8, at 2; *see also* Tr. 277-80, 488-89, 624-26, 708-11, 717-18, 915-18, 1121-22, 1192-93, 1215-17, 1235-36, 1291-93).

In laying out a standardized loading procedure, Appendix R recognizes that its "procedure is meant to be a guide for loading a pig under ideal situations and configurations" and that "[m]any pig receivers are configured differently, and valves may be in different locations or not there at all." (Ex. C-8, at 3; *see also* Tr. 281-82, 315-16, 498, 512-13). Thus, "Operations…" (here, Atmos) "…is responsible for adjusting procedure due to configurations or project conditions to ensure that loading and launching are performed in a safe and controlled manner." (Ex. C-8, at 3; *see also* Tr. 315-16, 498-99, 716).

Appendix R is accompanied by a "standard drawing" of a pig launcher, and the pig loading and launching procedures set forth in the preceding portion of Appendix R correspond to this drawing. (Tr. 249-51, 283-84; Ex. C-8, at 3 & 6). While this drawing has some similarities to the launcher at the Farmersville worksite, there are several differences. Particularly, there are far fewer valves on the Farmersville launcher than the launcher depicted in the standard drawing, such that the procedure set forth in Appendix R could not be exactly followed to load and launch a pig from the launcher in Farmersville. (Tr. 249-51, 283-84, 513-15; *compare* Ex. C-8, at 6, *with* Exs. C-15, at 2 & 3; C-44).

For reasons unclear from the record, despite representing a written safety policy that Bobcat was required to follow while pigging an Atmos pipeline, Appendix R was not uploaded to

[23] Despite Appendix R's nominal direction of using gas monitors, the Atmos FCCs did not wear personal four-gas monitors while pigging during the Farmersville Project and did not direct any Bobcat employees to wear such monitors. (Tr. 11, 277-78, 347-48, 777-78, 820).

ISNetworld before the date of the accident. (Tr. 248, 676, 1282-84, 1286-87, 1352). Moreover, Atmos did not address this document at the June 15th stakeholders meeting, detailed below, nor did it otherwise distribute Appendix R to the Bobcat crew prior to beginning pigging operations on the project implicated here.[24] (Tr. 244, 483, 385-86, 607-11, 831-32 760-61, 1286-87). Thus, most of Bobcat's supervisors were unaware of Appendix R's existence until after the various investigations into the accident commenced. (Tr. 248, 569, 623, 676, 1281-82, 1286-87, 1352; *see also* note 24, *supra*). Nonetheless, the policies and procedures set forth in Appendix R were generally consistent with those Bobcat's employees followed in the field when pigging on Atmos's pipelines.[25] (Tr. 281-82, 316, 325-26, 353-54, 498, 511-16, 592-602, 628-29, 677, 707-08, 720-23, 769-70, 1352).

2. The Farmersville Project

In June of 2021, Bobcat had contracted with Atmos to perform pigging operations on an approximately 20-mile length of pipeline running from Farmersville, Texas, the location of the launcher, to Rockwall, Texas, the location of the receiver (the "Farmersville Project" or "Project").[26] (J. Stip. ¶¶ I(8) & (9); Tr. 58-59, 223, 241, 255-57, 293, 295, 547-48, 742; Exs. C-12, at 1 & 2; C-14, C-15, C-17). The Farmersville Project was part of routine maintenance performed on Atmos's pipelines approximately every seven years. (Tr. 223-24, 742, 974-75; Exs.

[24] An exception to this was Mr. Cross. At some time prior to the start of the Farmersville Project, Mr. Cross *had* been sent Appendix R in an email in relation to another pigging project that was eventually rescheduled. (Tr. 483-84, 1352). As a result, Mr. Cross did not review it for purposes of that project and thus had never reviewed it before the Farmersville Project began. (Tr. 484-85).

[25] According to Mr. Carter, an audit of Atmos "found that they didn't have pigging procedures written down or in print. And so Atmos put a committee together of FCCs and people that had pigging experience[,] and they basically just put on paper exactly what we had been doing in the field for all those years." (Tr. 1287).

[26] Employees also referred to the Farmersville worksite as "Johnson Hill," and Atmos internally labeled it the "D17-9 yard." (Tr. 223; Ex. C-12, at 1). Employees sometimes referred to the length of pipeline running between Farmersville/Johnson Hill and Rockwall as the "D17" line. (Tr. 223, 240, 427, 575, 745; Ex. C-12, at 1).

C-12, at 1 & 2; *see also* 49 C.F.R. § 192.939). The Project was to commence on June 21, 2021, and would include several pig runs of various kinds intended to clean the pipeline, detect any abnormalities in the pipeline, determine the pipeline's structural integrity, and collect other data on the interior of the pipeline. (Tr. 46-47, 98-99, 225-26, 253-54, 550, 567-68, 694, 742-47, 870-71, 963-64, 975; Ex. C-12, at 1 & 2). Atmos had also contracted with another company, FESCO, Ltd. ("FESCO") to depressurize the launcher prior to loading the pigs. (Tr. 54, 116-17, 120, 190, 227, 299, 850, 845-55, 859; Ex. C-12, at 1).

a. Division of Labor & Responsibility for the Farmersville Project

i. Crews of Workers Onsite

Three crews of workers, one each from Atmos, Bobcat, and FESCO, were assigned to work on the Farmersville Project. For Atmos, the two FCCs overseeing the Project and coordinating the work being performed by Bobcat and FESCO were Mr. Ballinger and Mr. Thomas. (Tr. 227, 241, 739-40; Ex. C-12, at 1). On behalf of Bobcat, Mr. Rodriguez was the "operator" and foreman, overseeing Mr. [redacted], a "skilled laborer" and another "general laborer."[27] (J. Stip. ¶¶ I(13), (15) & (20); Tr. 45-46, 73-74, 382, 542-45). Mr. Cross, a Bobcat superintendent, oversaw approximately five or six foremen at the time, including Mr. Rodriguez, and so was also periodically involved in the Project. (Tr. 363-64, 397-400). Finally, FESCO sent a crew of two workers, the composition

[27] The general progression for Bobcat's pipeline workers was to start as a general laborer, "just gauging what everyone else is doing" and "help[ing] around here and there" to receive "hands-on training on the field." (Tr. 45, 543, 556). After a certain amount of time learning in the field, workers were promoted to "skilled laborer" who "actually start doing hands on stuff …" (Tr. 544). Skilled laborers could then be promoted to foremen, who oversaw a small crew or workers in the field, and/or operators, who operated heavy equipment in the field, like the trackhoe used in this case. (Tr. 117, 542-47).

of which apparently varied between the start of the Project and the date of the accident.[28] (Tr. 161-62, 191, 749).

As a general matter, the division of responsibility for the pig runs planned for the Farmersville Project was as follows:

ii. Atmos

Atmos, as the owner and operator of the pipeline, had a managerial role over Bobcat and FESCO, and its FCCs made any final decisions about how the work was to progress while pigging including any decisions regarding the operation of the launcher.[29] (Tr. 116-18, 120-21, 134-35, 138-39, 143, 190-91, 222-23, 228, 247-48, 251-52, 344, 386-87, 400, 423, 545-46, 552, 568, 575, 578, 589, 611-12, 621, 637, 672, 676-77, 686, 705-06, 722, 792, 852, 1283, 1288, 1304). As the launcher's owner, Atmos also had responsibility for the maintenance of the launcher and to ensure

[28] According to Mr. Ballinger, the two FESCO workers on the date of the accident, Mr. [redacted] and a supervisor, were different than the ones assigned at the start of the Project. (Tr. 749). This testimony was corroborated by Mr. [redacted], who stated that the date of the accident was his first day working on the Project. (Tr. 191).

[29] Several examples of Atmos's authority over the Farmersville worksite included: as a general matter, Bobcat and FESCO's crews were required to follow Atmos' pigging procedures and any modifications the FCCs made to those procedures to fit a particular worksite or launcher (Tr. 247-48, 386-87, 676-77, 1282-84, 1288; Ex. C-8, at 3 ¶ III); in a similar vein, the Atmos FCCs were charged with leading a safety meeting prior to beginning work (Tr. 138-39, 243; Ex. C-12, at 2); Bobcat would obtain the permission of an Atmos FCC before beginning the process of opening the door of the launcher once it was depressurized (Tr. 120-21, 575, 578); both Bobcat and FESCO would obtain an Atmos FCC's permission to open, close, or adjust any valves on the launcher, including the mainline valve and the bleeder valve leading to FESCO's flare system (Tr. 143, 344, 400, 552, 611-12, 637, 686, 722, 792, 852); when Bobcat was pushing a pig into the launcher with the push pole, an Atmos FCC would determine when it was properly seated in the reducer (Tr. 134-35, 621, 705-06, 1304); Atmos would ensure the workers sent by Bobcat had the requisite OQs for the work being performed at a given site (Tr. 228, 672); and, on the date of the accident, it was an Atmos FCC who decided against installing a pressure gauge on the launcher because the launcher was slippery from rain (Tr. 589, 776-77).

various components, like its valves, were in good operating condition.[30] (Tr. 116, 332, 343-44, 437-38, 837-38).

iii. FESCO

FESCO was in charge of depressurizing the launcher by way of a "flare system" that would burn off gas from inside the launcher chamber once the mainline valve had been closed and the chamber isolated. (Tr. 54, 116-17, 120, 163, 190, 227, 300-01, 859). Accordingly, FESCO was responsible for constructing the flare system,[31] connecting the flare system to the launcher, operating the flare system, and monitoring the flare system for any mechanical or safety issues. (Tr. 61-63, 117, 194-95, 270-71, 300-01, 635, 686, 859).

iv. Bobcat

Bobcat was responsible for: "redressing" or "rebuilding" the pigs before they were inserted into the launcher;[32] (Tr. 80-81, 259, 489-90, 711; Ex. C-13); opening the launcher door once the

[30] As an exception to this general premise, Bobcat *was* responsible for replacing "door seals," which are "an o-ring that fits into a slot that when the door is closed it helps to make sure you've got a seal between the metal door and the metal rim of the launcher tube." (Tr. 838). As further explained by Mr. Thomas:

> [Bobcat does] maintenance on the door seals once they're put in. They apply the anti-seize around the door, the copper sealant which is anti-seize that goes around the door and helps lubricate and protect the seals. They do that … when the door seal does get changed, we would hand that to [Bobcat] and they would take the old one out and put the new one in when we close the door. It's just a piece of rubber placed in that track.

(Tr. 333-34). Even still, this door seal maintenance was done at the direction of Atmos. (Tr. 334).

[31] The Court describes the physical attributes of this flaring system in more detail below. *See* Part IV(F)(2)(b)(ii), *infra.*

[32] Redressing involves "removing … bolts" and placing "polyurethane … cups and … discs" on the pig "in certain orders depending on the line." (Tr. 81, 258, 489-90). These "cups and discs" prevent the pig from losing its seal and getting caught in the pipeline during a pig run. (Tr. 490). During redressing, Bobcat also installs transmitters "inside … the hollow area of the pig." (Tr. 151). These transmitters are powered by lithium batteries and use radio frequency to track the pig during its run, (Tr. 131-32, 151, 254-55, 491-93, 578, 711-13). The lithium batteries that power the transmitters are installed inside the transmitter in a "cylinder object" made of some kind of metal. (Tr. 492). The cylinders are approximately three to six inches long with a cap and gastight rubber seal around the battery. (Tr. 492-93). A new battery is put into a pig's transmitter before each pig run. (Tr. 493, 713, 1323).

launcher had been depressurized[33] (Tr. 74-75, 88, 121, 174, 260, 271, 274, 569, 575, 578-81, 792; Ex. C-13); loading the pig into the launcher and closing the launcher door to prepare the pig for its run (Tr. 89-90, 131, 181-82, 271, 299, 569, 581-83, 619-21, 700-06, 773; Ex. C-13); and tracking the pigs and collecting data as they made their way from the launcher to the receiver and then relaying that data to Atmos once the pig run had finished. (Tr. 227, 257, 295-97, 299, 337, 570-71, 578, 808-09). The Court describes the latter three of these processes in more detail below. *See* Part IV(F)(2)(b)(iii)(1) - (5), *infra.*

v. Collaboration Onsite

Despite the official division of labor, witnesses at trial described the Farmersville worksite as being a collaborative one.[34] (Tr. 174, 183, 258, 584-85, 721-22, 774-75, 1159-60). Moreover, although Atmos retained ultimate control as to how and when the pigging work was to progress, all employees onsite had stop work authority, i.e., the ability to "shut everything down" on the worksite if they encountered a safety issue or viewed a practice as unsafe. (J. Stip. ¶ I(6); Tr. 57-58, 270, 566-67).

[33] Indeed, as emphasized by Mr. Thomas: "[O]nce we remove the pressure off the trap … the [launcher] door is Bobcat's." (Tr. 271).

[34] For example, Mr. [redacted] described both FESCO employees assisting the Bobcat crew in opening the launcher door and "whatever [Bobcat] asked they needed help with as far as lifting or pushing the pig … inside the launcher" on the day of the accident. (Tr. 174, 183; *see also* Tr. 585 ("[The FESCO employees] are those type of people that just help … [I]f they see somebody struggling, they're just going to go help."")). Mr. Thomas described Mr. Rodriguez "assisting [Atmos] with taking out the back of the port on the gauge pig so we could get it plugged in and charging." (Tr. 258). Mr. Ballinger described Bobcat employees assisting in turning the wheel to open or close the mainline valve. (Tr. 774-75, 792). And Mr. Carter described Bobcat employees helping the Atmos FCCs "purge the launcher" once a pig was loaded by opening a valve "to push all the air out of the launcher and make it where it's 100 percent gas." (Tr. 721-22).

b. The Farmersville Worksite

i. The Pig Launcher

The pig launcher at the Farmersville worksite is approximately 30 feet long[35] and two feet in diameter.[36] (Tr. 701, 1079, 1329; Exs. C-15, at 2 & 3; C-44). When pressurized with natural gas, the launcher contains approximately 600 to 800 PSI of pressure. (Tr. 427-28, 1078-79, 1087-88). At one end of the launcher is the launcher's door, which allows access to the launcher's chamber. (Tr. 90-91, 121-22, 268, 470; Exs. C-33, at 2; C-34A (notation 1); C-41, at 1, 4-7). To the right of the door is a "kicker valve," which is a "smaller line that runs around to the back of the trap where the door is [and which is] used to introduce gas [to] push the tool or the pig out of the trap [by] putting gas in behind it." (Tr. 250; *see also* Exs. C-29, at 7; C-33, at 2). In other words, the kicker line is eventually used to "launch" a loaded pig. (Tr. 110-11, 414-16; Exs. C-8, at 7 ¶ III(E); C-41, at 2 & 3).

