

No. 10-0637

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UNITED STATES OF AMERICA  
OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION

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**SECRETARY OF LABOR,  
UNITED STATES DEPARTMENT OF LABOR,**

Complainant,

v.

**BP PRODUCTS NORTH AMERICA, INC.,**

and

**BP-HUSKY REFINING, LLC,**

Respondents,

**UNITED STEEL WORKERS LOCAL 1-346,**

Authorized Employee Representatives.

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**OPENING BRIEF FOR THE SECRETARY OF LABOR**

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JANUARY 17, 2014

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## ISSUES PRESENTED FOR REVIEW

1. Whether the ALJ erred in vacating Items 4a-12a and 4b-12b (alleging violations of 29 C.F.R. § 1910.119(d)(3)(ii) and (j)(5)), where: (1) the relevant recognized and generally accepted good engineering practices (RAGAGEP) required IPd levels of no higher than 3%; (2) the IPd levels of the cited valves exceeded 3%; and (3) BP's internal standards do not qualify as RAGAGEP, and whether the ALJ erred in vacating Items 2a and 3a, where § 1910.119(d)(3)(ii) required BP to document compliance with RAGAGEP and BP failed to do so.
2. Whether the ALJ properly affirmed Items 13a, 14a, and 16a-18a, where 29 C.F.R. § 1910.119(d)(3)(ii) required BP to document compliance with RAGAGEP and BP failed to correct the deficiencies that made the cited valves non-RAGAGEP compliant and, thus, did not document compliance with RAGAGEP.
3. Whether the ALJ erred in vacating Items 15a and 15b (alleging violations of § 1910.119(d)(3)(ii) and (j)(5)) based on a mistaken finding that the Second Stage Butane Treater Drum was out of service where the pressure safety valve protecting the Drum was undersized and the weight of the evidence shows that the Drum had not been drained and removed from service and, thus, still posed a hazard to BP's employees.
4. Whether the ALJ erred in vacating Items 19-27 (alleging violations of § 1910.119(d)(3)(ii) and (j)(5)) based on lack of employer knowledge of the violative condition where BP could have known through the exercise of reasonable diligence that the cited pressure vessels lacked appropriate pressure relief devices and BP's technical authority admitted that there were "some signs" BP should have caught.
5. Whether the ALJ erred in vacating Items 31a and 31b (alleging violations of § 1910.119(d)(3)(iii) and (e)(3)(i)) where BP failed to address five fire water system cross-

connections in its process hazard analysis of its fire water system and its post-citation analyses of the connections were untimely under the standard.

6. Whether the ALJ erred in vacating Items 32-40 where: (1) § 1910.119(e)(5) requires employers to establish a system to promptly address the process hazard analysis team's findings and recommendations and assure that the recommendations are resolved in a timely manner and that the resolution is documented; and (2) at the time of the inspection, BP had known for more than fifteen years that the siting of the nine cited buildings posed a risk of serious injury or death and yet had not resolved the findings and recommendations as to these buildings.
7. Whether the ALJ erred in recharacterizing Items 13a and 14a as serious where BP failed to document compliance with RAGAGEP by ensuring the cited valves were appropriately sized and BP had been previously cited for undersized valves and had a heightened awareness of the importance of pressure relief valves and the need for adequate relieving rates.
8. Whether the ALJ erred in recharacterizing Items 16a-18a as serious where: (1) BP knew that the valves cited in Items 16a and 17a, which relieved to the flare system, had previously experienced high back pressures and yet failed to document compliance with RAGAGEP for more than ten years; (2) the company allowed a contractor to reconfigure the valve cited in Item 18a to relieve to the same flare system without checking the back pressure; and (3) at the time of the inspection the back pressures on all three valves had risen far above the level allowed under RAGAGEP.
9. Whether the ALJ erred in characterizing the Middough reports as "voluntary self-audits" under OSHA's policy on voluntary safety and health self-audits when they do not qualify as "voluntary" under the policy's terms.
10. What the appropriate abatement for the Items 13a, 14a, and 16a-18a should be where the ALJ's decision did not address abatement and the Secretary's proposed abatement would

require BP to abate the cited relief valves and all other valves with excessive IPd levels in BP's Ohio refinery.

11. Whether the ALJ appropriately rejected BP's request to group individual violations for penalty purposes where the Secretary charged and proved the violations individually.

### **STATEMENT OF THE CASE**

This case arises from a September 2009 inspection by OSHA of BP Products North America, Inc. (BPNA) and BP-Husky Refining, LLC's (BP-Husky) petroleum refinery (the Ohio refinery) in Oregon, Ohio.<sup>1</sup> Following a three-month inspection, on March 8, 2010, OSHA issued BP three citations alleging twenty-one serious, sixty-nine willful, and three other-than-serious violations of the Occupational Safety and Health Act of 1970 (OSH Act).<sup>2</sup> BP contested the citations and a hearing was set before an ALJ. Prior to the hearing, the Secretary and BP settled Citation 1, which contained the twenty-one serious items, and Citation 3, which contained the three other-than-serious items.<sup>3</sup> Dec. 2 (citing Ex. JX-54). On the first day of the hearing, the Secretary withdrew Item 42. Tr. 52. And, in his post-hearing brief, the Secretary withdrew Items 2b, 3b, and Instance (a) of Item 41. Sec'y Post-Hr'g Br. 2.

On July 31, 2013, the ALJ issued her decision vacating sixty-one of the remaining sixty-six alleged violations. Dec. 52-53. She affirmed five violations, but downgraded them from willful to serious. Dec. 52. The Secretary filed a petition for discretionary review (PDR) of fifty-one of the

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<sup>1</sup> To avoid confusion, this brief refers collectively to BPNA and BP-Husky as "BP," except where specificity is necessary to aid the reader, e.g. where the brief refers to a party's post-hearing brief.

<sup>2</sup> The citations contained multiple "items," each of which alleged a different violation. Where two items related to the same piece of equipment, OSHA charged them as Item Xa and Item Xb. However, they remain separate violations. For example, Citation 2, Items 15a and 15b, count as two violations.

<sup>3</sup> After the settlement, Citation 2 remained the only citation at issue, and all items referenced in this brief are contained in Citation 2.

vacated items and of the downgrading of the affirmed violations. BPNA and BP-Husky filed conditional cross-PDRs on the affirmed items.

## STATEMENT OF FACTS

### A. OSHA's Process Safety Management Standard

Unexpected releases of toxic, reactive or flammable liquids and gases in processes involving highly hazardous chemicals have been reported for many years. *See* 57 Fed. Reg. 6356, 6356 (Feb. 24, 1992). Regardless of the industry that uses these highly hazardous chemicals, there is a potential for an accidental release any time they are not properly controlled. *Id.* This in turn presents the potential for a devastating incident. *Id.* In the 1980s and early 1990s, several major accidents highlighted the critical need to properly control such hazardous chemicals: the 1984 Bhopal, India toxic gas release resulting in more than 2000 deaths; the October 1989 Phillips 66 Chemical Plant explosions and fire resulting in twenty-four deaths and 132 injuries; the July 1990 Arco Chemical explosion and fire resulting in seventeen deaths; the July 1990 BASF explosion and fire resulting in two deaths and forty-one injuries; and the May 1991 IMC explosions and fire resulting in eight deaths and 128 injuries. *See id.*

Less than a year after the IMC incident, OSHA issued its final standard on Process Safety Management of Highly Hazardous Chemicals (PSM), 29 C.F.R. § 1910.119, which contains requirements for the management of hazards associated with processes using highly hazardous chemicals. *Id.* The key requirement of the PSM standard is a process hazard analysis (PHA), which is “a careful review of what could go wrong and what safeguards must be implemented to prevent releases of hazardous chemicals.” *Process Safety Management*, OSHA Publication 3132 (2000), *available at*: <https://www.osha.gov/Publications/osha3132.html>. The PSM standard required covered employers to complete their initial PHA by May 26, 1997, and to update and revalidate it every five years. *See* 29 C.F.R. § 1910.119(e)(1)(iv), (e)(6). Among other things, the standard also requires employers to establish a system to promptly address PHA findings and recommendations; assure that

PHA recommendations are resolved in a timely manner; document equipment compliance with recognized and generally accepted good engineering practices (RAGAGEP); and correct deficiencies in equipment before further use or in a safe and timely manner when necessary means are taken to ensure safe operation. § 1910.119(d)(3)(ii), (e)(5), (j)(5).

**B. Safety Deficiencies Uncovered During Inspections of BP Refineries in 1997, 2001, 2005, and 2007**

The Ohio refinery was built in 1919. Tr. 3277. BPNA purchased it from Amoco in 1991.<sup>4</sup> Tr. 119-20. BP-Husky is a joint venture with a business interest in the Ohio refinery. Tr. 1345-46, 1955-56, 3785, 3986-87. The Ohio refinery manufactures different grades of gasoline and diesel from crude oil in its numerous process units. Dec. 3 (citing Tr. 152, 552, 991, 1841-1842, 2039-2046, 3137; Ex. CX-9). BP pumps crude oil from storage tanks on the property to different process units and refines it by boiling the crude oil and removing chemical fractions as they cool. *Id.*

OSHA's first inspection of BP's Ohio refinery occurred in 1991. Tr. 119-20. During the inspection, OSHA found hazards similar to those at issue in this appeal. *See* CX-38 at 3, 6-7; Citation and Notification of Penalty (Citation) at 58, 60, 62-63, 93-101. The resulting citations, which were issued under 29 U.S.C. § 654(a), the OSH Act's general duty clause (because the PSM standard was not yet in effect), included violations related to undersized pressure relief valves and facility-siting hazards. Tr. 119-25, 131-36; CX-38 at 3, 6-7.

OSHA inspected the Ohio refinery again in the decade after the PSM standard became effective, and issued citations for violations of the standard in 1997 and 2001. Tr. 1258-60; Exs. CX-44, CX-47. The 1997 citations alleged BP's failures to resolve facility recommendations in a timely manner. Ex. CX-44 at 5. BP's PHA was not appropriate to the complexity of the process and did not identify, evaluate and address the control of the hazards involved in the process because BP had not

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<sup>4</sup> Eight years later, BP and Amoco merged. Tr. 1945.

developed a schedule for completion of the stages of the three-stage study on facility-siting. *Id.* In addition, the citation alleged that BP did not establish a system to assure that the PHA team's recommendations were resolved in a timely manner and that resolution was documented because it did not have dates assigned for the completion of the stage I recommendations. *Id.* The 2001 citations similarly alleged various violations of the PSM standard. Ex. CX-47.

On March 23, 2005, BP's Texas City refinery experienced a catastrophic process accident. *See* Ex. CX-11 at 4. It was one of the most serious U.S. workplace disasters of the past two decades, resulting in fifteen deaths and more than 170 injuries. *Id.* In response to the Texas City refinery explosion and fire, an independent safety review panel reviewed BP's corporate safety culture, safety management systems, and corporate safety oversight. *See* Ex. CX-11 (Report of the BP U.S. Refineries Independent Safety Review Panel). The scope of the panel's review included the Ohio refinery at issue in this case. *See id.* at 68. The panel issued a report in January 2007. *See id.* at 2. Among other things, the report noted the Ohio refinery's "weak" safety culture; lack of good communications among management, union employees, and contractors; and the significant management turnover. *Id.* at 138. The panel found that Ohio refinery management tolerated "serious deviations from safe operating practices, and was complacent toward serious process safety risks." *Id.* at 146.

The panel also made findings material to the violations alleged in this case, including facility siting. *Id.* at 171-72. Specifically, the panel noted that all of BP's refineries had permanent buildings inside hazard zones that could not protect occupants effectively in an explosion, and that although the Ohio refinery had taken steps to build blast-resistant shelters, its progress was "too slow." *Id.* at 172-73, 308.

In addition, the panel noted that Ohio refinery employees believed that inspection and maintenance were not high priorities. *Id.* at 167. Pressure safety valves were overdue for testing,

relief valve inspections were postponed without documented technical justification, and preventive maintenance items were overdue by six months or more. *Id.* at 168. These overdue items existed in the context of a “large” number of loss-of-containment incidents at the Ohio refinery—an upward trajectory in the number that the panel found “troubling.” *Id.* at 213.

OSHA also conducted an inspection of the Ohio refinery in response to the 2005 Texas City catastrophe and cited BP for some of the same issues described in the panel’s report, including issues related to facility-siting. *See* Exs. CX-49, CX-50. After BP contested the citations, the parties entered into a settlement agreement affirming all the violations with the full proposed penalty. Ex. CX-49 at 2-4, 23. Among other things, the settlement agreement required BP to erect blast-proof operator shelters to protect employees working in the process units and set a time schedule for the shelters’ completion. Ex. CX-49 at 11-12.

In 2007, OSHA inspected BP’s Texas City refinery and found violations related to inlet pressure drop (IPd). Tr. 1053-55, 1068, 1075, 1077-80. Multiple pressure relief valves protecting a large pressure vessel failed to conform with RAGAGEP, as required by the PSM standard, because the valves were subject to IPd in excess of 3%. Tr. 1053-55, 1068, 1075, 1077-80. BP argued that the valve installations did not require correction. Tr. 1065-67, 1082-89. In a meeting between OSHA and BP, OSHA reiterated its view that the 3% IPd limit (discussed in more depth below, *infra* pp. 11-14, 42-50), was RAGAGEP and that the valve installations must be brought into compliance with this limit. Tr. 1082-89. Later, after OSHA issued a citation alleging a willful violation of the PSM standard, BP agreed to install new valves, bringing the valve installations at the Texas City refinery into compliance with RAGAGEP and the PSM standard as interpreted and enforced by OSHA. Tr. 1069; Ex. CX-45 at 11.

**C. OSHA's 2009 Inspection of the Ohio Refinery and the Issuance of the Citations at Issue in This Case**

OSHA oversees a program known as the Petroleum Refinery Process Safety Management National Emphasis Program (NEP). Tr. 150-51, 1250-53. In 2009, as part of the NEP, OSHA requested documents from BP relating to process safety management at the Ohio refinery. Tr. 121-22, 150-151. OSHA also reviewed reports of safety audits conducted at the Ohio refinery, including multiple draft reports issued by BP safety consultant Middough. Dec. 4; Tr. 321. OSHA then randomly selected certain pressure vessels and piping equipment, and requested documents relating to them. Tr. 692. OSHA reviewed this paperwork before inspecting the Ohio refinery. Dec. 4; *see* Tr. 692-94.