Just above the door, approximately six or seven feet above ground-level, is an "8-inch valve with an 8-inch knockoff, which is designed up above … the trap … so that that it can vent [gas] to the atmosphere." (Tr. 286-87, 308-09, 313-15, 756, 1254; Ex. C-44A (notation 3)). A pressure gauge can be attached to this valve. (Tr. 312-13, 552-53, 614, 755-56, 811, 1254, 1272).

Moving along the body of the launcher, there are two additional "bleeder valves" or "purge

[35] The blueprints for the launcher indicate the distance from the launcher door to just before the launcher's mainline valve is 26 feet 6 ⅜ inches. (Ex. C-15, at 3). As can be seen in a photograph of the full launcher, there is some additional length before the launcher descends into the ground. (Ex. C-44).

[36] The diameter of a pig launcher is not generally uniform across the body of the launcher. Rather, the opening of a launcher door is slightly wider in diameter than the pipeline to which the launcher enables access. (Tr. 700-01, 1302). The D17 pipeline was 24 inches in diameter while the opening of the launcher door was approximately 26 inches in diameter. (Tr. 701, 1079; Ex. C-15, at 2 & 3). Thus, from the launcher door to the mainline valve, the launcher chamber tapers until it matches the diameter of the pipeline. (Tr. 700-01; Exs. C-15, at 2 & 3; C-44). This point on the launcher is known as the "reducer." (Tr. 700-01; Ex. C-44A (notation 5)).

points" located directly on top of the launcher, one approximately one-third of the way along the launcher and the other near the mainline valve, opposite from the launcher's door. (Tr. 167-68, 284-86, 309, 834 Exs. C-43, C-44A (notations 1/1A and 2)). These bleeder valves can be opened to release gas from the chamber. (Tr. 167-68, 198, 284-86, 834).

At the end of the launcher opposite from its door is the mainline valve, which regulates the flow of natural gas from the underground pipeline to the launcher. (Tr. 67, 400, 414-16, 452-53, 470, 637-38, 686-87, 752-53, 774, 852-53 Exs. C-33, at 1; C-34A (notation 3); C-44A (notation 4)). A large wheel on this end of the launcher can open and close the mainline valve. (Tr. 310-11, 452-53, 774; Ex. C-44A (wheel above notation 4)). On top of this end of the launcher is an "indicator," a circle and arrow with the words "SHUT" and "OPEN" imprinted around it, to indicate the status of the mainline valve. (Tr. 452-55, 752-53; Exs. C-33A, C-41, at 2, 3).

Running along the side of the launcher, from approximately the middle of the chamber to just before the launcher door, is an "equalizer line," which "allows equalization of pressure within the launcher on both sides of the pig" by "go[ing] around the pig to where you cannot get a pressure buildup in front of the pig once it makes [a] seal" after it has been loaded. (Tr. 501; Ex. C-29, at 7; *see also* Tr. 251, 734-35, 1221-23, 1347-48).

ii. FESCO's Flaring System

To depressurize the launcher, FESCO had designed and installed a flare system to burn off the gas inside the chamber.[37] (Tr. 61, 116-17, 156, 163, 190, 194-95, 227, 252, 267-68, 270-71, 285-86, 309, 317-19, 448-49, 471, 474, 568, 849-50, 851-53, 859-60; Exs. C-33, at 2; C-34A

[37] The flare system used to depressurize the launcher was a relatively new method which FESCO had only just started utilizing in February of 2021. (Tr. 118, 300, 850; Ex. C-29, at 4 n.9). Before flaring, FESCO would depressurize launchers simply by opening a valve on the isolated launcher chamber and venting gas directly into the atmosphere. (Tr. 119, 308-09, 325-26, 424-25, 443, 449, 697-98; Ex. C-44A (notation 3)). Flaring was implemented as a more environmentally friendly method because the natural gas was instead burned off. (Tr. 449, 850; Ex. C-29, at 4 n.9).

(notation 4), C-35, C-43, C-44). This flare system consisted of a "flare tower" or "flare stack," which was approximately 20 to 30 feet tall and positioned approximately 80 to 100 feet from the launcher in the direction of the mainline valve. (Tr. 167, 449, 474, 477, 851 1308; Exs. C-34A (notation 4), C-35, C-43, at 2). At the top of flare tower was a "flare tip" or "flame arrester," "the shield that goes around the flare for the actual ignition source that lights the gases."[38] (Tr. 201, 267-68, 301, 319, 877; Exs. C-33, at 2; C-43, at 2). The flare tower was attached to the launcher chamber itself by a "flare flow line," a system of pipes approximately two inches in diameter. (Tr. 167, 268, 303, 320, 851; Exs. C-33, at 2; C-43, at 2). The flare flow line was connected to the bleeder valve located near the mainline-valve-end of the launcher.[39] (Tr. 167-68, 198-99, 286-87, 308-09; Exs. C-33, at 2; C-34, C-35; C-43, at 2; C-44A (notation 2)).

iii. Pig Launching in Farmersville

The general process of loading and launching a pig for the Farmersville Project was as follows:

1. Depressurizing the Launcher

First, the launcher needed to be depressurized. (Tr. 54, 283-85, 305-06, 424-25, 432, 865; Ex. C-8, at 4 ¶ III(C)(1)). To initiate this process, the launcher was isolated from the underground pipeline by closing the mainline valve. (Tr. 310-11, 400-01, 413, 443-44, 454-55, 617, 752-53,

[38] The purpose of the arrester was to "prevent … a flame from coming backwards" toward the launcher. (Tr. 859). FESCO began using flame arresters in its flaring systems after an incident, previous to the Farmersville Project, where "[a] flame came back from the flare stack and there was no flame arrester. The flame went back to [a frac] tank and blew [it] up." (Tr. 877).

[39] Normally, the flare system would have been attached to the bleeder valve located near the middle of the launcher. (Tr. 262-63, 286-87, 475; Ex. C-44A (valve marked by "1" and "1A")). However, this valve was found to be inoperable, and the Atmos FCCs did not intend to have it repaired until after the Farmersville Project was complete. (Tr. 263-65, 803-06). Because this launcher had far fewer purge points than was typical, the second point nearer to the mainline valve was selected as the only viable alternative. (Tr. 475, 834). This meant the flaring system's connection to the launcher was positioned between the reducer and the mainline valve, rather than between the reducer and the launcher door. (Ex. C-44A).

774-75, 852-53, 1080; Ex. C-44A (notation 4)). Once the launcher was isolated, FESCO would begin the flaring process by switching on an "ignitor box" on the flare tower, causing the top of the flare tower to spark. (Tr. 197-98, 449, 866). A FESCO employee would then open the bleeder valve on the launcher approximately "a quarter inch" to allow natural gas to flow from the launcher chamber through the flare flow line and up to the top of the flare tower. (Tr. 198-99). The introduction of gas to the spark at the top of the flare tower caused the gas to ignite and inflame, which burned or "flared" off the natural gas from inside the isolated launcher and thereby reduced the launcher's internal pressure. (Tr. 163, 190, 301, 317-19, 568, 859, 773, 1289). FESCO would continue to flare off gas from the chamber until the flame on the flare tower extinguished, indicating that the launcher had been fully depressurized.[40] (Tr. 201, 318-19, 405-06, 755-57, 775-76, 810, 865).

2. Opening the Door

After the crews waited for an approximately 15-minute "grace period" to release any additional pressure from the chamber, the process shifted to Bobcat to open the launcher door. (Tr.

[40] A pressure gauge was installed on the launcher's knockoff valve and used to verify the depressurization of the launcher for at least one or two of the first five pig runs conducted for the Farmersville Project. (Tr. 59-60, 312-15, 552-56, 614, 636, 755-57, 810, 1254; Ex. C-44A (notation 3)). During those first one or two pig runs, the crews confirmed that the extinguishment of the flame on the flare tower corresponded with a zero-pressure reading on the pressure gauge and so found the visual cue of the flame going out once the flare tower to be an accurate signal that the launcher was fully depressurized. (Tr. 551-54, 755-57, 775-76, 810). Thus, at a certain point, everyone working onsite seemingly reached a "consensus" that, going forward, a pressure gauge was unnecessary to determine that the launcher had been fully depressurized once the flare tower had extinguished. (Tr. 201, 405-06, 755-57, 775-76, 810, 865).

The Atmos FCCs proffered two additional reasons to explain why they decided against using a pressure gauge after the initial pigs runs for the Project. First, the 8-inch knockoff valve near the door-end of the launcher, the only operable valve to which the gauge could be attached, was approximately eight to ten feet from ground level. (Tr. 312-13, 1254; Ex. C-44A (notation 3)). Thus, any gauge attached to the knockoff valve, a gauge which was approximately two to four inches in diameter, was difficult to read and possibly inaccurate when read from ground level. (Tr. 312-13, 353, 406). Second, the height of the knockoff valve from the ground created its own hazard for an employee climbing on the launcher to attach the gauge, especially if the launcher was wet from rain or otherwise slippery from the "sweat" caused by gas running through the chamber. (Tr. 312-13, 589, 776-77, 1332).

74-75, 88, 121, 170, 174, 206-07, 260, 271, 274, 569, 575, 578-81, 792). Facing the launcher, the launcher's circular door has a hinge on the left side. (Tr. 494-95, 706; Exs. C-33, at 2; C-41, at 1, 4 to 8; C-41A). Across from the hinge-side of the door, on the top and bottom, are two large "bolts" or "brushless impact screws," which needed to be loosened before Bobcat could proceed to open the door. (Tr. 124-25, 268, 323, 494-96, 579-80, 706, 719; Exs. C-33, at 2; C-41, at 1, 4-8; C-41A (notation 1)). Employees would loosen these bolts in an alternating top-to-bottom fashion to avoid "binding" up the door. (Tr. 268-69).

Loosening the bolts allowed Bobcat employees to then loosen two semicircular "c-clamps" or "clasps" on either end of the launcher door. (Tr. 124-25, 495-96, 579-80; Exs. C-33, at 2; C-41, at 1, 4-8; C-41A (notation 2)). These c-clamps were apparently tightly fitted to the launcher chamber and thus need to be loosened in a leapfrog fashion, going from "top/bottom, top/bottom, top/bottom" to ease open the launcher door. (Tr. 579-80; *see also* Tr. 125-26, 495-96). Once the c-clamps were sufficiently loose, the launcher door could then be opened by its handle. (Tr. 125, 260, 268, 323-24, 407, 496).

Multiple witnesses indicated that if any significant amount of pressure remained in the launcher by the time Bobcat employees started the door-opening process it would become readily apparently as early as when the bolts on the door started to be loosened. (Tr. 123, 127, 129-30, 324, 427-28, 719). Employees could detect the residual pressure in multiple ways, including from the sound of escaping gas, which is a "really loud squealing or squelching noise," from smelling

any more than a "quick hint" of the odorized gas,[41] or from seeing or feeling gas escape from the chamber. (Tr. 123, 127, 129-30, 136-37, 271, 324, 427-28, 719, 778, 822).

The opening of the door allowed atmospheric air, which is denser than natural gas, to enter the launcher and thus push the residual gas to the back of the chamber. (Tr. 475-76, 481, 869-70, 1201-02). For this reason, the bleeder valve connecting the flare system to the launcher was left open to allow for residual gas to vent from the launcher through the top of the flare stack.[42] (Tr. 474-75, 869-70, 1201-02).

3. Loading & Seating the Pig

Once the launcher was successfully depressurized and its door open, Bobcat could begin the process of loading the pig into the launcher, a process which took approximately five to ten minutes. (Tr. 274, 620). To start, the Bobcat employees needed to lift the pig to the barrel of the launcher. Although some lighter pigs might be able to be loaded by hand, generally the Bobcat employees needed to use a diesel-powered "excavator" or "trackhoe," which Bobcat had brought to the worksite. (Tr. 81, 89, 93, 160-61, 439-40, 472-73, 581, 699, 778, 1331-32; Exs. C-34A

[41] The natural gas in Atmos's pipelines has the familiar "rotten egg" odorant added to it so that its presence can be readily detected. (Tr. 181, 234-36, 693, 822, 1113-16). As detailed by the Secretary's expert witness:

> The history on that is that there was a school up in East Texas called the New London School that … had a furnace that was fueled by natural gas before the odorization policy was put into place. And there was a leak nobody could smell it. And so it exploded and killed 136 children and that's when they made the law that said you have to odorize natural gas.

(Tr. 1113-16); *see also* Tex. Util. Code Ann. § 121.252(a)(1) (West) ("The railroad commission, by rule as necessary to carry out the purposes of this section, may … require a person, firm, or corporation … to odorize the gas by using a malodorant agent that indicates the presence of gas by a distinctive odor …"); 16 Tex. Admin. Code § 8.215(a)(1) ("Each gas company shall continuously odorize gas by the use of a malodorant agent as set forth in this section unless the gas contains a natural malodor or is odorized prior to delivery by a supplier.").

[42] Because the flame on the flare system would have extinguished prior to the opening of the launcher door, any remaining gas pushed through the bleeder valve would not be burned off but rather vented directly into the atmosphere. (Tr. 475-77).

(notation 5), C-37). The Bobcat employees would attach the pig to the excavator's 20 to 30-foot extendable arm using a belt, and the trackhoe's operator, in this case Mr. Rodriguez, would begin moving the pig toward the front end of the launcher. (Tr. 81, 89, 131, 440, 581, 619-20, 623, 778; Ex. C-37). Once the pig was near the edge of the door, Mr. [redacted] and the general laborer would push the pig by hand into the launcher chamber as much as was physically possible so that it could be unstrapped from the arm of the trackhoe while staying in place at the entrance of the launcher. (Tr. 132-33, 440, 582, 702, 817, 1303-04).