On September 10, 2009, a team of OSHA compliance safety and health officers (CSHOs) and industrial hygienists began an inspection of the Ohio refinery. Tr. 1274; Dec. 4. During the inspection, OSHA focused on the specific pressure vessels and piping equipment for which BP had provided documentation. Tr. 693. These included three units: the Fluid Catalytic Cracker (FCC) Unit, which processes 50,000 barrels of crude oil a day, and the ALKY 1 and ALKY 2 Units, which remove sulfur from the crude oil. Tr. 695, 1736-1737, 1821, 1841-1842, 2039-2046.

The inspection resulted in the issuance of citations alleging twenty-one serious, sixty-nine willful, and three other-than-serious violations of OSHA's PSM standard, 29 C.F.R. § 1910.119. *See* Citation. A hearing was held before an ALJ, and fifty-six of these violations remain at issue in this appeal of the ALJ's decision.

**D. The Citations and Related Background Information**

The cited violations at issue in this appeal fall into three categories: (1) inadequate or lack of pressure relief; (2) the existence of potentially hazardous cross-connections between the process and fire water systems; and (3) the failure to resolve facility-siting hazards in a timely manner.

1. *The Pressure Relief Violations*

a. *Excessive Inlet Pressure Drops (Items 2a-12a and 4b-12b)*

i. *Valve Set Points, Blowdown, and Inlet Pressure Drops Affect Valve Performance.*

Process safety management is concerned with preventing leaks, spills, equipment malfunctions, over-pressures, excessive temperatures, corrosion, metal fatigue, and other similar conditions. CX-11 at 13. Preventing over-pressure is crucial because vessel over-pressure can lead to loss of containment, which can be catastrophic. Dec. 23; *see* Tr. 160, 552. The last line of defense against the loss of containment is often a pressure relief device or safety “relief valve,” which opens to relieve pressures exceeding a vessel’s maximum working pressure. Tr. 552-53; Dec. 12; CX-11 at 159. The point at which an individual relief valve is set to open is known as its “set point.” Dec. 12; Tr. 225. When the set point is reached, the valve opens and remains open until the pressure reaches a lower level, called the “blowdown,” at which time the relief valve closes to seal the system. CX-11 at 159; Dec. 12. The valve’s blowdown is expressed as a percentage of the valve’s set point. Tr. 2516. For example, if a relief valve’s set point is 100 pounds per square inch (psi) and the valve’s blowdown is set at 93 psi, then its blowdown is referred to as 7%. *See* Tr. 599-600.

The type of spring-loaded relief valves cited in this case were understood to be manufactured with a blowdown of 7% or more. Ex. JX-23 at 36. However, actual blowdown rates can be below 7%. Tr. 2210, 2606-10, 2712, 2872-4. For example, half of the valves tested during a recent research forum fell below 7%.<sup>5</sup> Tr. 2609-10. Approximately 15% of the valves tested that were expected to have a 7% blowdown had blowdowns below 5%.<sup>6</sup> *See* Tr. 2607-10. These test results corroborated earlier limited testing which showed that a valve’s actual blowdown could be less than that represented by the manufacturer. Tr. 2209-10; *see also* Tr. 2209-10, 2763 (Steve Cloutier, a former

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<sup>5</sup> The average blowdown rate in these tests was 5.8%. Tr. 2608.

<sup>6</sup> Although Dr. Melhem, who testified as an expert witness for BP, did not remember the exact number of valves tested, he believed that the number was somewhere between eighteen and twenty-two. Tr. 2607-2610. Approximately three of the tested valves had blowdowns below 5%. Tr. 2610.

BP employee testifying that he felt that blowdown was a “soft” number), 2843-46; Ex. CX-106 (August 26, 1994 letter from John J. Hauser, P.E. of PROSAF, Inc., to William H. Ciolek, Staff Research Engineer for Amoco Research Center Re: PRV Vendor Blowdown Survey, which states that manufacturers “have little data on blowdown” and that “their testing and setting facilities are not well-equipped to determine blowdown accurately”).

A valve’s set point and blowdown are not the only factors that determine whether it can safely relieve overpressures. A third factor, inlet pressure drop (IPd) is the subject of Items 2a-12a and 4b-12b. *See* Citation at 36, 38, 40-57. The ALJ’s decision explained the term IPd:

[IPd] is the amount of pressure lost due to friction as vapor or liquid passes through piping from a pressure vessel to the relief valve....The IPd is the difference between the pressure in the vessel and the pressure at the relief valve. [Like a relief valve’s blowdown,] [t]he IPd is usually described as a percentage of the valve’s set point. [Using the above example,] if the set point for a relief valve is 100 pounds per square inch (psi) and the calculated IPd in the piping is 3 psi, then the IPd is 3%.

Dec. 12-13 (citing Tr. 64, 225, 548-551, 559, 563, 2480-2483).

Excessive IPds can cause a valve to close prematurely and affect its capacity to relieve overpressures safely. Tr. 552-53, 2193, 2521, 2523-24; *see, e.g.*, Ex. RBPP-140 at 49. For example, premature closure can result in a phenomenon called “chatter” (because it sounds like teeth chattering). Tr. 552. During chatter, the relief valve opens and closes so rapidly and violently that it can become damaged and possibly fail. Tr. 550-552, 2193; Ex. JX-23 at 5; *see* Tr. 557 (describing chatter as having the “force of...30 or 40 cars slamming up and down 60 times in a second”). Failure of the relief valve could result in the release (loss of containment) of hot hydrocarbons that could explode and burn, causing serious injuries or death to employees in a refinery. Tr. 542-34, 552-53, 2877-78.

As an illustration of how these factors work together: if a given valve’s IPd was exactly 3% and its blowdown was set at 7%, then, setting all other factors aside, a perfectly functioning and

installed valve would theoretically have a 4% safety margin to guard against premature closure.<sup>7</sup> *See* Tr. 2186-88. A valve with a lower blowdown would have a correspondingly lower safety margin. *See id.* For example, a valve with a 3% IPd and a 5% blowdown, again setting all other factors aside, would have a 2% safety margin. A valve with a higher IPd would also have a lower safety margin. *See id.* For instance, if a valve had an IPd of 5% and a blowdown of 7%, then the safety margin would be 2%. *See id.*

ii. *RAGAGEP for IPds*

The refining industry has found 3% of a valve's set point to be the appropriate IPd limit for the past fifty years. In 1963, the American Petroleum Institute (API) established 3% of the valve's set point as the limit (the "3% limit"). Dec. 14 (citing Tr. 2861, 2863). The American Society of Mechanical Engineers (ASME) (Ex. JX-55, p. 593) followed suit, including the 3% limit in its non-mandatory appendix. *See* Ex. JX-55 at 664-65 (ASME, Boiler and Pressure Vessel Code (BPVC) VIII Division 1, Rules of Construction for Pressure Vessels, Non-mandatory Appendix M "Installation and Operation (2007), "the cumulative total of all nonrecoverable inlet losses shall not exceed 3% of the valve set pressure"); Tr. 2217-19, 2258, 2343-46, 2892. The State of Ohio has adopted the ASME BPVC. Tr. 2217-19, 2403-04.