At a certain point, however, it became "humanly impossible" to physically push the pig further into the launcher because it needed to be squeezed down from size of the launcher's opening, approximately 26-inches in diameter, to the size of the reducer, approximately 24 inches in diameter.[43] (Tr. 276, 700-02, 1302; *see also* note 36, *supra*). This required thousands of pounds of force, which again necessitated the use of the trackhoe. (Tr. 275-76, 440, 1302, 1326; Ex. C-37). To utilize the trackhoe and finish loading the pig, the Bobcat employees would insert a long, steel "push pole" into the launcher.[44] (Tr. 133, 502, 584, 784-86; Exs. C-38, C-39, at 1; C-39A). The push pole was "bonded" to the launcher by way of a magnetic "bonding cable." (Tr. 93-94, 133-34, 212, 276-77, 732, 815-16; Ex. C-40). This bonding cable reduced the buildup of static

[43] Alternatively, as acknowledged by several witnesses at trial, no part of an employee's body can physically enter the launcher chamber without triggering OSHA's safety requirements for confined spaces, and employees were thus prohibited from doing so. (Tr. 349-51, 619, 725, 1247-49, 1302-03; *see also* 29 C.F.R. § 1910.146; Tr. 1095-96 (discussing the confined space standard)).

[44] The push pole was made of interlocked or threaded pieces of pipe made from "drill stem," a "really hard steel … use[d] for directional drilling," and was approximately 16 feet long. (Tr. 502, 584, 783-86, 1326-27, 1335-38; Exs. C-29, at 2 n.4; C-38, C-39, at 1; C-42).

electricity between the push pole and launcher, thereby reducing the possibility of a static charge igniting the residual gas in the launcher.[45] (Tr. 93, 212, 732, 814-15).

The push pole also had a metal plate attached to the front, which the employees would press against the back of the pig. (Tr. 440, 703, 784-85; Ex. C-39A). The two employees would hold up the push pole long enough for the excavator to move forward and make contact with the back of the pole, at which point the two employees could step away from the pole and the launcher. (Tr. 703-05). The excavator would then push the pig further into the launcher until an Atmos FCC, who typically observed the loading process from the side of the launcher, determined the pig had reached the reducer. (Tr. 90, 133-35, 260, 440, 621-22, 700-01, 773, 778-81, 816-17, 1302; Exs. C-34A (notations B and C), C-44A (notation 5)). Once a pig had been pushed to this point, it was considered "seated" or "seeded" in the launcher.[46] (*E.g.*, Tr. 90, 96-97, 134-35, 260, 1329, 1360;

[45] The magnetic connection created by this bonding cable reduced the buildup of static electricity that might otherwise occur from metal-on-metal contact between the steel push pole and the metal launcher. (Tr. 93-94, 100-01, 133-34, 212, 814-16; Ex. C-40). But, according to Mr. Carter, the bonding cable would not address the potential for a "mechanical spark," i.e., a spark created from friction between the push pole and launcher. (Tr. 732). Even still, in his opinion, the push pole was never moved quickly enough to generate the kinetic energy sufficient to create a mechanical spark, and he had never personally observed a push pole create a mechanical spark. (Tr. 732-33, 1330).

Although the Secretary's expert, Mr. Stringer, discussed mechanical sparks and acknowledged the potential contact between the push pole and the launcher, he stopped short of opining on whether there was sufficient kinetic energy to create a mechanical spark between the two, stating instead as follows:

> A mechanical spark would be … two types of steel rubbing together and create a spark. That's well known in the industry and in this case, you know, you have a steel pipeline and a steel push pole and there was testimony that when the push pole fell down to the bottom of the pipe there was a large – a clanking noise, and so we know that there was contact made with the steel pole and the steel pipeline.

(Tr. 1257-58).

[46] Although the seating of the pig does not create a gas-tight seal, pressure can nonetheless build between the pig and the main pipeline if, as the NTSB concluded happened here, there is a leak in the mainline valve. (Tr. 500-01, 734-35, 1221-23, 1347-48; Ex. C-29, at 5-7). Normally, an equalizer line would ensure the equalization of pressure in front of and behind a loaded pig. (Tr. 500-01, 1221-23, 1347-48; Ex. C-29, at 7). The record does not clearly demonstrate why the equalizer line failed to do this on the date of the accident.

Ex. C-8 at 5 ¶ III(C)(3)). During the process of loading and pushing in a pig, the diesel engine of the excavator, which was located on the excavator's backend, would be at most approximately 30 feet away from the launcher. (Tr. 472-73, 623, 729, 1102-03, 1204-05, 1257; Ex. C-34A (notation 5)).

4. Removing the Push Pole

With the pig seated, the excavator could reverse away from the launcher. (Tr. 260, 276-77, 587-88, 731, 1329). As the excavator reversed, the loss of tension between the pig, the pole, and the arm of the excavator would cause the push pole to fall to the bottom of the launcher. (Tr. 731, 817-18, 1329). The two other Bobcat employees would then pull the pole from the launcher, during which time it maintained contact with the bottom of the launcher for at least part of the removal process.[47] (Tr. 731-32, 779, 818-19, 1329-30). After the push pole was removed, Bobcat employees would close and reseal the launcher door. (Tr. 304, 333-34, 773, 1356; *see also* note 30, *supra*).

5. The Pig Run

For the actual pig run, the launcher would be "purged" of atmospheric air by refilling it with natural gas through the launcher's kicker line. (Tr. 250, 303-05, 773, 1356; *see also* Ex. C-8, at 5 ¶ III(C)(5)). Once the mainline valve was reopened, the pressure in the chamber would slowly increase and force the pig into the main pipeline, initiating the pig run. (Tr. 304-05, 413-15; *see also* Ex. C-8, at 5 ¶¶ III(C)(6) & III(E)). During the pig run, Bobcat tracked the pig as it worked

[47] The two employees working near the launcher could hold up the pole for a small amount of time while the excavator pulled away, but the weight and length of the pole, as well as its position deep inside the launcher, prohibited keeping it elevated the entire time it was being removed. (Tr. 731-32, 818, 1329). However, approximately halfway through the process of removing the pole, the two employees would be able to elevate it "off the bottom of the launcher. And then they [could] just continue pulling it out until they get it completely outside the door." (Tr. 1329-30; *see also* Tr. 731).

its way through the length of pipeline using "geophones" and the transmitter installed in the pig.[48] (Tr. 227, 252, 257-58, 295-97, 299, 337, 570-71, 578, 808-09). Once the pig reached the receiver in Rockwall, over 20 miles from the launcher site in Farmersville, Bobcat was responsible for unloading and cleaning the pig. (Tr. 223, 257-58, 295, 571, 745, 1266-67; Ex. C-12, at 2).

G. Events Leading to the Explosion

1. Stakeholders' Meeting

On June 15, 2021, before the pig runs began for the Farmersville Project, Atmos's "Integrity Projects Engineer," who was overseeing the Project, held a virtual stakeholders' meeting to discuss the scope of the Project with various representatives from Atmos and its contractors. (J. Stip. ¶ I(11); Tr. 238-39, 382-83, 742; Ex. C-12). Mr. Thomas and Mr. Ballinger, who were the Atmos FCCs assigned to oversee the launch of the pigs from the Farmersville site, were present for this meeting, as were Mr. Cross on behalf of Bobcat and Mr. Bacak on behalf of FESCO. (J. Stip. ¶ I(12); Tr. 241-42, 382-83, 743, 855; Ex. C-12, at 1).

As detailed in the "Meeting Template," many topics were on the agenda for this nearly two-hour meeting. (Ex. C-12). However, generally speaking, the meeting was meant to "to get all parties involved with the compliance to the pigging operation," "[s]et[] out expectations …

[48] Mr. Thomas explained the tracking process in some detail as follows:

> [O]nce the pig is launched and it's inside the pipe as it moves … towards the receiver, which would have been in Rockwall --- they have different locations that are predetermined in which they set up. They have listening devices they set up and they'll hear as that pig passes them.
>
> Then they are able to give you a weld count. They listen for weld counts. And that's because our pipeline joints are usually 40 feet long, so they can tell the speed by every time we hear it hit a weld. So they'll tell us the weld count in per seconds.
>
> Then they will track that pig along as it moves. That way we have an idea of where it is, how fast it's moving, and they leapfrog each other to continue to stay ahead of it.

(Tr. 295-96; *see also* Tr. 252, 570-71).

[and] outline [the] format that [Atmos] go[es] through and identify roles, responsibilities and any questions or concerns." (Tr. 330). Attendees "discuss[ed] the maintenance of the pipeline. What would be done, what order, … what days[,] who the contractors would be in the assignments in the … different jobs." (Tr. 742). During the meeting, "contractors ha[d] the ability to bring up any safety concerns … on any one of those topics …" (Tr. 330).

Despite Appendix R being listed as a possible topic under the "Safety Meeting" portion of the Meeting Template, no witness who attended the stakeholders' meeting recalled Appendix R being discussed at the meeting with any specificity.[49] (Tr. 244, 385-86, 483, 760-61).

2. Work Commences on the Farmersville Project

a. An Overranged Mainline Valve

Following the stakeholders' meeting, the three crews of workers began working on the Farmersville Project on June 21, 2021. (Tr. 58-59, 61, 398; Exs. C-12, at 1; C-28, at 1). On that date, Mr. Ballinger was coordinating with the Bobcat and FESCO crews to depressurize the launcher and load the first pig for the Project, a "bullet nose pig," which they planned to run the next morning. (Tr. 58-59, 225, 747-49; Ex. C-28, at 1). The crews began the process of depressurizing the launcher by closing the mainline valve and isolating the launcher, and FESCO then began flaring off the gas from inside the launcher. (Tr. 61, 401-02, 551-52). However, after a certain amount of time had passed, the flame at the top of the flare tower did not extinguish as expected, indicating to several employees onsite that, despite the mainline valve being closed, gas was still able to enter the launcher. (Tr. 62, 70-71, 402-03, 551-52, 637, 754, 791-92; Ex. C-29, at 4).

[49] Notably, unlike other topics such as "PPE" or "Atmos employee to lead safety meeting at launcher," no name or other responsible party is listed next to "Atmos P[ipeline] I[ntegrity] M[anagement] Plan Appendix R procedures review." (Ex. C-12, at 2 ¶ E(a), (c) & (d)).

Mr. Ballinger and the Bobcat employees examined the mainline and kicker line valves and determined that the mainline valve had been "overclocked" or "overranged" and thus was not fully closed.[50] (Tr. 345, 403-05, 428-29, 452-58, 613, 637, 685, 753-54). Mr. Ballinger worked with the Bobcat employees to adjust the valve so that it was fully closed, and the location on the indicator's "SHUT" stamp where the valve was fully closed was marked with a permanent marker.[51] (Tr. 407-08, 614, 685-86, 753-54; Ex. C-33A). With the mainline valve sealed, FESCO was able to successfully depressurize the launcher, allowing Bobcat to load the bullet nose pig for the pig run scheduled for the next morning. (Tr. 747-48, 751, Ex. C-28, at 1).

None of the workers to remark on the subject considered the mainline valve on the launcher to be inoperable, leaking, or in need of any repair as a result of this incident on the first date of the Farmersville Project; rather, several indicated such adjustments to launcher valves were routine when pigging.[52] (Tr. 343-45, 458-60, 612, 687-90, 694-95, 795-98).

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[50] As Mr. Cross explained in more detail: "Whenever I say overclocked, so on your indicator a valve has a spot that it should be able to stop. Some valves the stops won't work correctly or something. They can go past the still spot allowing gas to get by them." (Tr. 403). Mr. Cross further explained:

> There's an indicator on top of the valve that you'll have an open spot and then you'll have a shut indicator. It's stamped or somehow made into the valve. So it has kind of a range there and not always but most of the time they'll line up at almost a 90-degree angle from the open position … whenever we originally shut or close the valve … they'll spit [sic] all the way and then they'll stop. The valve handle will not turn no more. Well, this one overclocked just past the perfect center mark on the valve …

(Tr. 404-05; *see also* Tr. 457-58; Ex. C-33A).

[51] As Mr. Cross elaborated at the trial and annotated on a photograph of the mainline valve's indicator, the arrow on the indicator was initially positioned between the "S" and "H" of the word "SHUT." (Tr. 457-58; Ex. C-33A (notation 3)). When fully closed, the indicator was positioned between the "H" and "U." (Tr. 455-57; Ex-33A (notation 2)).

[52] And indeed, up until the date of the accident, the employees working on the launcher did not encounter any issues with the mainline valve overclocking or otherwise failing to seal when running pigs. (Tr. 73, 409-11, 413-16, 459, 688). Nevertheless, the NTSB later determined, based on its examination of the launcher, that the "mainline valve was leaking" and "its sealing surfaces were scratched and gouged" from "foreign debris" but that this damage was "consistent with wear incurred during normal valve operation." (Ex. C-29, at 5).

b. Five Successful Pig Runs

Over the course of the next week, until the date of the accident, the three crews of workers completed five pig runs following the same general procedure previously outlined by the Court.[53] (Tr. 633-34; Ex. C-28; *see also* Part IV(F)(2)(b)(iii), *supra*). At least for some of these runs, a pressure gauge was attached to the 8-inch knockoff valve on top of the launcher to measure the pressure inside the launcher chamber. *See* note 40, *supra.* During these runs, the Bobcat employees did not wear personal four-gas monitors. (Tr. 11, 102-04, 347, 468, 561, 625-26, 655-56, 1286). Other than having to run more cleaning pigs than were originally scheduled,[54] the three crews worked seemingly without issue during these first five pig runs.

3. The Explosion

The explosion leading to the issuance of the Citation occurred on June 28, 2021. (J. Stip. ¶ I(5)). Early that morning, around 3 a.m., the Bobcat and Atmos crews launched the mandrel pig that had been preloaded in the launcher the day before. (Tr. 76, 257, 746; Exs. C-28, at 2; C-30, at 12). After retrieving the mandrel pig from the receiver in Rockwall and cleaning it, the Bobcat

[53] At trial, several witnesses were asked about a pig run occurring on June 21. (Tr. 58-59, 73, 398, 747-48; *see also* Ex. C-12, at 2 (listing a "cleaning tool" run for Monday, June 21)). Mr. Rodriguez and Mr. [redacted] both suggested that six pig runs had occurred prior to the accident. (Tr. 120, 550-51). However, according to the "time and input notes" kept by Mr. Rodriguez for the Project, the work performed over the course of the week preceding the accident was as follows: the crews launched the bullet nose pig they had loaded on Monday the following morning, June 22; preloaded a mandrel pig that afternoon; launched the mandrel pig the following morning, June 23; preloaded another mandrel pig that afternoon; launched the second mandrel pig the following morning, June 24; preloaded a third mandrel pig that afternoon; launched the third mandrel pig the following morning, June 25 and then "rebuilt [a] mandrel for … another run later that day." (Ex. C-28, at 1). If this second run in fact occurred later on June 25, Mr. Rodriguez did not specify its occurrence in his notes. In any event, the time and input notes go on to show that the crews preloaded a fourth mandrel pig on the afternoon or evening of June 27 and launched it the morning of June 28, the date of the accident. (Ex. C-28, at 2). The Court defers to these contemporaneous notes, which only document five runs prior to the accident, as the best evidence of the number of those runs, mindful that the "second run" on June 25 may have occurred but was simply not documented by Rodriguez.