Numerous international codes and the International Organization for Standardization (ISO) also reference the 3% limit. Tr. 561, 2739-40, 2856-57; Ex. JX-21 at 13 (ISO 4126-9 "Safety Devices for Protection Against Excessive Pressure" (2008)). In addition, the Center for Chemical Process Safety (CCPS), a branch of the American Institute of Chemical Engineers (AIChE), which focuses on

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<sup>7</sup> Several other factors can also affect the functioning of a valve. For example, acoustic vibration and acoustic resonance can affect valve performance. *See* Tr. 553. Acoustic vibration is caused by the force of the material travelling through the pipe and/or the valve that causes the pipe to tend to thrash back and forth like a garden hose with water running through it. Tr. 553, 2521-23. Acoustic resonance occurs when the natural frequency of the material traveling in the pipe matches the frequency of the system. Tr. 553-54, 2194-97. The valve, which is controlled by a spring, oscillates (moves up and down) slightly before it opens. Tr. 2196-97. If the valve and piping frequencies match, the effect can cause the system to vibrate so violently that it breaks. Tr. 553-54, 562.

process safety issues in the chemical process industry, has recognized the 3% limit. Ex. JX-23 at 5 (CCPS, Guidelines for Pressure Relief and Effluent Handling Systems (1998), “[t]he ‘3% rule’ (ASME BPVC Appendix M) is currently accepted as the criterion for the upper limit on inlet losses to safety relief valves”); *see also* Tr. 218, 2260-61. Finally, the major valve manufacturers, including Consolidated (Dresser) and Farris Engineering (Teledyne) reference the 3% limit. Tr. 561, 2722-39; CX-18A at 1, 5; CX-20 at 18, 19; CX-21 at 17, 18; CX-23 at 2, 6, 46, 47; CX-25 at 2, 3; CX-26 at 2, 6, 7. *See also* CX-27 at 2, 22, 23 (Leser – German valve manufacturer).

In 1994, API amended its recommended practice to remove the word “shall” (with regard to the IPd limit) to state that the IPd “should” not exceed 3%, and added an exception that stated, “An engineering analysis of the valve performance at higher inlet losses may permit increasing the allowable pressure loss above 3 percent.”<sup>8</sup> Tr. 2897-98; Ex. JX-17 at 3, 9. The phrase “engineering analysis” is not defined in the API publication. Ex. JX-17; *see also* Tr. 481.

API’s attempts to define the term “engineering analysis” or otherwise determine how companies can safely deviate from the 3% limit have not yet come to fruition. *See* Tr. 481. For example, in 2001, API commissioned Berwanger, Inc., a consulting company specializing in oil, gas, and petrochemicals, to conduct a study on pressure relief valves (PRVs). *See* Tr. 572-86, 2853, 2895, 2897-98; Ex. RBPP-384 at 5. The goal of the study was to determine whether the 3% limit is “necessary and sufficient to assure against unstable operation of spring loaded PRVs and to develop validated engineering tools (screening criteria and software) that would allow plant engineers to design and to evaluate PRV installation for stable PRV performance.” Ex. RBPP-384 at 2; Tr. 565. After extensive study, including conducting literature and incidence surveys and interviews, Cassandra Hamlin, the owner of Berwanger, Inc. at the time API commissioned the PRV study,

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<sup>8</sup> This language has remained essentially unchanged to the present. Ex. JX-18 at 10-11.

concluded that, although the 3% limit was not perfect, there are no reasonable alternatives to it.<sup>9</sup> Tr. 551, 585, 560-61.

Nine years later, in 2010, API tried again. *See* Tr. 2697-2700. The API working committee on pressure relief approved a ballot initiative specifying the requirements to perform an acceptable engineering analysis. Tr. 2697-2700, 2761, 2766; Ex. RBPP-51. The initiative included activities like verifying the valve's blowdown with the manufacturer and reviewing inspection records for instances of chatter. Ex. RBPP-51 at 3. However, Steve Cloutier, a former BP technical authority and API member, explained that there was "not a consensus [among the members of the API committee] as to what constituted the engineering analysis." Tr. 2766. Ultimately, the ballot issue was withdrawn after OSHA questioned the adequacy of the approach in light of the failure to provide guidance on the effect of increasing the IPd limit on the other valve stability factors. Tr. 2266-67; Ex. RBPP-46.

Because the term "engineering analysis" has not been defined by API, both the Secretary and BP offered expert testimony on the subject at the hearing. Harold Fisher testified for the Secretary as to the chemical engineering community's understanding of the term.<sup>10</sup> Tr. 2181-82. He explained that the term "engineering" involves the use of science, mathematics, technology, data, and information to support a practice. Tr. 2181-82. He further opined that an engineering analysis uses the methodology taught in engineering schools to analyze whether it is safe to exceed 3%. *Id.* In addition, Mr. Fisher testified that the analysis must be specific to the valve installation because these installations vary by valve style, pipe lengths, and fittings. Tr. 2183-84.

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<sup>9</sup> Ms. Hamlin testified as an expert witness for the Secretary. She was qualified, without objection, as an expert in IPd, back pressures, the hazards associated with IPds and back pressures, RAGAGEP, and pressure relief stability. Tr. 544-547.

<sup>10</sup> Mr. Fisher worked as a chemical engineer for forty years with Union Carbide in the area of pressure relief. Tr. 2140-55. Since 1982, Mr. Fisher has chaired the Design Institute for Emergency Relief Systems (DIERS), a nationally and internationally recognized group of the AICHE. *Id.*

George Melhem, PhD, testified as an expert witness for BP.<sup>11</sup> *See* 2458-2466. During his testimony, he stated that calculating an individual valve's IPd and comparing it with an assumed blowdown of 7% (to assure a hypothetical safety margin) qualified as an engineering analysis of the valve performance at higher inlet losses under the API exception. Tr. 2530-32. Dr. Melhem's opinion during the hearing, however, differed from his published opinion on when an operator could exceed 3%. Tr. 2610-16. In Dr. Melhem's book, he listed requirements similar to those included in API's withdrawn ballot initiative, like inspection-record review and assuring valve capacity before permitting a higher IPd for an individual valve installation. *Id.*

iii. *BP's Internal Guidance on Pressure Relief Systems*

When OSHA began its inspection of the Ohio refinery in September 2009, BP's internal guidance on pressure relief systems, Group Practice (GP) 44-70 (2006), was in effect at the refinery. *See* Tr. 2677-2681, 2922. For new installations and modified installations, the guidance followed the 3% limit and set the IPd limit at 3% of the set pressure of the valve. Ex. JX-48 at 67. However, the prior (2006) version of GP 44-70 set the IPd limit for existing installations at 7% or blowdown, whichever is lower. *Id.*

BP's 7% internal standard originated at Amoco. Tr. 2813-14. Edward Zamecj, who was Amoco's Relief System Design Consultant, led a company-wide effort to revise Amoco's IPd guidelines in the mid-1990s. *Id.* According to Mr. Zamecj, Amoco researched the historical basis for the 3% limit and surveyed major valve manufacturers about the blowdown settings on conventional relief valves and concluded that a relief valve operating within its normal operating range that had a calculated IPd of less than 7% would operate stably, because the IPd was less than the valve's blowdown. *See* BPNA Post-Hr'g Br. 22 (citing Tr. 2814-18). When BP merged with Amoco in 1999, Mr. Zamecj stayed on as BP's Relief System Technical Authority and BP began following the 7% guideline used at Amoco. Tr. 2823. The 7% guideline was eventually included as part of GP 44-70 (2006). Tr. 2825.