[54] According to Mr. Rodriguez, the length of pipeline being pigged for the Farmersville Project was particularly dirty, necessitating several cleaning runs before the crews could proceed to launch the gauge plate pig involved in the explosion. (Tr. 548-50).

crew prepared to return to the Farmersville site that afternoon to load another pig to be launched the next morning. (J. Stip. ¶¶ (5) & (7); Tr. 76, 763-65; Exs. C-12, at 2; C-30, at 12).

The Atmos and Bobcat crews arrived at the site at approximately 3 p.m., and the Bobcat crew began redressing the 139-pound "gauge plate" pig to be loaded into the launcher.[55] (J. Stip. ¶¶ I(16) & (17); Tr. 76, 80-81, 161, 258-59, 537, 571; Exs. C-18, C-30, at 12 & 13; C-39). Approximately half an hour later, the FESCO crew arrived at the worksite to begin depressurizing the launcher. (Tr. 572, 766; Ex. C-30, at 13). In part because the three crews had reached a "consensus" that a pressure gauge was redundant of the flame extinguishing on the flare tower,[56] and in part because it had rained at some point earlier that day,[57] no pressure gauge was installed

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[55] Mr. Thomas explained in detail the purpose of a gauge plate pig in the context of cleaning and mapping a particular pipeline:

> The purpose of the gauge plate is the diameter is predetermined. … [T]he gauge is a little bit undersized. So when it runs all the way through [the pipeline] if … it were to hit something hard or to get hung up, it will bend the aluminum plate back. And then we can check the circumference and the measurements of how far that has deviated back to see if it is safe to put … the smart tool into the lock. It's basically checking. It's a go/no go to make sure that we don't destroy a smart tool when we put it through the line.

(Tr. 254).

[56] *See* note 40, *supra*.

[57] A fair amount of testimony was elicited on the weather conditions the date of the accident. According to some witnesses, the rain in the afternoon was at some points quite heavy, while others described it as "misty," and still others testified the rain had finished by the time the three crews arrived at the worksite in the afternoon. (Tr. 76-77 (Mr. [redacted] testifying the rain was quite heavy when arrived which turned into a "light drizzle … on and off" throughout the remainder of the afternoon)); Tr. 161-62, 173, 201-02 (Mr. [redacted] describing the worksite as "damp" and "misty" when he arrived in the afternoon and that the weather was "fair" by the time FESCO started flaring)); Tr. 258-59 (Mr. Thomas describing "inclement weather" including "light[]ning, some thunder" and a "storm … bearing down…"); Tr. 572 (Mr. Rodriguez acknowledging it was raining when he first arrived at the worksite in the afternoon)); Tr. 762-63 (Mr. Ballinger recalling "a little bit of rain" and "some sprinkles" "when we first got out there, but then it let up…")); Tr. 1332 (Mr. Carter stating "everything was wet" on the afternoon of the accident)); *but see* Tr. 185 (Mr. [redacted] testifying that it was "raining hard" and he was "soaking wet" after regaining consciousness following the explosion)); Ex. C-29, at 2 (NTSB report describing "light to heavy rain showers")). As it relates to why a pressure gauge was not used on the date of the accident, it suffices to say that at some point prior to the crews arriving to load the pig on the afternoon of June 28 it did rain, which may have caused the surface of the launcher to become slippery and pose a potential hazard to a worker climbing up on the launcher to install a pressure gauge. (Tr. 589, 776-77).

on the launcher on the date of the accident. (J. Stip. ¶ I(18)). One of the Atmos FCCs met briefly with each of the contractors for a "little tailgate meeting," lasting approximately five minutes, to discuss the work scheduled for that day, but no formal job safety analysis or "JSA" was completed for loading the gauge plate pig on June 28. (Tr. 138-39, 272-74, 420-21, 573-74, 618, 766-69, 772-73; Ex. C-30, at 14).

After the mainline valve was closed and the launcher isolated, the two FESCO employees, at the direction of an Atmos FCC, lit the flare tower and opened the bleeder valve to depressurize the launcher. (Tr. 84-86, 197-99, 259, 262, 316-17, 773; Ex. C-30, at 13). Once the flame on the flare tower had extinguished, Mr. Thomas determined there was no longer pressure in the launcher and so directed a member of the Bobcat crew to open the launcher door.[58] (Tr. 201, 205-06, 271-72, 316-19, 577-78, 775-76, 778, 865-69; Ex. C-30, at 13). No one near the door when it was being opened heard, saw, smelled, or felt anything which indicated to them that the launcher was

[58] Because it relates to one of the Secretary's proposed abatement methods, the Court notes the locations of the various workers' cell phones during the opening of the door and the remainder of the pig-loading process on the date of the accident, so far as the record discloses them. Mr. Rodriguez's cell phone was in his pocket in a "[m]ilitary grade, waterproof case" and was located with him in the enclosed cab of the excavator. (Tr. 479, 590, 622, 682; Ex. C-34A (notation 5)). The two Bobcat employees' cell phones were also in "water resistant container[s]" and were located in their respective work trucks, one of three white trucks parked inside the gate of the worksite. (Tr. 104, 479, 682-83, *see also* Tr. 740-42 (noting that the three white trucks were Bobcat's employees' trucks but unable to remember whose truck was whose); Ex. C-34A (notations 9, 10, and 11)). Mr. [redacted]'s cell phone was also located in his work truck, a green truck parked inside the gate of the worksite. (Tr. 187-88; *see also* Tr. 741; Ex. C-34A (notation 8)). Mr. [redacted] could not recall if his supervisor had his cell phone with him on the date of the accident. (Tr. 212). Mr. Thomas had his cell phone "on [his] right hip" but clarified he "was not at the trap or by the trapdoor" when using it to make calls to other Atmos employees. (Tr. 346). Mr. Ballinger also had his cell phone "[c]lipped on [his] belt" and was also at times using it to make calls to other Atmos employees as well as "the people down the line that were following … and tracking the pig." (Tr. 808-09). In its Mobile Phone Records report, the NTSB meticulously documented the cell phone activity for all the workers onsite from June 25 to June 28, 2021. (Ex. C-32, at 1 & 2).

still pressurized or that anything other than a typical amount of residual gas remained in the launcher.[59] (Tr. 123, 127-28, 136-37, 174, 271-72, 324, 778, 822).

Mr. [redacted] and Bobcat's general laborer belted the pig to the arm of the trackhoe, and Mr. Rodriguez moved it to the open launcher door so that it could be unbelted and pushed in by hand as far as was possible. (Tr. 81, 89, 93, 131-33, 439-40, 581-81, 702, 778, 1303-04; Exs. C-30, at 13; C-37). Mr. Rodriguez then began pushing the pig further into the launcher with the trackhoe and push pole. (Tr. 133, 440, 584-85, 703-05, 784-86; Exs. C-30, at 13; C-38, C-39, at 1; C-39A). As it had been for the previous five pig runs, the push pole was bonded to the launcher with a magnetic bonding cable throughout the loading process. (Tr. 100-01, 133-34, 276-77, 683-84, 732; Ex. C-40); *see also* note 45, *supra*. After receiving confirmation from Mr. Thomas that the pig was seated in the launcher's reducer, Mr. Rodriguez began reversing the trackhoe, causing the push pole to fall to the bottom of the launcher's chamber. (Tr. 90, 96-97, 133-35, 260, 276-77, 440, 587-88, 621-22, 700-01, 731-32, 773, 778-79, 816-18, 1302, 1329-30; Exs. C-30, at 13; C-34A (notation C), C-44A (notation 5)).

As the two other Bobcat employees were removing the push pole from the launcher, there was an explosion inside the launcher's chamber, which ejected the loaded pig and the push pole

[59] At trial, Mr. [redacted] initially testified that he did not recall seeing or hearing anything when the launcher door was opened on June 28. (Tr. 174). At that point, the Secretary's attorney produced Mr. [redacted]'s deposition, which she initially stated was going to be used to impeach Mr. [redacted], but which she eventually instead used to refresh his recollection. (Tr. 177-78). After reviewing the deposition, Mr. [redacted] stated: "There was a hissing sound" and "I stated [in the deposition] that there was a hissing sound." (Tr. 179). Against the much greater weight of testimony that no sound came from the launcher when it was opened on the afternoon of June 28, the Court does not credit Mr. [redacted]'s contrary deposition testimony.

from the launcher.[60] (Tr. 94-99, 184-86, 260, 622, 731-32, 779, 785, 818-19, 1215-16, 1329-30; Exs. C-6, at 2; C-29, at 3; C-30, at 13; C-38, C-39). The explosion killed Bobcat's general laborer and the FESCO supervisor and severely injured Mr. [redacted] and Mr. [redacted]. (J. Stip. ¶¶ I(14) & (19); Exs. C-6, at 3; C-29, at 3).

4. OSHA's Inspection & Citation

Following the explosion, OSHA was notified of the workers' deaths and injuries, and CSHO Jimenez was assigned to investigate the case. (Tr. 939). On the same day or the following day, CSHO Jimenez visited the worksite and met with representatives from Bobcat, including Mr. Carter. (Tr. 939). On behalf of OSHA, CSHO Jimenez conducted interviews alongside representatives from several other agencies including the NTSB,[61] the PHMSA,[62] and the Texas Railroad Commission.[63] (Tr. 940-41, 946-47).

Based on CSHO Jimenez's investigation, OSHA issued the one-item serious Citation alleging that Bobcat had violated the General Duty Clause by failing to keep its workplace free

[60] Although the cause of the explosion is not directly at issue in this case (*see, e.g.*, *Midwest Equip Co.*, No. 19-0723, 2022 WL 1277649, at *3 (OSHRC, April 15, 2022)), the Court notes that the NTSB found the following from its investigation into the explosion. To start, the mainline valve was leaking from regular, wear-and-tear damage which "created leak paths along the sealing surfaces" of the valve. (Ex. C-29, at 5). Thus, when the pig was seated in the reducer, it caused a "complete blockage within the launcher barrel" between the leaking mainline valve and the seated pig, causing the "concentration of natural gas in the launcher … between the pig and the mainline valve [to] increase[]." (Ex. C-29, at 7). Despite multiple forms of testing, "[t]he NTSB did not determine the ignition source" that ultimately led to the explosion of the gas between the mainline valve and the pig. (Ex. C-29, at 7-8).

[61] OSHA's Assistant Area Director informed CSHO Jimenez that the NTSB would be conducting a purely factual investigation of the explosion "to get information first" before OSHA would inquire into the accident as an enforcement agency. (Tr. 940; *see also* Tr. 946 ("[B]ecause NTSB approached me and told me they knew we had enforcement capability that they would rather not us ask those questions at the time of the interview[s].")).

[62] Under the Pipeline Safety Improvement Act of 2002, the PHMSA is required to respond to and submit reports on investigations and recommendations made by the NTSB on the subject of pipeline safety. 49 U.S.C. § 1135 note.

[63] Under Texas law, the Railroad Commission has jurisdiction over natural gas pipelines in the state. Tex. Util. Code Ann. § 121.151 (West).

from hazards likely to cause death or serious harm in that it failed to protect its employees from struck-by hazards associated when conducting pigging operations. (J. Stip. ¶ I(2); Tr. 881-82; Ex. C-6). The Citation proposed a total penalty of $13,653.

V. PREEMPTION

Respondent filed a pre-trial Motion to Dismiss the Citation on the basis of preemption under section 4(b) of the Act, 29 U.S.C. § 653(b)(1). Briefly, this section states: "Nothing in this chapter shall apply to working conditions of employees with respect to which other Federal agencies … exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health." Respondent alleged that certain regulations from the PHMSA preempted OSHA's authority over the worksite implicated in this Citation. The Court denied Respondent's motion in an order dated November 9, 2023.

Respondent has briefly raised the issue of preemption again in its post-trial brief. Resp't's Br. 55. The Court again rejects Respondent's argument for the reasons stated in its previous order.

VI. DISCUSSION

A. Law Applicable to Alleged General Duty Clause Violation

The Citation alleges that Respondent violated the General Duty Clause, which states that "[e]ach 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." 29 U.S.C. § 654(a)(1).

> To prove a violation of the general duty clause, the Secretary must establish that: (1) a condition or activity in the workplace presented a hazard; (2) the employer or its industry recognized the hazard; (3) the hazard was causing or likely to cause death or serious physical harm; and (4) a feasible and effective means existed to eliminate or materially reduce the hazard. The Secretary must also show that the employer knew or, with the exercise of reasonable diligence, could have known of the hazardous condition.

Henkels & McCoy, Inc., No. 18-1864, 2022 WL 3012701, at *2 (O.S.H.R.C., July 21, 2022), *appeal docketed*, No. 22-13133 (11th Cir. Sept. 19, 2022).

The Secretary has the burden of establishing each element of the violation by a preponderance of the evidence. *See The Hartford Roofing Co.*, 17 BNA OSHC 1361, 1365 (No. 92-3855, 1995). "Preponderance of the Evidence" has been defined as:

> The greater weight of the evidence, not necessarily established by the greater number of witnesses testifying to a fact but by evidence that has the most convincing force; superior evidentiary weight that, though not sufficient to free the mind wholly from all reasonable doubt, is still sufficient to incline a fair and impartial mind to one side of the issue rather than the other.

Preponderance of the Evidence, Black's Law Dictionary (12th ed. 2024).

B. <u>The Citation</u>

The Citation alleges that Respondent violated the General Duty Clause as follows:

> OSH Act of 1970 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:
>
> On or about June 28, 2021, employees were exposed to struck[-]by hazards when conducting pigging operations.

On the element of feasible means of abatement, the Citation further alleged as follows:

> Among other methods, a feasible means to correct the identified hazard would be:
>
> a. Use pressure gauges as stated on Atmos Energy [P]ipeline Integrity Management Plan Appendix R.
> b. Eliminate all sources of ignition (i.e. cell phones) during loading.
> c. Use monitoring devices or equipment for oxygen, hydrocarbons, H2S and lower explosive limit (LEL).