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<sup>11</sup> Dr. Melham has a Ph.D. in Chemical Engineering from Northeastern University, and is a member and fellow of AIChE, a member of DIERS, and a member of numerous API committees. Tr. 2443-45.

In late 2008, BP began evaluating and revising GP 44-70 (2006). Tr. 2678. In October 2009, approximately one month into OSHA’s inspection, BP issued a revised version of GP 44-70. Tr. 2922; *see* JX-49. GP 44-70 (2009) retained the 3% IPd limit for new and modified installations and lowered the limit for existing installations to 5% IPd or blowdown, again whichever is lower. JX-49 at 76. The revision also added an exception to the limit for existing installations for situations where a deviation from the limit is “justified by a further engineering analysis.” *Id.*

iv. *The Valves Cited in Items 4a-12a and 4b-12b*

As part of its inspection, OSHA reviewed reports of safety audits conducted at the Ohio refinery, including several draft reports issued by BP safety consultant Middough. Tr. 223.

Middough evaluated the nine valves cited in Items 4a-12a and 4b-12b and found that their IPds exceeded 3%.<sup>12</sup> Ex. CX-2 at 4, 7, 8, 10. The cited valves and their IPds as found by Middough in December 2009 are:

Item No(s).	Relief Valve	Pressure Vessel Protected	IPd Level
4a, 4b	PSV-447	Depropanizer Feed Treater Drum	5.4%
5a, 5b	PSV-1299	Cat Gas Light Oil/BFW Preheater	5.0%
6a, 6b	PSV-1301	FCC Feed Drum	6.3%
7a, 7b	PSV-1321	Fractionator Tower	3.2%
8a, 8b	PSV-1338A	First Stage Drum	3.2%
9a, 9b	PSV-1280	FCC Feed Drum	7.7%
10a, 10b	PSV-1281	FCC Feed Drum	7.7%
11a, 11b	PSV-1332	Stripper Tower	8.8%
12a, 12b	PSV-440	Rerun Tower	6.8%

Citation at 40-57; Ex. CX-2 at 4, 7, 8, 10.<sup>13</sup>

<sup>12</sup> As described above, the safety margin for an individual valve is affected by a number of factors, including blowdown. The actual blowdown levels of the cited valves are unknown because there is no way to test for blowdown at the Ohio refinery and the blowdown number does not appear in the manufacturers’ manuals, the Middough calculations, or the valve documentation. Tr. 1611, 1798-1801, 2710-13, 2720; 2766; Ex. RBPP-51 at 3.

<sup>13</sup> Middough recalculated the cited valves’ IPds several times between 2008 and 2011. *See, e.g.*, Exs. RBPP-103 at 3, 7; RBPP-104 at 3 (Middough’s 2008 and 2010 IPd level calculations for PSV-440). The IPd levels listed in this table were contained in Middough’s December 2009 report. *See* Ex. CX-2. Although most of the valves’ IPds were recalculated before trial, the recalculations confirmed that the

v. *The Valves Cited in Items 2a and 3a*

The valves cited in Items 2a and 3a, PSV-134 and PSV-137, respectively, were initially identified by Middough as having IPds above 3%. *See* Citation at 36, 38; Ex. CX-2 at 3. However, in later reports, issued in 2010 and 2011, Middough recalculated the IPds for these valves as below 3%. Tr. 2928-30. Consequently, the Secretary withdrew the allegation that BP violated 29 C.F.R. § 1910.119(j)(5), as alleged in Items 2b and 3b. *See* Sec’y Post-Hr’g Br. 28-29. Because BP did not offer proof that it had documented that these valves complied with RAGAGEP, as required by 29 C.F.R. § 1910.119(d)(3)(ii), the Secretary continued to assert the violations alleged in Items 2a and 3a.

b. *Excessive Back Pressure (Items 16a-18a)*

Another factor that can affect the functioning of a relief valve is “built-up back pressure.” Tr. 483-85. Back pressure is the pressure exerted on the side of the valve opposite to the inlet side, that is, on the outlet piping or relief side. Tr. 563-64, 2177, 2980. It exerts force on the valve and can operate independently, or with the IPd, to close the valve prematurely, raising the risk of chatter. Tr. 2188, 2193, 2521, 2523-24. As noted above, chatter has been shown to cause catastrophic release of hydrocarbons. Tr. 487.

Under the applicable RAGAGEP, the back pressure limit for conventional spring-loaded valves should not exceed 10% of the set pressure. Tr. 529-32, 2178; Ex. JX-55 at 665. However, the ASME code allows an increase in that limit under certain scenarios. Tr. 334. For example, if there are multiple valves, they can be staggered to open at different set points and the back pressure limit can be increased to 16%. Tr. 356, 529-32.

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valves cited in Items 4-12 were all subject to IPds above 3%. *See, e.g.*, Exs. RBPP-106 at 2-6, RBPP-124 at 3, RBPP-113 at 3, RBPP-12 at 3, RBPP-132 at 2, RBPP-3, RBPP-104 at 3.

The three valves cited in Items 16a-18a provided protection to the FCC Feed Drum. Tr. 636-38. PSV-1280 and PSV-1281 are conventional relief valves. Tr. 354-55, 357-59. They were placed in service in 1973. Tr. 355, 361; Exs. RBPP-108 at 2; RBPP-115 at 2, 57. PSV-1301 is also a conventional relief valve. Tr. 337. It was placed in service in 1958. Tr. 335; Ex. RBPP-126 at 58.

Management at the Ohio refinery first became aware of the hazards posed to the FCC Feed Drum from water contamination in the early 1970s. Tr. 3088-90. Because the FCC Feed Drum operates at a temperature of 400 to 450 degrees Fahrenheit, water entering would quickly become or “flash” to steam, requiring pressure relief at a rate of more than 60,000 pounds an hour.<sup>14</sup> Tr. 2985-86; Exs. RBPP-108 at 5-6, RBPP-115 at 5-6, RBPP-126 at 3-6.

More than two decades later, in 1998, BP consultant Stewart & Bottomly warned the company that PSV-1280 and PSV-1281 (the valves cited in 16a and 17a, respectively), which relieved to the flare system, were subject to excessive built-up back pressures. Tr. 356-57, 361-62, 2978; Ex. RBPP-38 at 49. In response to the 1998 report, BP installed “trip systems” to reduce energy input in the event of a power outage to the cooling system. Tr. 2978-80.

The valve cited in Item 18a, PSV-1301, which relieved to a blow-down drum, was not experiencing the same issues as PSV-1280 and PSV-1281. Tr. 2978-79. However, after the Texas City refinery 2005 explosion that led to the Chemical Safety Board recommending the removal of blow-down drums, BP reconfigured PSV-1301 to relieve to the flare system. Tr. 1616-18, 2978-79. The consultant retained for the reconfiguration project, Equity Engineering, recommended the installation of a pipe called a “balance line” from the FCC Feed Drum to the Fractionator. Tr. 1615-16. The balance line, which was intend to divert

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<sup>14</sup> Water expands into vapor at a ratio of 1700 to 1 and can quickly cause “devastating” overpressure. Tr. 1870-71.

overpressures to the Fractionator, a very large pressure vessel that could handle the predicted overpressures, plugged shortly after its installation in 2007, making it unusable.<sup>15</sup> Tr. 2982-84.

In its July 2009 report, BP consultant Middough calculated that PSV-1280 and PSV-1281 (the valves cited in Items 16a and 17a, respectively) had built-up back pressures above 50%, and PSV-1301 (the valve cited in 18a) had built-up back pressures above 40%. Exs. RBPP-108 at 3, RBPP-115 at 3, RBPP-126 at 3-4. The report also identified credible scenarios requiring very high relief rates. Tr. 331-34, 2984-86; Exs. RBPP-108 at 3-4, 5-6; RBPP-115 at 3-4, 5-6; RBPP-126 at 3-6. In 2011, the built-up back pressures remained high. PSV-1280 and PSV-1281's built-up back pressures rose to above 60%. Tr. 352, 359; Exs. RBPP-108 at 3, RBPP-115 at 3. PSV-1301's built-up backpressure remained above 40%. Tr. 2998-3001; Ex. RBPP-132 at 3. BP implemented interim controls to reduce the chance that water would enter the FCC Feed Drum, and scheduled correction during the fall 2012 turnaround. Tr. 2992-93, 3002-04.

c. *Under-Sized Pressure Relief Valves (Items 13a and 14a)*

Preventing over-pressures in a refinery involves not only ensuring that the relief valve chosen to protect a given pressure vessel functions as designed, but also that the chosen valve is the correct one for the job. For example, a valve must be appropriately sized to allow enough material to flow

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<sup>15</sup> Both BPNA's Post-Hearing Brief and the ALJ's order indicated that Equity Engineering found no back pressure deviations. BPNA Post-Hr'g Br. 65 (citing Tr. 2982-83); Dec. 26 (citing Tr. 2982-83). Although this fact is technically true, it is misleading. Equity did not calculate back pressure--it assumed that the back pressure was fine. Tr. 2987 ("Equity did comment in their report in 2007 that they assumed that the back pressure was fine. Based on the knowledge that they had at that time. They didn't produce any calculations, but that was their assumption and conclusion."). The testimony cited by BPNA and the ALJ addressed why Equity recommended the installation of the balance line, not whether there were elevated back pressures in 2007. See Tr. 2983 (Question: "Well, did Equity recommend that balance line to address back pressure issues, or were there other RV potential deviations?" Answer: "No. They -- they recommended to install a balance line to provide sufficient relief valve capacity. So it was a capacity issue versus the existing three [pressure safety valves].")

through to counteract a potential source of over-pressure. The ASME BPVC requires that relief valves be sized appropriately to handle the “worst credible scenario” or the highest flow of material. Tr. 226. The worst credible scenario, also called the “governing scenario,” is that which requires the largest physical size relief valve to control the pressure within the pressure vessel to within the specified limits. *Id.*

PSV-115, the valve cited in Item 13a, provides protection to the Recycle Isobutane Coalescer. Ex. RBPP-84 at 2-4, 26. PSV-124, the valve cited in Item 14a, provides protection to the Isobutane Product Coalescer. Ex. RBPP-84 at 2-4, 26. The valves, which were installed in the 1990s, were not adequately sized to handle the pressures predicted in their governing scenarios. Tr. 226, 367-74, 3005-08; Exs. CX-3 at 46, RBPP-84 at 2-4, RBPP-88 at 2-5. If the governing scenario, which for both valves was Exterior Fire-Blocked In, occurred, this deficiency could cause the vessel to overpressure and lead to vessel deformation and flange leaks--meaning a loss of containment of hydrocarbons, which could feed the very fire that caused the leak.<sup>16</sup> Tr. 366-71, 1609; *see* Tr. 1595-96. BP characterized the risk assessment for this hazard as “a level of concern.” Tr. 3007.

Middough issued draft reports identifying the undersized valves in June and July of 2008, more than a year before OSHA’s inspection began. Exs. RBPP-84 at 3, RBPP-88 at 3. BP implemented interim controls and scheduled correction of the deficiencies for the 2011 and 2012 turnarounds. Tr. 3005-10.

d. *Under-Sized Pressure Relief Valve (Items 15a and 15b)*

Middough’s 2008 reports also included calculations for PSV-136, a conventional relief valve that protected the Butane Treater Drum, Second Stage, in the ALKY 1 processing unit. Tr. 377-78; Ex. RBPP-96. The valve was placed in service in 2003. Tr. 377. Middough calculated that the valve was undersized for its governing scenario. Tr. 376-77, 635; *see* Ex. RBPP-96 at 2-5. Again, as noted

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<sup>16</sup> The term “Exterior Fire-Blocked In” describes a situation where a fire occurs outside of a pressure vessel and the piping leading into and out of the vessel is blocked. Tr. 294; Ex. RBPP-94 at 3-4.

above, an inappropriately sized valve could lead to the loss of containment of hydrocarbons, which is an innocuous term that “means that hot gasoline, like down at BP Texas City, gets out and potentially could kill a bunch of people.” Tr. 1609, 1595-96, 552.

Rich Rothbard, an operations coordinator at the Ohio refinery (Tr. 3586), testified that the Treater Drum was taken out of service in 2007 (Tr. 3588). Tim Smith, the BP Technical Manager (Tr. 1711-12), stated that the Treater Drum was drained and taken out of service approximately two years later, in May of 2009 (Tr. 3012-13). David Hasselbach, BP’s Relief Systems Technical Authority (Tr. 1585-86), indicated that the Treater Drum was drained and taken out of service even later, during the inspection, when he completed a modification of change (Tr. 1638-1639). *See* 29 C.F.R. § 1910.119(l).