C. The General Duty Clause Violation

1. The Citation's Definition of the Hazard

When the Secretary proceeds under the General Duty Clause she must define the hazard "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, 2007 (No. 93-0628, 2004). The hazard should be "defined in terms of physical agents that could injure employees rather than the means of abatement." *Id.* at 2007, quoting *Chevron Oil*, 11 BNA OSHC 1329, 1331 n.6 (No. 10799, 1983). Moreover, the Commission "analyze[s] each element of the alleged violation with respect to the *conditions set forth in the citation*, not in terms of the incident or the design defect." *Henkels & McCoy, Inc.*, 2022 WL 3012701, at *2 (emphasis added); *id.* (focusing on the "Secretary's *allegation in the citation*" (emphasis added)).

Here, the entirety of the Citation's definition of the alleged hazard is "struck[-]by hazards when conducting pigging operations." Citation 6. Respondent argues that this "broadly worded" allegation "in and of itself, cannot be a valid recognized hazard under" the General Duty Clause. Resp't's Br. 13. Respondent goes on to argue that "the Secretary has failed to identify any *specific* hazardous or violative condition over which Bobcat can reasonably be expected to exercise control." *Id.* at 14 (emphasis in original). The Court agrees.

As evidenced by the facts of this case, pigging operations can involve several different crews of workers who exercise control over various "conditions," "practices," or "physical agents that could injure employees" involved in the "pigging operations" referenced in the Citation. *See Arcadian Corp.*, 20 BNA OSHC at 2007. Bobcat had control over some of these elements, like opening the launcher door or loading the pig, and supplied the equipment used for these processes,

like the metal push pole and the trackhoe. (Tr. 74-75, 88, 121, 174, 260, 271, 569, 575, 578-81, 792).

However, other conditions, practices, and physical agents were demonstrably not within Bobcat's control. As a general matter, Atmos had ultimate control of the process of loading and launching a pig and would direct the other two contractors, Bobcat and FESCO, when to proceed at various points in the process. (Tr. 116-18, 120-21, 134-35, 138-39, 143, 190-91, 222-23, 228, 247-48, 251-52, 344, 386-87, 400, 423, 545-46, 552, 568, 575, 578, 589, 611-12, 621, 637, 672, 676-77, 686, 705-06, 722, 792, 852, 1283, 1288, 1304). Atmos also had exclusive control over the maintenance of the launcher and its various components, including its mainline valve, the failure of which was at least partially responsible for the explosion in this case. (Tr. 116, 332, 343-44, 437-38, 837-38; Ex. C-29, at 5 to 7). Moreover, FESCO alone designed and maintained the flaring system installed on the launcher and was singularly responsible for the process of flaring to depressurize the launcher with no involvement from Bobcat. (Tr. 61-63, 117, 194-95, 270-71, 300-01, 635, 686, 828, 859).

The Court therefore finds that the bare allegation in the Citation of "struck[-]by hazards when conducting pigging operations," without more, is insufficient to define the hazard "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 at 2007.

On this basis alone, the Court finds the Citation should be vacated.

2. Other Struck-by Hazards in the Record

Despite the paucity of the allegations in the Citation as to the actual struck-by hazard being alleged in this case, the Court notes that in certain instances the Commission has not considered

itself hamstrung by the allegations in a citation when defining the hazard at issue for purposes of a General Duty Clause violation.

For example, in *Pelron Corp.*, 12 BNA OSHC 1833 (No. 82-388, 1986), the Commission rejected both the judge's and the Secretary's formulation of the hazard at issue and instead substituted its own definition of the hazard based on the evidence in the record. *Id.* at 1835-36. Likewise, in *Davey Tree Expert Co.*, 11 BNA OSHC 1898 (No. 77-2350, 1984), the Commission rejected the "Secretary's broad, generic definition of the hazard" and again substituted its own definition based on the record. *Id.* at 1899. In *U.S. Steel Corp.*, 12 BNA OSHC 1692 (No. 79-1998, 1986) the Commission found the existence of the hazard element was established where "[t]he parties agree[d] that molten metal in contact with water can in some circumstances present a hazard of explosions, but disagree[d] as to the circumstances that were recognized to be hazardous." *Id.* at 1698. More recently, in *Mid South Waffles, Inc.*, No. 13-1022, 2019 WL 990226 (O.S.H.R.C., Feb. 15, 2019), the Commission, noting that "[i]t is axiomatic that citations are to be construed liberally" and that "there is no dispute that the parties litigated the hazard as being that of a 'full grease drawer,'" accepted that "the hazard at issue here is a full grease drawer." *Id.* at *3.

In their respective post-trial briefs, both parties acknowledge that the trial record here does establish two potential "struck[-]by hazards when conducting pigging operations" and proceed to address these hazards under the remaining elements of a General Duty Clause violation. Namely, both parties acknowledge: (1) that the door of the pressurized launcher can pose a potential struck-by hazard if pressure from the launcher's chamber is released too quickly; and (2) that an explosion inside the launcher can eject materials from the launcher and, in that way, pose a potential struck-by hazard. Sec'y's Br. 30, 31, 34, 37, 38; Resp't's Br. 14, 15, 18, 20, 28, 30. Because both parties

have briefed these two potential struck-by hazards, the existence of which is supported by the evidence in the record, the Court proceeds to address each as a potential General Duty Clause violation. *See Mid S. Waffles, Inc.*, 2019 WL 990226, at *3; *U.S. Steel Corp.*, 12 BNA OSHC at 1698; *Pelron Corp.*, 12 BNA OSHC at 1835-36; *Davey Tree Expert, Co.*, 11 BNA OSHC at 1899; *cf. also S.G. Lowendick & Sons, Inc.*, 16 BNA OSHC 1954, 1957 (No. 91-2487, 1994) (allowing the employer to raise an affirmative defense not raised in its answer where "the parties clearly recognized that the evidence was directed toward an unpleaded issue."), *vacated on other grounds*, 70 F.3d 1291 (D.C. Cir. 1995).

a. The Launcher Door

i. A Hazard Existed

"To prove that a condition presents a hazard under the general duty clause, the Secretary is required to show that ... employees [were exposed] to a significant risk of harm." *Roadsafe Traffic Sys., Inc.*, No. 18-0758, 2021 WL 5994023, at *2 (O.S.H.R.C., Dec. 10, 2021). "The existence of a hazard is established if the hazardous incident can occur under other than a freakish or utterly implausible concurrence of circumstances." *Id.*

Pig launchers are typically pressurized with natural gas at a heavy internal pressure, ranging anywhere from 100 PSI to 1,100 PSI. (Tr. 427, 976, 1078, 1087-88). The launcher at the Farmersville Project worksite, for example, was typically pressurized at around 600 to 800 PSI. (Tr. 427, 1078, 1087-88). The sudden release of this internal pressure could forcefully swing open the launcher's door and strike an employee working in the door's vicinity. (Tr. 52-53, 91-92, 171, 321, 365, 432-33, 557, 591, 677-78, 707-08, 857, 924, 934, 976, 1078-79, 1333: Ex. C-8, at 3 ¶ II(A)(8); *id.* at ¶ III(C)(4)). As previously noted, Respondent does not materially contest the existence of this struck-by hazard.

The Court finds a struck-by hazard existed from the launcher's door if a sudden release of pressure were to occur. Importantly, however, the existence of a potential struck-by hazard does not establish that an actual hazardous "condition" was present for purposes of the knowledge element.

ii. The Hazard was Recognized

The Secretary can establish hazard recognition either "by proof that a hazard is recognized as such by the employer or by general understanding in the employer's industry." *Integra Health Mgmt., Inc.*, No. 13-1124, 2019 WL 1142920, at *7 (O.S.H.R.C., March 4, 2019). The record establishes both types of hazard recognition here.

1. Employer Recognition

As to employer recognition, multiple Bobcat employees, including multiple supervisors, acknowledged the potential hazard of being struck-by the launcher's door if there were a sudden release of pressure from the launcher. (Tr. 52-53, 365, 432-33, 557, 591, 677-78, 707-08, 1333). Bobcat took multiple precautions to address the hazard posed by the sudden release of pressure from a launcher. The most prominent precaution was to depressurize the launcher prior to opening its door. (Tr. 54, 283-85, 306-06, 424-25, 432, 865; Ex. C-8, at 4 ¶ III(C)(1)). Bobcat would also sometimes confirm the depressurization of a launcher using a pressure gauge. (Tr. 49-50, 366-67, 396-97, 562). Additionally, employees were instructed to be on alert for the sound, smell, sight, or feel of gas escaping as the door was being opened, which would indicate pressure had not been properly relieved. (Tr. 123, 127, 271-72, 324, 427-28, 719, 778, 822). Finally, employees were instructed not to stand on the hinge side of the door as it was being opened to minimize any possibility it might yet swing open and strike an employee. (Tr. 494-95, 590-91, 628, 707-08; Ex. C-8, at 4 ¶ III(C)(3)).

Taken together, this evidence establishes Bobcat's recognition of the struck-by hazard posed by a launcher door if there were a sudden release of pressure. *See Integra Health Mgmt., Inc.*, 2019 WL 1142920, at *8 ("Work rules addressing a hazard have been found to establish recognition of that hazard."); *Beverly Enters, Inc.*, 19 BNA OSHC 1161, 1186 (No. 91-3144, 2000) (consolidated) ("While an employer's safety precautions alone do not establish that the employer believed that those precautions were necessary for compliance with the Act … precautions taken by an employer can be used to establish hazard recognition in conjunction with other evidence."); *Waldon Health Care Ctr.*, 16 BNA OSHC 1052, 1061 (No. 89-2804, 1993) ("Commission precedent establishes that precautions taken by an employer can be used to establish recognition in conjunction with other evidence.").

2. Industry Recognition

The evidence also establishes industry recognition of this hazard. Particularly, Atmos's Appendix R[64] makes several references to the hazard posed by the launcher door by instructing that workers should "[v]erify a pressure gauge and purge point has been installed to monitor and relieve pressure inside the barrel," "[n]ever stand directly in front of the pig launcher/receiver door," and to "[s]tand clear of the launcher door while opening." (Ex. C-8 at 2 ¶ (A), 4 ¶ III(C)(3)). Several non-Bobcat witnesses with years of collective experience in pigging, including the Secretary's expert witness, also recognized that the sudden release of pressure from a launcher could turn the launcher's door into a struck-by hazard. (Tr. 171, 321, 857, 1078-80).

Taken together, the Court finds the evidence presented supports a finding of industry

[64] Mr. Stringer, the Secretary's expert witness, acknowledged that Appendix R was developed by Atmos, which is a "leader in the industry," and in his expert opinion the procedures set forth in Appendix R represented procedures that are "very standard in the industry." (Tr. 1121). As Mr. Carter elaborated, Appendix R was created to "just put on paper exactly what we had been doing in the field [when pigging]." (Tr. 1287).

recognition of the hazard. *See Kelly Springfield Tire Co., Inc. v. Donovan*, 729 F.2d 317, 321-22 (5th Cir. 1984) ("[W]here a practice is plainly recognized as hazardous in one industry, the Commission may infer recognition in the industry in question.").

iii. The Hazard was Serious

To determine whether a hazard is "causing or likely to cause death or serious physical harm" the Commission does not look to the likelihood of an accident or injury occurring, but whether, if an accident occurs, the results are likely to cause death or serious harm. *Beverly Enters., Inc.*, 19 BNA OSHC at 1188; *Waldon Health Care Ctr.*, 16 BNA OSHC at 1060; *R.L. Sanders Roofing Co.*, 7 BNA OSHC 1566, 1569 (No. 76–2690, 1979), *rev'd on other grounds,* 620 F.2d 97 (5th Cir. 1980).

Here, the possibility of death or serious physical harm resulting from an employee being struck-by a heavy metal door[65] is "supplied by [a] common sense understanding of physical law." *Ill. Power Co. v. Occupational Safety & Health Review Comm'n*, 632 F.2d 25, 28 (7th Cir. 1980); *cf. also Litton Sys., Inc., Ingalls Shipbuilding Div.*, 10 BNA OSHC 1179, 1182 (No. 76-900, 1981) ("Given the massive size of the vehicle, the likely result of such an incident would be death or serious injury to the person struck by the carrier.").

The record establishes that the hazard is serious.

iv. Secretary Failed to Establish Abatement Element

To demonstrate a feasible means of abatement, the Secretary "must specify the proposed abatement measures and demonstrate both that the measures are capable of being put

[65] Although the weight and composition of a typical launcher door is not clearly established by the record, the Court notes that the door of the launcher involved in this accident, which does not appear to be an atypical launcher in any meaningful sense, was approximately 26 inches in diameter and made of steel. (Tr. 701, 730, 787, 1258; Ex. C-41, at 4 to 6).

into effect and that they would be effective in materially reducing the incidence of the hazard." *Beverly Enters., Inc.*, 19 BNA OSHC at 1191.

Here, the Citation sets forth the following as feasible means of abatement:

> a. Use pressure gauges as stated on Atmos Energy [P]ipeline Integrity Management Plan Appendix R.
> b. Eliminate all sources of ignition (i.e. cell phones) during loading.
> c. Use monitoring devices or equipment for oxygen, hydrocarbons, H2S and lower explosive limit (LEL).

The Secretary has failed to establish this element of the violation with regard to this hazard for two reasons.

First, CSHO Jimenez and the Secretary's expert witness both testified that *all* of these abatement measures needed to be implemented together to materially reduce the struck-by hazards alleged in the Citation. (Tr. 905-12, 943-44, 1142-44, 1157-58). The Secretary has accepted this characterization in her post-trial brief. Sec'y's Br. 35. Where the Secretary's proposed methods are each "a component of a single *means* of abatement … all of the measures must be implemented to abate the violation." *A.H. Sturgill Roofing, Inc.*, No. 13-0224, 2019 WL 1099857, at *9 (O.S.H.R.C., Feb. 28, 2019). When the Secretary proposes such a "process-based approach to abatement," the Secretary can establish the abatement element of the violation if "at least one of the measures [s]he proposed was not implemented." *UHS of Westwood Pembroke, Inc.*, No. 17-0737, 2022 WL 774272, at *7 (O.S.H.R.C., March 3, 2022), *aff'd*, No. 22-1845, 2023 WL 32439889 (3d Cir. May 4, 2023). However, the Secretary must still show "the same measure is both effective and feasible in addressing the alleged hazard." *UHS of Westwood Pembroke, Inc.*, 2022 WL 774272, at *8. And where, as here, "an employer has existing safety procedures, the burden is on the Secretary to show that those procedures are inadequate." *SeaWorld of Florida v.*

Perez, 748 F.3d 1202, 1215 (D.C. Cir. 2014), citing *Cerro Metal Prods. Div., Marmon Grp., Inc.,* 12 BNA OSHC 1821 (No. 78–5159, 1986).

1. Secretary's Proposed Methods

One of the Secretary's proposed abatement methods, "eliminatin[g] all sources of ignition … during loading," is clearly directed at reducing the possibility of an explosion, a point which was repeatedly acknowledged by the Secretary's own expert witness. (Tr. 54-55, 213, 280, 710, 809, 1098-99, 1118-19, 1124-30, 1141-46, 1148, 1155-59, 1208-10, 1256-57, 1259-60). As the Court previously identified, the possibility of an explosion poses a distinct struck-by hazard from the one posed by the sudden release of pressure from the launcher. *See* Part IV(C), *supra*. Moreover, this abatement method is inapposite to *when* the door poses a hazard, i.e., *prior* to the door being opened and loading the pig, not "during loading." (Tr. 52-53, 91-92, 171, 321, 365, 432-33, 557, 591, 677-78, 707-08, 857, 924, 934, 976, 1078-79, 1181). Therefore, one of the proposed abatement methods, which the Secretary agrees are meant to be implemented as a "single means of abatement," does not even apply to this hazard. *Cf. UHS of Westwood Pembroke, Inc.*, 2023 WL 3243899, at *2 (finding the element established where "each [proposed abatement] measure, if implemented, would have addressed different root causes" of the alleged hazard).

As to the remaining two abatement measures, the Secretary has failed to meaningfully connect these abatement measures to the specific struck-by hazard posed by the door if there is a sudden release of pressure from the launcher. She instead focuses on whether these measures would reduce the risk of an explosion, a subject the Court more fully addresses below. Moreover, although Mr. Stringer, the Secretary's expert witness, indicated that the use of pressure gauges would indicate whether a launcher was in fact depressurized, his testimony largely focused on how the use of a pressure gauge at various points in the process of pigging might have alerted Bobcat's

employees to the leak in the mainline valve and prevented the explosion that occurred in this case. (Tr. 979-80, 1089, 1141-45, 1150-51, 1164-65, 1186-88, 1223-24, 1243-45, 1260-61, 1271-72). As to the use of personal four-gas monitors, these monitors detect the lower *explosive* level of natural gas and thus, by design, are aimed at preventing an explosion. *See* note 18, *supra.* Thus, Mr. Stringer's testimony on this abatement again largely focused on how these monitors might alert employees to the presence of gas and reduce the risk of an explosion. (Tr. 980-81, 109-93, 1116-19, 1129-30, 1141-44, 1157, 1165-66, 1254-55, 1259-60, 1267-69; Ex. C-45).

The Court finds the Secretary has failed to prove the proposed abatement methods would materially reduce the risk of the struck-by hazard posed by a sudden release of pressure from the launcher.

2. Respondent's Existing Safety Measures

Second, the Secretary has failed to demonstrate Respondent's existing safety measures to address this potential hazard were inadequate. Particularly, the Secretary has failed to show how the complete depressurization of the launcher prior to opening its door did not materially reduce, if not completely eliminate, the struck-by hazard posed by the sudden release of pressure from the launcher. (Tr. 52-54, 171, 208-09, 282-85, 305-06, 321, 375, 406-07, 424-25, 432-33, 678-81, 806 865, 924, 934, 1089, 1181, 1295-96; Ex. C-8, at 3 ¶ III & at 4 ¶ III(C)(1)).

In his post-trial brief, the Secretary devotes a single sentence purporting to demonstrate an inadequacy in Respondent's safety methods with regard to the hazard posed by the launcher door, suggesting that "Bobcat's practice is that workers stand in front of the launcher door when they are loading the pig and specifically when holding onto the metal push poles" in contravention of the procedures set forth in Appendix R. Sec'y's Br. 41, citing Tr. 589. In the portion of Mr. Rodrigeuz's testimony cited for this proposition, he only briefly discusses the use of a push pole

and does not touch upon any Bobcat employee's position when the pole is being put into the launcher. (Tr. 589). In any event, after a launcher's door is open, which is when employees would be inserting a push pole into the launcher, the door is no longer a struck-by hazard, at least vis-à-vis the sudden release of pressure from the launcher.[66] (Tr. 707-08, 924, 934, 1181). The Secretary has otherwise failed to point to any perceived inadequacy in Respondent's safety procedures with regard to this potential struck-by hazard.

Therefore, the Secretary failed to establish this element of the potential General Duty Clause violation.

v. Employer Knowledge

To prove the knowledge element of a violation, "[t]he Secretary must show the employer knew or, with the exercise of reasonable diligence could have known of the hazardous condition." *Peacock Eng'g, Inc.*, 26 BNA OSHC 1588, 1592 (No. 11-2780, 2017). A supervisor's knowledge of a violative condition is imputable to a corporate employer. *TNT Crane & Rigging, Inc. v. Occupational Safety & Health Review Comm'n*, 74 F.4th 347, 359 (5th Cir. 2023); *Angel Bros. Enters., Ltd. v. Walsh*, 18 F.4th 827, 832 (5th Cir. 2021); *see also Dover Elevator Co.*, 16 BNA OSHC 1281, 1286 (No. 91-862, 1993).

In his post-trial brief, the Secretary focuses more generally on the Bobcat's supervisors' "knowledge of the conditions that gave rise to the struck-by hazards." Sec'y's Br. 34. He points to the training given to Bobcat's employees, particularly Mr. Rodriguez, who was onsite the day

[66] Even after the launcher door was opened, Bobcat's employees were instructed to avoid standing in front of launcher as much as was possible. (Tr. 105-06, 376, 389-90, 628, 704-08). However, for certain activities, like hand-loading a pig or pushing it into the launcher's opening, helping to position the push pole against the pig and the excavator, attaching a bonding cable to the push pole and launcher, or removing the push pole from the launcher once the pig was seated, a certain amount of an employee's body might briefly be in front of the *opening* of the launcher, but not the launcher's door, which at that point has already been swung open. (Tr. 105-06, 113-14, 135-36, 390, 590-91, 704-06).

of the accident. *Id.* He further points to the failure of Bobcat's supervisors to use pressure gauges, monitor for gas, conduct a JSA or control ignition sources on the date of the accident as evidence of its knowledge of struck-by hazards. *Id.* at 34-35. Respondent also focuses on the date of the accident and argues that Respondent could not have had knowledge of any pressure inside the launcher prior to and during the opening of the launcher's door. Resp't's Br. 18-20.

As it relates to the opening of the launcher door, the underlying violative condition giving rise to the struck-by hazard alleged in the Citation is the existence of pressure in the launcher prior to or during the opening of the launcher door. (Tr. 427, 976, 1078, 198-88). The Court finds the Bobcat supervisory personnel onsite the day of the accident had neither actual nor constructive knowledge of this condition because there was no outward indication of any pressure in the launcher at either point in time. Prior to opening the door, the flare on the flare tower had extinguished, just as it had during the five previous pig runs, indicating to everyone onsite that there was no pressure in the launcher. (Tr. 201, 205-06, 271-72, 316-19, 577-78, 775-76, 778, 865-69; *see also* note 40, *infra*). During the opening of the door, no one near the door as it was being opened heard, saw, smelled, or felt anything to indicate that the launcher was still pressurized.[67] (Tr. 123, 127-28, 136-37, 174, 271-72, 324, 778, 822). Thus, during the relevant time period that the potential struck-by hazard of the launcher door existed,[68] the record indicates the violative condition that could cause that hazard, i.e., pressure in the launcher, had been

[67] To the extent Mr. [redacted] offered any contrary testimony on this latter point, the Court does not credit it. *See* note 59, *supra.*

[68] The Court acknowledges that, according to the NTSB report, once the pig was loaded into the launcher, pressure again began to build in the launcher between the pig and the leaking mainline valve because of the buildup of gas. (Ex. C-29, at 7). However, at this point, the launcher door had been fully opened and so could not suddenly swing open and strike an employee even if there was a sudden release of pressure from the launcher. (Tr. 201, 205-06, 271-72, 316-19, 577-78, 775-76, 778, 865-69; Ex. C-30, at 13). Thus, Respondent's supervisors' knowledge at the point in time that pressure began to rebuild in this isolated portion of the launcher is not relevant vis-à-vis the struck-by hazard posed by the launcher door.

completely abated and thus did not exist. Bobcat's supervisors could have neither actual nor constructive knowledge of a violative condition that did not exist at the time of the alleged violation.

The Secretary has failed to establish Respondent's actual or constructive knowledge of the hazardous condition related to the struck-by hazard posed by the launcher door.

vi. Conclusion

The record here establishes the existence, recognition, and seriousness, of the struck-by hazard posed by opening a launcher's door while the launcher is pressurized. However, the existence of a potential hazard does not in itself establish a hazardous condition or knowledge of such condition. The Secretary has failed to establish Respondent's knowledge of the hazardous condition. Further, the Secretary has failed to demonstrate: (1) that all, or even any, of the three abatement methods proposed in the Citation would materially reduce employee exposure to this hazard; and (2) that Bobcat's existing abatement measures, particularly depressurizing the door prior to opening it, was inadequate to address this hazard. Thus, the Secretary has failed to establish a violation of the General Duty Clause with regard to this potential struck-by hazard.

b. Materials Ejected as a Result of an Explosion

i. A Hazard Existed

As previously stated, "[t]o prove that a condition presents a hazard under the general duty clause, the Secretary is required to show that ... employees [were exposed] to a significant risk of harm." *Roadsafe Traffic Sys., Inc.*, 2021 WL 5994023, at *2. "The existence of a hazard is established if the hazardous incident can occur under other than a freakish or utterly implausible concurrence of circumstances." *Id.*

As both parties acknowledge, the record here establishes the existence of a second struck-by hazard that exists due to a certain level of combustible gas that is always present in a pig launcher. (Tr. 93-94, 136-37, 320, 589-90, 617, 1092). Because of this attendant level of gas, an explosion can occur inside the launcher if the "fire triangle" of gas, oxygen, and an ignition source is completed in or near the launcher. (Tr. 54-55, 93-94, 157, 373-74, 433, 558, 589-90, 678, 975, 1117-18, 1129, 1333). If a pig or other materials, like a metal push pole, are inside the launcher at the time of such an explosion, those materials can be ejected from the launcher and potentially strike an employee working near the launcher's door. (Tr. 596-97, 901, 938, 1079, 1129, 1217; Ex. C-8, at 3 ¶ II(A)(5)).

The record therefore establishes a second struck-by hazard in the event of an explosion inside a pig launcher.

ii. The Hazard Was Recognized

The Secretary can establish hazard recognition either "by proof that a hazard is recognized as such by the employer or by general understanding in the employer's industry." *Integra Health Mgmt., Inc.*, 2019 WL 1142920, at *7.

1. Employer Recognition

As to employer recognition, multiple Bobcat employees, including multiple supervisors, acknowledged the potential for an explosion in a launcher if an ignition source is introduced and thus recognized the need to control potential ignition sources when pigging. (Tr. 54-55, 93-94, 373-74, 433-34, 558, 678, 683-84, 1333). To address the potential for an explosion, Bobcat's employees were instructed to work as if there was a "100 percent" concentration of natural gas in the launcher at all times. (Tr. 465-66, 475-78, 684; *see also* note 13, *supra*). To address the potential ignition source of the push pole being inserted into the launcher, Bobcat's employees

used a magnetic bonding cable which reduced the buildup of static electricity between the pole and the launcher. (Tr. 93-94, 133-34, 276-77, 732, 815-16, Exs. C-8, at 5 ¶ III(C)(2)(i); C-40; *see also* note 45, *supra*).

Taken together, this evidence establishes Bobcat's recognition of the potential for an explosion in a launcher if an ignition source is introduced. *See Integra Health Mgmt., Inc.*, 2019 WL 1142920, at *8 ("Work rules addressing a hazard have been found to establish recognition of that hazard."); *Beverly Enters, Inc.*, 19 BNA OSHC at 1186 ("While an employer's safety precautions alone do not establish that the employer believed that those precautions were necessary for compliance with the Act … precautions taken by an employer can be used to establish hazard recognition in conjunction with other evidence."); *Waldon Health Care Ctr.*, 16 BNA OSHC at 1061 (No. 89-2804, 1993) ("Commission precedent establishes that precautions taken by an employer can be used to establish recognition in conjunction with other evidence.").

2. Industry Recognition

The record also establishes industry recognition of the hazard. Atmos's Appendix R makes several references to the possibility of ignition in a pig launcher, directing workers to "[e]liminate all sources of ignition … during loading" (Ex. C-8, at 2 ¶ (A) (line 8)); to "[s]tay clear of gas release (in case of ignition)" (*id.* (line 11)); and noting "[f]lammability" and "[f]lying [p]rojectiles" as potential hazards when pigging. (*Id.* at 3 ¶ II(A)(1) & (5)). Several non-Bobcat witnesses with years of collective experience in pigging, including the Secretary's expert witness, also recognized that the introduction of an ignition source to a pig launcher could cause a fire or an explosion. (Tr. 157, 353-54, 771, 874-75, 975, 1118-19).

Taken together, the Court finds the evidence presented supports a finding of industry recognition of the hazard. *See Kelly Springfield Tire Co.*, 729 F.2d at 321-22 ("[W]here a practice

is plainly recognized as hazardous in one industry, the Commission may infer recognition in the industry in question.").

iii. The Hazard was Serious

To determine whether a hazard is "causing or likely to cause death or serious physical harm" the Commission does not look to the likelihood of an accident or injury occurring, but whether, if an accident occurs, the results are likely to cause death or serious harm. *Beverly Enters., Inc.*, 19 BNA OSHC at 1188; *Waldon Health Care Ctr.*, 16 BNA OSHC at 1060; *R.L. Sanders Roofing Co.,* 7 BNA OSHC at 1569.

The pigs loaded into launchers weigh at least 10s of pounds but can also weigh as much as 100s or even 1000s of pounds and are made of materials such as heavy foam, aluminum, steel, or plastic that are durable enough to be run through many miles of pipeline. (Tr. 46-47, 156, 225-26, 440-41, 489, 492, 537, 1148, 1331-32; Ex. C-18). In the same vein, the push poles used to seat pigs in the launchers are long and are made of steel, fiberglass, wood, or aluminum, and must be heavy enough to sustain over a thousand pounds of pressure. (Tr. 275-76, 502, 584, 783-86, 1148, 1128, 1302, 1326-27, 1335-38; Exs. C-29, at 2 n.4; C-38, C-39, at 1; C-42, C-47, at DOL001277). The possibility of serious harm to an employee from being struck by such materials if an explosion were to eject them from a launcher is again "supplied by [a] common sense understanding of physical law." *Ill. Power Co.*, 632 F.2d at 28.