Three exhibits also speak to the Treater Drum’s status. The first exhibit, the May 20, 2009 “operators [sic] log,” indicated that the Treater Drum had not been drained as of that date. Ex. RBPP-184 at 2 (“The petrico treater is being mothballed. The caustic is out and waiting on om&s to be able to push the butane out.”) (Joseph Guidera, a BP process operator (Tr. 2111), discussing the operators log). The second and third exhibits, the December Middough report and the tracking sheet prepared by BP employees to resolve pressure relief equipment issues identified by Middough, both indicated which equipment was out of service. *See* Ex. CX-2 at 2, 3, 9; CX-3 at 16, 29, 46. The Treater Drum was not included on either list. *See* Ex. CX-2 at 2, 3, 9; CX-3 at 16, 29, 46.

e. *Missing Pressure Relief Devices (Items 19-27)*

Items 19-22 and 24-27 involve “shell-and-tube heat exchangers.” Heat exchangers consist of two pressure vessels: (1) the “shell” or outer enclosure (which is often referred to as the shell side of the exchanger); and (2) the “tubes” – one or a series of metal tubes that run inside the shell (known as the tube side of the exchanger). Tr. 252-55, 1573, 1594-95; *see generally* Tr. 385-425 (descriptions of the cited exchangers); Ex. JX-55 at 330, 359 (illustrations). Heat exchangers are used to transfer energy from a hot

stream of materials to a cold stream of materials. Tr. 253. One material moves through the vessel outside of the tubes (and inside of the shell) and another moves inside of the tubes, permitting the transfer of heat from one material to the other. *Id.*

The ASME BPVC requires heat exchangers to have two pressure relief devices—one on the shell side and one on the tube side—to relieve over-pressures that could occur on each “side.”<sup>17</sup> Ex. JX-55 at 137-38; *see* Dec. 30. This requirement also appears in both GP 44-70 (2006), the version of BP’s internal guidance on relief systems that was in effect at the Ohio refinery when OSHA’s inspection began, and GP 44-70 (2009), which went into effect in October 2009. Section 9.2 of GP 44-70 (2006), entitled “Shell-and-tube heat exchangers” is unequivocal: “[b]oth shell and tube side of heat exchangers shall be protected by pressure relieving devices in accordance with requirements set forth in local codes such as ACME Code Section VII....”<sup>18</sup> Ex. JX-48 at 42; *see also* Ex. JX-48 at 44 (Section 9.2.3a stating “[p]ressure relief capacity shall be provided on heat exchangers for the external fire condition on both

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<sup>17</sup> API permits operators to provide relief through other vessels if the only credible scenario for over-pressuring the heat exchanger is “Exterior Fire-Blocked In,” which was the case for the cited heat exchangers. Tr. 1523-25, 2553-57, 2655, 3024-28. This exception is predicated on the assumed low probability of the existence of all the conditions necessary for overpressure occurring at the same time. Tr. 1524-25, 2553-57. Although this exception was discussed at trial and in the parties’ post-hearing briefs, it was not addressed in the ALJ’s order or mentioned in either BPNA or BP-Husky’s PDR and is, thus, not relevant to this appeal. *See* BPNA PDR; BP-Husky PDR. No PHAs were introduced to show that a PHA team applied an analysis for the cited exchangers that relied on this exception.

<sup>18</sup> Section 9.1 of GP 44-70 (2006), which addressed the design procedure for protection of equipment, tankage, and piping in “general” (not heat exchangers in particular, as in 9.2) also provided that:

If [isolating valves] are installed around an exchanger so that it can be isolated, then either relief capacity should be installed or the exchanger shall be vented and drained immediately after it has been isolated. If the option of venting and draining is adopted, consideration should be given to erecting a warning notice stating that the exchanger shall be vented and drained immediately after being isolated.

Ex. JX-48 at 41. BP’s Technical Manager, Tim Smith, testified that he was not aware of any such warning notices and admitted that the failure to post them would have “been identified as a deviation in the RAGAGEP.” Tr. 3114; *see also* Tr. 1593 (Dan Chovanec, the Ohio refinery’s Operations Coordinator (Tr. 1556-58) testifying that GP 44-70 requires a safety device on both sides of heat exchangers).

sides if they can be isolated without draining or in an area where a fire could be sustained.”). The revised version of this guidance, GP 44-70 (2009), which went into effect in October of 2009, required pressure relief devices on both sides of the Ohio refinery’s heat exchangers as well. Tr. 1593, 3028-29; Ex. JX-49 at 38-42.

As noted above, BP commissioned engineering safety consultant Middough to conduct an extensive revalidation of the pressure relief equipment at the Ohio refinery in 2008 (as required by § 1910.119(e)(6)). Tr. 2914-17. When Middough analyzed the cited heat exchangers, it found that the eight cited heat exchangers (cited in Items 19-22 and 24-27) lacked pressure relief devices on either the shell or the tube side. Ex. CX-2. Middough first noted that six of the cited exchangers (those cited in Items 19-22, 24, and 25) lacked pressure relief devices on one side in August of 2009. Tr. 816; *see* Ex. RBPP-01 at 501, 517, 533, 549, 580, 594. The Middough Findings Tracking List provided to OSHA by the company on October 19, 2009, verified that a field inspection revealed that these six pieces of equipment were missing pressure relief devices. *See* Ex. RBPP-01 at 501, 517, 533, 549, 580, 594. Middough’s December 2009 report, which was issued near the end of OSHA’s inspection, added two more heat exchangers to the list of vessels without appropriate protection (as cited in Items 26 and 27). Ex. CX-2 at 10; Tr. 816.

Middough’s August 2009 report also noted that a ninth pressure vessel, the Stripper Reboiler Condensate Pot (cited in Item 23), lacked appropriate pressure relief. *See* Ex. RBPP-01 at 564. This dangerous lapse was confirmed in Middough’s December 2009 report. Ex. CX-2 at 10; Tr. 816. The Condensate Pot separates steam from water, collecting the condensate for reuse. Tr. 1563. Because water can expand into vapor at a ratio of 1700 to 1, increasing heat input from a fire near the Condensate Pot could cause a “devastating” overpressure. Tr. 1870-71. The Condensate Pot was near and its piping intermingled with equipment processing hydrocarbons. Tr. 823-25. If the Condensate Pot were to overpressure and its parts to fail, they could damage the processing equipment and cause the release of hydrocarbons. *Id.*

The lack of pressure relief devices was plainly reflected on the piping and instrument diagrams (P&IDs) for the cited vessels. OSHA's representatives were able to tell that the vessels were missing pressure relief devices by reading P&IDs. Tr. 385-421, 805-08, 829-41. In addition, CSHO Sternes was able to verify the lack of pressure relief devices by viewing all but two of the vessels in the field with BP managers. Tr. 820-21. And, although BP technical authority David Hasselbach indicated that the lack of pressure relief devices was not "readily apparent" from reviewing the P&IDs or a field examination, he also admitted that there were "some signs [BP] should have caught." Tr. 1599.

After receiving Middough's December 2009 report, BP conducted a risk analysis for the heat exchangers and the Stripper Reboiler Condensate Pot. Dec. 32; Tr. 846. BP then implemented interim measures and scheduled correction at the next regularly scheduled turnaround. Dec. 32; Tr. 3050-54.

## 2. *Fire Water System Cross-Connections (Items 31a and 31b)*

Another key part of the Ohio refinery's process safety system is its fire water system. A fire water system is a ring of piping that has sufficient quantity and quality of pressurized water to fight fires in a refinery. Tr. 3276. Since the 1980s, RAGAGEP has called for building the fire water system independent of other water systems. Tr. 3276, 3279-80; Ex. JX-1 at 10-11. Keeping the fire water system independent of other systems prevents two major risks: (1) the risk that fire water will be diverted for other uses and that there will be insufficient water pressure in the fire water system if there is a need to fight a fire (Tr. 3279-80); and (2) a risk that hydrocarbons from the process may contaminate the fire water making it unusable to make firefighting foam (Tr. 3280-82 (even "trace amounts of hydrocarbons will impact the quantity and quality and amount of foam that can be made.")). See Ex. JX-1 at 10 (BP Corporate Audit stating that "[p]ermanent connections between the fire water system and any process system shall be prohibited to prevent contamination with process fluids.")).