The record establishes this struck-by hazard was serious.

iv. The Secretary Failed to Prove a Feasible Means of Abatement

The Court again sets forth the three abatement methods proposed in the Citation:

a. Use pressure gauges as stated on Atmos Energy [P]ipeline Integrity Management Plan Appendix R.
b. Eliminate all sources of ignition (i.e. cell phones) during loading.

c. Use monitoring devices or equipment for oxygen, hydrocarbons, H2S and lower explosive limit (LEL).

As the Court previously discussed, where, as here, the Secretary proposes a "process-based approach to abatement," the Secretary can establish the abatement element of the violation if "at least one of the measures [s]he proposed was not implemented." *UHS of Westwood Pembroke, Inc.*, 2022 WL 774272, at *7. However, the Secretary must still show "the same measure is both effective and feasible in addressing the alleged hazard." *Id.* at *8. Moreover, where "an employer has existing safety procedures, the burden is on the Secretary to show that those procedures are inadequate." *SeaWorld of Florida*, 748 F.3d at 1215.

The Court finds that the Secretary has failed to show that any of the three proposed abatement methods, if implemented separately or together, would have materially reduced potential of the introduction of an ignition source or an explosion in the launcher. The Court addresses each proposed abatement method in turn.

1. Use of Pressure Gauges

The Secretary failed to demonstrate the use of a pressure gauge after the launcher's door was open would materially abate the potential for an explosion in the launcher. Mr. Stringer's opinion as to how pressure gauges should have been used boiled down to the following:

> [W]hat could have been done would be to isolate the launcher and put a pressure gauge on the launcher so that the employees could see the pressure building.
>
> Then they would know that the valve was leaking. And then they could have taken steps to call stop work authority and have the valve repaired before continuing with the operation …

(Tr. 1150-51; *see also* Tr. 1080).

As an initial matter, the Court does not find Mr. Stringer's prescription to be entirely clear, especially as to when he believed Bobcat should have used a pressure gauge during the process of

loading a pig. As the Court laid out in significant detail above, the isolation of a launcher is the first step in the depressurization process. (Tr. 310-11, 400-01, 413, 443-44, 454-55, 617, 752-53, 774-75, 852-53, 1080). Once the mainline valve is closed and the launcher is isolated, the launcher is still pressurized, presumably at the pressure it was before it was isolated, which is the reason it needs to be depressurized before opening the door. (Tr. 163, 190, 301, 317-19, 568, 859, 773, 1289). Thus, installing a pressure gauge on the launcher at this point in the process would only reveal the resting pressure of the launcher. Even if the mainline valve is leaking at this point in the process, the launcher would not be taking on any more pressure than it would have when the mainline valve was fully open. Thus, it is not at all clear to the Court that a pressure gauge would show anything of note at this point in the pigging process.

At other times, Mr. Stringer suggested that the launcher should be isolated again once the gas has been flared or vented off, and it is at this point that a pressure gauge might be able to alert an employee that there is a leak in the mainline valve if the pressure in the chamber were to increase. (Tr. 979-80, 1186-87). Other than Mr. Stringer's testimony, nothing in the record establishes this is the way pressure gauges are used in the natural gas industry or during pigging operations. Rather, as demonstrated by both the Atmos and Bobcat employees' use of pressure gauges at the start of the Farmersville Project, pressure gauges are typically used to confirm there is no pressure in the launcher prior to opening the launcher's door. (Tr. 312-13, 552-53, 614, 755-56, 811; *see also* Ex. C-8, at ¶ III(C)(1)). Thus, the Secretary has not shown that a reasonably prudent employer in Bobcat's position would implement a policy of using pressure gauges to address the explosion hazard in the launcher or that such use of pressure gauges is prescribed by

conscientious experts in the industry.[69] *See Arcadian Corp.*, 20 BNA OSHC at 2011 ("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").

2. Eliminating Ignition Sources

Although this abatement method seemingly encompasses "all sources of ignition" that might be present during pigging, the Secretary has pointed to three over which Bobcat has any reasonable amount of control during a typical pigging operation:[70] (1) the Bobcat employees' cell

[69] The Court also calls into question Mr. Stringer's conclusion that using a pressure gauge is a reliable method of detecting a leak in a launcher once the launcher's door is open. The explosion occurring in the launcher at the Farmersville worksite is illustrative. At the time of the explosion, the launcher's door was open, and the gauge plate pig was seated in the reducer. (Tr. 133, 584-85, 703-05, 784-86; Ex. C-29, at 7). The NTSB later concluded that it was this setup that caused gas, and therefore pressure, to build between the mainline valve and the pig. *See* note 60, *supra*. Of the three potential valves where a pressure gauge could have been installed at this point, two were located between the reducer and the launcher door, where no significant pressure could have been building due to the launcher's door being open. (Tr. 167-68, 284-87, 308-09, 313-15, 756, 834, 1254; Ex. C-44A (notations 1/1A and 3)). The Court notes that one of these first two valves, the 8-inch "knockoff" valve above the launcher's door, is where the workers *had* installed a pressure gauge on the first day or two of the project, which confirmed that the flame extinguishing on the flare tower equated to a zero pressure reading on the gauge. (Tr. 312-13, 552-53, 614, 755-56, 811, 1254, 1272; Ex. C-44A (notation 3); *see also* note 40, *supra*). The third valve was, at the very least, located between the pig and the mainline valve and thus a pressure gauge installed there may have shown an increase in pressure from the leak in the mainline valve. (Ex. C-44A (notation 2)). However, this valve was also where FESCO had connected its flaring system to the launcher. (Exs. C-43, C-44A (notation 2)). Indeed, it was the only valve available to FESCO to do so. *See* note 39, *supra.* Thus, only one of the three valves on the launcher could have even potentially detected the leak in the launcher's mainline valve, and it was already being used by another contractor who was directly responsible for ensuring the depressurization of the launcher. (Tr. 54, 61-63 116-17, 120, 163, 190, 194-95, 227, 270-71, 300-01, 635, 686, 859).

[70] In her proposed findings of fact, the Secretary also identifies the transmitters inside the pigs and the lithium batteries used to power those transmitters as potential ignition sources. Sec'y's Br. 14 & 19; *see also* notes 32 & 38, *supra*. However, the Secretary has not even cursorily addressed these sources in his argument on the abatement element of the violation, and the Court therefore considers them abandoned. *See, e.g., NLRB v. McClain of Ga., Inc.*, 138 F.3d 1418, 1422 (11th Cir. 1998).

In any event, the Court does not give any weight to Mr. Stringer's testimony, relied on by the Secretary, in which he identifies these as potential ignition sources at the worksite here. Mr. Stringer displayed a lack of specific knowledge regarding the batteries, testifying that "we don't know if those are intrinsically safe or not" and noting only that airlines consider some types of lithium batteries to be potential ignition sources. (Tr. 1226-28). As to the transmitters, Mr. Stringer supplied even less information as to why he thought they were a potential ignition source, stating in a conclusory fashion they're "transmitting signals that could be an ignition source" while at the same time admitting that "[w]e don't have any data or documentation on … what that transmitter is." (Tr. 1126).

phones; (2) the diesel engine on the trackhoe; and (3) the steel push pole. Sec'y's Br. 37. For the various reasons set forth below, the Court is not persuaded that the Secretary has established the abatement element of the violation for any of these potential ignition sources.

Cell Phones

The Court finds, on this record, the Secretary has failed to prove that cell phones are an "ignition source" during pigging operations to which this abatement method would even apply. Of the witnesses to remark on the subject, only Mr. [redacted], CSHO Jimenez, and Mr. Stringer considered cell phones to be a potential ignition source. (Tr. 187-88, 212-14, 346-47, 478, 710, 809, 1127-28, 1196-97, 1315-16, 1322). Mr. [redacted] did not state the basis for his belief, only that he "learned that … lesson a long time ago" and that he's "just … known it." (Tr. 188, 213). CSHO Jimenez admitted he included cell phones in the description of this abatement method because it was taken directly from Atmos's Appendix R, which mentions cell phones, and that OSHA had not identified any scientific studies or other evidence that cell phones could be a potential ignition source. (Tr. 920-21).

As to Mr. Stringer, he first stated it was "common knowledge in the industry" that cell phones were a potential ignition source and, in support, noted that Atmos "considers it to be an ignition source because they included it in" Appendix R. (Tr. 1127). However, despite this nominal policy in Appendix R, Atmos's FCCs regularly used their cell phones at various points during the pigging process. (Tr. 146, 477-78, 488, 709, 808-09, 1311). Indeed, both Atmos FCCs at the Farmersville worksite had their cell phones on their person at the time of the explosion. (Tr. 346, 808-09; *see also* notes 22 & 58, *supra*). Moreover, neither of the FCCs prohibited Bobcat from using their phones on the worksite. (Tr. 477-78, 1311; *see also* note 22, *supra*).

When Mr. Stringer was again asked about the basis for his belief that cell phones were a potential ignition source, he could not name a specific source but stated he could "go on the internet and find scientific articles that have been written about it" and that he "didn't think anyone would disagree with me that a cell phone was an ignition source. I thought it was well known." (Tr. 1196-97). Mr. Stringer also pointed only generally to standards on "OSHA.gov" and slightly more specifically to 29 C.F.R. § 1910.178, which he admitted governs powered industrial trucks, not cell phones. (Tr. 1198-99).

For the above reasons, the Court does not ascribe much weight to the evidence in this record suggesting cell phones are a potential ignition source during pigging operations and does not find a preponderance of the evidence establishes that they are. The Court therefore finds that this abatement method does not even apply to cell phones as an "ignition source."

Trackhoe's Diesel Engine

According to Mr. Stringer, the diesel engine on Bobcat's trackhoe, which was used to push the pig into the reducer, was an ignition source and should have maintained at least 100 feet of distance from the launcher at all times. (Tr. 981, 1104-06, 1111, 1159, 1208-10, 1259-60; Ex. C-45). When asked what the basis of his conclusion was, Mr. Stringer pointed to an OSHA Fact Sheet entitled "Internal Combustion Engines as Ignition Sources." (Tr. 1100-02, 1104-06, 111-12, 1159; Ex. C-45). As Respondent points out, the specific prescription of 100 feet of distance is drawn from several American Petroleum Institute ("API") Recommended Practices for "Occupational Safety and Health for Oil and Gas Well Drilling and Servicing Operations." (Tr. 1104-06, 1210, 1212-13; Ex. C-45, at 4 n.9). Assuming *arguendo* the diesel engine on Bobcat's

trackhoe even presented a potential ignition source during typical pigging operations,[71] the Secretary has failed to demonstrate that the circumstances of the environment addressed in the fact sheet, i.e., well drilling and oil servicing and drilling, and the environment at issue here, i.e., routine pigging operations, are similar enough that these recommendations have any applicability. *See Mo. Basin Well Svc., Inc.*, 26 BNA OSHC 2314, 2320-21 (No. 13-1817, 2018) (rejecting the application of a similar 100-foot rule from the API where "does not appear to have been intended to address the circumstances at issue here."). On their face, these recommended practices apply to operations involving "wellbores," "wellheads," "rig operations," and "snubbing operations." (Ex. C-45, at 4 n.9). Although Mr. Stringer testified that these scenarios were similar enough such that the 100-foot rule should apply, he did not elucidate the nature of these operations sufficiently

[71] The Court has reason to doubt this conclusion. Mr. Stringer relied exclusively on whatever methodology underlies the conclusions in OSHA's fact sheet, methodology that is not apparent from the face of the document, to determine that a diesel engine like the one at the Farmersville Project worksite presented a potential ignition source when pigging. (Tr. 1208-10). As the Court sets forth in greater detail in note 72 *infra*, the scale of the operations anticipated by the OSHA fact sheet seems to be much larger than a typical pigging operation. While Mr. Stringer speculated that a sufficient quantity of gas could leave the launcher and accumulate around the diesel engine of the trackhoe such that the gas could ignite, he did not state the basis for that conclusion. (Tr. 1129-30). Testimony from other witnesses with experience working around natural gas called Mr. Stringer's conclusion into question. (Tr. 477, 729). Moreover, the industry practice of venting gas into the atmosphere to depressurize pig launchers, though not used at the Farmersville worksite, would seem to belie the conclusion that large quantities of natural gas accumulate at ground level during pigging. (Tr. 119, 308-09, 325-26, 424-25, 443, 449, 697-98; Exs. C-8, at 4 ¶ III(B)(2); C-44A (notation 3)). Indeed, natural gas is less dense than atmospheric air, which is why simply venting the gas is one reliable method of depressurizing a launcher. (Tr. 475-76, 481, 869-70).

for the Court to conclude that the API recommendations that formed the basis of his opinion have any applicability to typical pigging operations.[72] (Tr. 1100-01, 1212-15).

The Court therefore finds that the Secretary has failed to establish the applicability of this method of abatement as to the trackhoe. *See Mo. Basin Well Svc., Inc.*, 26 BNA OSHC at 2320-21.

Push Pole

The Secretary argues that Respondent "could have used a rubber coated metal push pole, fiberglass poles, [or] wood push poles" as a method to eliminate ignition sources. Sec'y's Br. 37. The Court rejects the Secretary's argument for two reasons.

First, the Secretary must propose a *feasible* means of abatement. As Mr. Carter detailed in his testimony, the force exerted on a push pole can be in the 1000s of pounds. (Tr. 1326). Thus, a strong material, like the drill stem push pole used here, is required, lest the pole breaks and potentially damages a launcher or injures a worker. (Tr. 1326-27). Other materials, like the

[72] The Court has reason to doubt that these operations are at all similar. Federal regulations that mention "wellbores" and "wellheads" seem to anticipate large-scale drilling operations to access reserves of oil or natural gas in various environments. *See, e.g.*, 40 C.F.R. § 435.11 (mentioning wellbores in the context of offshore oil and gas extraction); 30 C.F.R. § 250.1714 (mentioning wellbores in the context of oil, gas, and sulphur operations in the outer continental shelf); 43 C.F.R. § 3275.14 (mentioning wellheads in the context of geothermal resource leasing). This is likewise so for the "snubbing operations" and "rig operations" mentioned in the API's recommended practices. *See, e.g.*, 30 C.F.R. § 250.760 (mentioning snubbing operations in the context of oil, gas, and sulphur operations in the outer continental shelf); *id.* § 250.723 (same for "rigging"). Recognizing that this record does not adequately address the point, the Court nonetheless surmises that the quantity of gas involved in such operations must be multitudes larger than the quantity of gas involved in a typical pigging operation.

Mr. Stringer nonetheless attempted to connect the two scenarios, relying on the publication's language that it applies to "facilities processing flammable liquids and gases" and stated that, in his view, even "if you're venting gases, you're processing them." (Tr. 1100-01). On the available record, the Court finds Mr. Stringer's connection tenuous at best. Compare, for example, the probable scale of the "processing" occurring at the refinery pictured on the first page of the OSHA fact sheet with the "processing" Mr. Stringer alleges is occurring during flaring or venting gas to depressurize a launcher for pigging operations. (*Compare* Ex. C-45, at 1, *with* Ex. C-44). In any event, the API practices, from which Mr. Stringer's 100-foot rule was drawn, are more specific in their application than the general language found in other places in the OSHA fact sheet. (Ex. C-45, at 4 n.9).

fiberglass, wood, or aluminum identified by the Secretary, tend to weaken as the pole lengthens. (Tr. 1328). Indeed, Bobcat experimented with an aluminum pole once and found that it bent from the pressure exerted by the trackhoe. (Tr. 1328). The Secretary has thus failed to demonstrate that this is a feasible means of abatement. *Cf. Peacock Eng'g, Inc.*, 26 BNA OSHC at 1593 (finding the Secretary's proposed abatement method was not feasible where it would not allow the employees to work with the precision required for the task).

Second, the Secretary has not addressed Respondent's existing safety measures with regard to the push pole, particularly the use of the magnetic bonding cable between the pole and the launcher. (Tr. 93-94, 133-34, 212, 276-77, 732, 815-16; Ex. C-40). As evidenced in Atmos's Appendix R, this is recognized in the industry as a method of preventing a static charge between the pole and the launcher. (Ex. C-8, at 5 ¶ III(C)(2)(i); *see also* Tr. 93-94, 100-01, 133-34, 212, 814-16). Mr. Stringer never addressed the adequacy of the bonding cable as a means of reducing the potential buildup of static electricity, and the Court finds no other evidence to suggest it was ineffective. Although Mr. Stringer briefly addressed the issue of "mechanical sparks" potentially caused by the contact between a steel pole and launcher, he fell short of opining on whether there is sufficient kinetic energy to actually create such a spark when the pole is being removed from the launcher. *See* note 45, *supra*. The Secretary has therefore failed to establish that Respondent's existing safety measures regarding the push pole were inadequate. *SeaWorld of Florida*, 748 F.3d at 1215.

3. Use of Personal Four-Gas Monitors

The Secretary has also failed to show that the use of personal four-gas monitors would have materially reduced the struck-by hazard posed in the event of an explosion inside the launcher.[73] The range of these monitors encompasses only an approximately 10-inch radius, meant primarily to address the "breathing zone" of the person wearing the monitor. (Tr. 327, 372, 469, 725-26, 1237, 1267-68; Ex. C-47, at DOL001273). Although the length of an average launcher is not in the record, the launcher at the Farmersville worksite, which does not appear to be atypical in any meaningful way, was approximately 30 feet long. (Tr. 701, 1079, 1329; Exs. C-15, at 2 & 3: C-44). The Secretary has failed to show that the limited, 10-inch range of gas detection of a personal four-gas monitor would meaningfully detect the presence of gas at any location inside a 30-foot launcher where gas might accumulate in sufficient quantities to cause an explosion, especially given that the interior of a launcher is either completely off-limits to employees as a confined space (*see* note 43), or, at the very least, is physically inaccessible to workers. As applied to the facts of this case, for example, the Secretary has produced no evidence that a personal four-gas monitor would have alerted any of the employees to the buildup of gas between the pig and the leaking mainline valve, which ultimately led to this explosion. *See* note 60, *supra*.

Moreover, as several witnesses pointed out, even when a launcher has been safely depressurized, there is *always* an attendant concentration of natural gas in the launcher. (Tr. 93-

[73] As the Secretary (very briefly) points out, Mr. Stringer discussed the potential use of a second type of monitor, known as a "combustible gas indicator" or "CGI." (Tr. 1235-36, 1256). A CGI is a "small machine which pulls a constant random air sample into it and will read percentage[s] of natural gas or carbon monoxide or [hydrogen sulfide]" by way of a small wand. (Tr. 327-29). However, Respondent correctly points out that the method drawn from Appendix R and included in the Citation was the personal four-gas monitors, i.e., a "small square tube probably 2-inch-by-2-inch electronic device that clips onto your shirt or onto your collar and is capable of detecting natural gas, [hydrogen sulfide], oxygen levels … [a]nd carbon monoxide." (Tr. 327, 923 (Q: "And the monitor you cited as an abatement method is a four-gas personal monitor, correct?" A: "Correct.")).

94, 136-37, 320-21, 589-90, 617, 694, 1092; *see also* note 13, *supra*). For this reason, Bobcat instructs its employees to work as if a launcher always has a "100 percent" concentration of natural gas. (Tr. 465-66, 475-76, 684). Thus, although Mr. Stringer testified that a reading on a personal four-gas monitor that the natural gas levels had reached the LEL *might* cause that employee to further inquire into the presence of gas or a potential leak in a launcher's valve, he failed to meaningfully address exactly how or why this information would do so, given that Bobcat's employees were already working as if there was "100 percent" gas in the launcher. (Tr. 1116-17, 1157, 1237-38). In other words, Mr. Stringer failed to identify how a positive natural gas reading on a personal four-gas monitor would tell an employee something they did not already know about the presence of natural gas during pigging. *Cf. Cerro Metal Prods. Div., Marmon Grp., Inc.*, 12 BNA OSHC at 1823 ("The burden of proof on abatement cannot be met by simply describing the very methods already undertaken by the employer … the burden is on the Secretary to show that [the employer's] safety program was inadequate.").

The Court finds the Secretary has failed to demonstrate that the use of personal four-gas monitors would materially reduce the possibility of an explosion and therefore a struck-by hazard.

v. Employer Knowledge

As the Court previously set forth, to prove the knowledge element of a violation, "[t]he Secretary must show the employer knew or, with the exercise of reasonable diligence could have known of the hazardous condition." *Peacock Eng'g, Inc.*, 26 BNA OSHC at 1592. A supervisor's knowledge of a violative condition is imputable to a corporate employer. *TNT Crane & Rigging, Inc.*, 74 F.4th at 359; *Angel Bros. Enters., Ltd.*, 18 F.4th at 832; *see also Dover Elevator Co.*, 16 BNA OSHC at 1286.

On the knowledge element, the Secretary refers only generally to the Bobcat's supervisors' "knowledge of the conditions that gave rise to the struck-by hazards." Sec'y's Br. 34. For purposes of a General Duty Clause violation, an employer's general knowledge of the hazard alleged lends some support for establishing the knowledge element of the violation. *Peacock Eng'g, Inc.*, 26 BNA OSHC at 1592 (finding knowledge was established in part because "the company president testified that he himself designed the work methods the employees use[d]" to engage in the hazardous activity); *Cranesville Block Co., Inc.*, 23 BNA OSHC 1977, 1986 (No. 08-1316, 2012) (noting the Secretary's lack of evidence of an inspection program designed to address the cited hazard in finding the Secretary failed to establish knowledge of the violation); *Mid. S. Waffles, Inc.*, 2019 WL 990226, at *5 (focusing on the deficiency in the employer's work rule designed to address the hazard in determining employer knowledge). And here multiple Bobcat supervisors had a general awareness of the potential for an explosion in the launcher, which could expel materials and thereby cause a struck-by hazard. (Tr. 373-74, 433-34, 558, 678, 683-84, 1333).

However, the Commission also considers the employer's supervisors' actual or constructive knowledge of the underlying hazardous condition at the time of the alleged violation. *See Peacock Eng'g*, 26 BNA OSHC at 1592 (finding knowledge in part because "the excavator was operated *on the day of the accident* by a supervisory employee, … who taught Peacock's installation methods to the injured ground employee, and set the slings on the crypt that was involved in the amputation at issue." (emphasis added)); *Cranesville Block Co., Inc.*, 23 BNA OSHC at 1986 (finding lack of knowledge in part where "nothing in the record indicates how long the condition existed, or places a Cranesville supervisor in the area of the pond *at the time the cited conditions were observed."* (emphasis added)); *Tampa Shipyards, Inc.*, 15 BNA OSHC 1533, 1538

(No. 86-360) (finding "a prima facie showing that Tampa, with the exercise of reasonable diligence, could have known of the violative conditions" because "*when the accident happened* … leaderman Croft had been informed that the crane's load weighed 33 tons, that he told leaderman Caulley the weight, and that Caulley nevertheless proceeded with the lift, with the boom angle set for a load of only 21 tons." (emphasis added)). The Court must therefore define what the underlying hazardous condition was that could potentially have caused an explosion in the launcher at the time of the alleged violation. The Court finds this underlying hazardous condition was the potential completion of the "fire triangle," i.e., fuel, oxygen, and an ignition source. (Tr. 54-55, 93-94, 157, 373-74, 433, 558, 589-90, 678, 380, 874, 975, 1117-18, 1129, 1141-42, 1333; Ex. C-8, at 3 ¶ II(A)(1)). As all three of these elements are necessary to cause an explosion, the Secretary must show that Bobcat had actual or constructive knowledge of each "side" of the fire triangle.

The Court finds the Bobcat supervisors had actual knowledge of both the existence of gas and of oxygen in the launcher on the date of the accident. Indeed, Bobcat's employees worked as if the launcher had a "100 percent" concentration of natural gas at all times. (Tr. 465-66, 475-76, 684; *see also* note 13, *supra*). Once the launcher's door was opened, Bobcat's supervisors were aware that the residual gas in the launcher mixed with atmospheric air, including oxygen, thus necessitating the use of the bonding cable on the push pole to eliminate it as a potential ignition source. (Tr. 475-76, 481, 732, Exs. C-8, at 5 ¶ III(C)(2)(i); C-40; *see also* note 45, *supra*).

As to the third side of the "fire triangle," the Court finds the Bobcat supervisors had neither actual nor constructive knowledge of an ignition source that could cause an explosion in the launcher. At the outset of its analysis on this element, the Court notes that the NTSB, despite devoting an entire investigation to the explosion in the Farmersville launcher, ultimately could not

determine the ignition source that caused the explosion. (Ex. C-29, at 7-8). The Court finds the inability of the NTSB, an agency that specializes in "investigat[ing] and report[ing] on accidents involving … pipeline[s] ….", to reach a conclusion on the ignition source of the explosion severely undermines a finding that Respondent knew of any potential ignition source or could have uncovered an ignition source with the exercise of reasonable diligence. *See* 49 U.S.C. § 1111(g)(4).

As to the potential ignition sources previously identified by the Secretary,[74] the Secretary has failed to demonstrate that the workers' cell phones, the diesel trackhoe, or the metal push pole were potential ignition sources in the circumstances present at the Farmersville worksite, for the reasons the Court set forth in detail above in addressing the abatement element of the Secretary's case. *See* Part VI(C)(2)(b)(iv), *supra*. More specifically, the record does not establish that either the employees' cell phone or the diesel trackhoe were potential ignition sources at the Farmersville worksite. Although Bobcat was aware that the metal push pole represented a potential ignition source, this potential ignition source was abated by the use of the magnetic bonding cable. (Tr. 93-94, 133-34, 212, 276-77, 732, 815-16; Ex. C-40). The Court therefore does not find that any of the ignition sources identified by the Secretary represented a hazardous condition over which Respondent knew or should have known could cause an explosion or a struck-by hazard.

[74] As the Court previously noted, the Secretary's arguments on the knowledge element of the violation only vaguely refer to "knowledge of the conditions that gave rise to the struck-by hazards." Sec'y's Br. 34. However, the Secretary pointed to the workers' cell phones, the diesel track hoe, and the metal push pole as potential ignition sources in another portion of his brief. Sec'y's Br. 37.

For its part, Respondent addresses FESCO's flare system as a potential ignition source and argues that it did not have actual or constructive knowledge of any "failures in the design or operation of the flare system." Resp't's Br. 26-27. As the Secretary did not identify this as the basis of the alleged violation, the Court does not further address Bobcat's actual or constructive knowledge of this potential ignition source, other than to note that the design, maintenance, and operation of the flare system was entirely in FESCO's control, not Bobcat's. (Tr. 61-63, 117, 194-95, 270-71, 300-01, 635, 686, 859).

The Secretary has failed to establish the knowledge element for the struck-by hazard resulting from an explosion in the launcher.

vi. Conclusion

The record here establishes the existence, recognition, and seriousness of the struck-by hazard posed by a potential explosion in the launcher. However, the Secretary has failed to establish the abatement or knowledge elements. Thus, the Secretary has failed to establish a violation of the General Duty Clause with regard to this potential struck-by hazard.

VII. CONCLUSION

In sum, the Court finds as follows:

- On its face, the Citation fails to apprise Respondent of the particular struck-by hazards being alleged in this case. On this basis alone, the Court vacates the Citation.

- If the Court were to allow the trial record in this case to define the struck-by hazard being alleged, the Court finds that the record establishes two potential struck-by hazards during pigging: (1) the struck-by hazard posed by a launcher's door if pressure is released too quickly from the launcher; and (2) the struck-by hazard posed in the event an explosion in or near the launcher causes materials to be ejected from inside the launcher.

    - As to the struck-by hazard posed by a launcher's door, the Secretary has failed to establish that any of the abatement methods set forth in the Citation would meaningfully address this hazard. The Secretary has also failed to point to any inadequacy in Respondent's existing safety measures, particularly the complete depressurization of a launcher prior to opening its door. Finally, the Secretary has failed to establish Respondent's actual or constructive knowledge of the underlying hazardous condition.

    - As to the struck-by hazard posed in the event of an explosion, the Secretary has failed to establish the abatement element with regard to any of the methods set forth in the Citation. Again, the Secretary has failed to establish Respondent's actual or constructive knowledge of the underlying hazardous condition.

- Thus, on multiple bases, the Court vacates the Citation.

VIII. PENALTY

Because the Court is vacating the Citation on the multiple bases set forth above, it will not conduct an analysis on a potential penalty. However, the Court notes that: 1) the parties stipulated as to the applicable law regarding any potential penalty (J. Stip. ¶ (D)); and 2) Respondent has advanced no argument against the Citation's proposed penalty in its post-trial brief.

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 the Citation is VACATED.

SO ORDERED.

/s/ Christopher D. Helms

Dated: March 4, 2025
Denver, Colorado

Christopher D. Helms
Judge, OSHRC