The Ohio refinery, which was built in 1919, originally had a single pressurized ring of water that supplied all processing, utility, and fire-fighting needs. Tr. 3276-78. Refinery management has

been aware of and removing the connections since the 1980s. Tr. 3276-78, 3418-20; Ex. JX-1 at 11. In May of 2009, however, the BP corporate audit team found that cross-connections continued to exist. Tr. 948-50; Ex. JX-1 at 10-11. The team's corrective actions included analyzing the "worst case capacities of these cross-connections to assess how much fire water could potentially be diverted from the fire water system for non-fire water uses," and "inclusion of these cross-connections in a [PHA] for an assessment of the reverse flow risk." *Id.* at 11.

OSHA CSHO Chad Positano reviewed the audit findings and questioned BP representatives, including the Ohio refinery's emergency response specialist, Chris Herman, about the connections. Tr. 950-56, 3414. BP located the connections on the fire-water site plan for CSHO Positano, but it did not provide any documentation that the locations had been analyzed and found to comply with applicable RAGAGEP, or to not pose a risk to fire-fighting capability. Tr. 955-56. No PHAs or risk analyses pertaining to the cross-connections were introduced at the hearing. Tr. 3418-22.

Instead of offering evidence that the company had assessed and documented potential hazards posed by these cross-connections, BP offered testimony by an expert witness, Bradley Wolf. Mr. Wolf testified that he viewed the cited locations in December of 2011, more than two years after the corporate audit and approximately two years after the OSHA inspection. Tr. 3284. He concluded that the equipment posed no credible risk of contamination or of a sizable diversion when operated properly.<sup>19</sup> Tr. 3285.

Mr. Herman, an emergency response specialist at the Ohio refinery (Tr. 3414-3415), also testified regarding the fire water system (Tr. 3415-3425). He explained that he participates in four to eight PHAs a year at the refinery, including PHAs for the fire water system. Tr. 3416-17. Mr. Herman also did not believe that the cross-connections cited by OSHA posed a hazard. However, he did not testify that he analyzed the cross-connections prior to OSHA's inspection. Tr. 3417.

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<sup>19</sup> Mr. Wolf did not analyze the fire water booster pump connection. When he viewed the Ohio refinery in 2011, BP was replacing the old booster pump with a new pump. Tr. 3343-49; *see* Citation and Notification of Penalty at 91-92 (Instance (e)).

Two of the unanalyzed cross-connections were of particular concern: the Booster Pump in the FCC unit (cited in Item 31, Instance (e)) and the filter washing procedures in the Sulfur Recovery Unit (cited in Item 31, Instance (c)). The Booster Pump supplies the pressure to the Ohio refinery's fire water system. Tr. 3343-3349. Because this was the main pump for the fire water system, any hydrocarbons entering the water could have been spread by the pump throughout the entire fire water system. *See id.* In December 2011, BP replaced the cited "antiquated" pump. *Id.*

The filter washing procedures in the Sulfur Recovery Unit also posed more than a remote risk of contamination and diversion. Tr. 3332-38, 3372-77. There were two cross-connections in this Unit where every two to three months an employee shut down the process and used the fire water to flush filters of dirt, a process taking one to two hours. *Id.* Preventing contamination depended on the employee's "rigid" adherence to procedures to open and to close a series of valves, which BP's expert witness described as a "complex[]" sequence. Tr. 3335-35; Ex. RBPP-258B.

3. *Building Siting (Items 32-40)*

a. *Building Siting at the Ohio Refinery*

Protecting employees working at a refinery includes not only providing appropriate pressure relief and ensuring the availability of uncontaminated fire water, but also addressing hazards related to the location, or siting, of buildings in which refinery employees work. As noted above, refineries that process volatile hydrocarbons face the hazard of explosions and fires. Ex. CX-11 at 172. Major accidents can damage nearby buildings and result in injuries and fatalities to building occupants. *See id.* The final nine citations (Items 32-40) in this appeal relate to the siting of nine buildings at the Ohio refinery:

1. Item 32: Washington Group, Inc. (formerly Catalytic<sup>20</sup>) (WGI) Insulators Building;
2. Item 33: Blender Control Building;
3. Item 34: Boiler Shop;

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<sup>20</sup> The contractor using the buildings before the Washington Group, Inc., was called "Catalytic." Tr. 875.

4. Item 35: Electricians and Instrument (E&I) Shop;
5. Item 36: HSEQ Building;
6. Item 37: Laboratory;
7. Item 38: Main Office Building;
8. Item 39: WGI Administrative Offices; and
9. Item 40: WGI Electricians Building.

*See* Citation at 93-101.

In 1994, BP learned that the siting of a number of buildings, including the nine cited buildings, posed a risk of serious injury or death to occupants in a vapor cloud explosion. Tr. 876-77; Ex. CX-92A at 2-6, 8-10. Approximately one year later, a 1995 BP Oil Refining memorandum recommended the relocation and strengthening of four of the cited buildings, the Blender Control Building (Item 33), the Laboratory (Item 37), the WGI Administrative Offices (Item 39), and the WGI Electricians Building (Item 40), among other buildings, as “cost-effective” strategies to abate the risk. Tr. 872-75; Ex. CX-94 at 5-7; CX-94A at 2, 5-7.

Notwithstanding the 1994 risk assessment and the 1995 recommendations, BP had the buildings re-evaluated twice more: in 2006 and 2008. Tr. 877-84, 887; Exs. RBPP-271 at 3, 6; RBPP-275 at 3, 5, 17. These more recent studies confirmed that all the cited buildings would sustain serious damage, with several buildings, including the Laboratory, collapsing in an explosion. Tr. 877-84, 887; Exs. RBPP-271 at 3, 6; RBPP-275 at 3, 5, 17. The 2006 study report also included a descriptive definition for building damage levels (BDL) that indicated what would likely happen to each structure based on the amount of over pressure that could occur in a blast or explosion and the materials from which the building was constructed. Tr. 879. As OSHA CSHO Chad Positano explained, the BDL “labels essentially show[ed] how [a particular] building [would] react or respond, given a particular event scenario occurring.” *Id.* For example, a BDL of 4 would predict building collapse, structural member failure, or major damage resulting in building collapse, while a BDL of 1 would indicate minor building damage. Tr. 879-80. A BDL of 3 would be equivalent to significant building damage, posing serious, potentially fatal, injuries to building occupants. Tr. 920-21. All of the cited buildings

had BDLs of 3 or 4, except for the HSEQ Building, which had a BDL of 2b.<sup>21</sup> Tr. 893-803, 915-28; Ex. RBPP-275.

In late 2009, at the time of the OSHA inspection in this case, BP had not resolved these findings and recommendations. Tr. 883-86; Ex. JX-1 at 44-45. There were no plans to control the hazards posed to the WGI Insulator's Building (Item 32), the Blender Control Room (Item 33), the Boiler Shop (Item 34), the E&I Shop (Item 35), the HSEQ Building (Item 36), the Main Office (Item 38), the WGI Administrative Building (Item 39), and the WGI Electrician's Building (Item 40). Tr. 857-902, 945-47. The Ohio refinery was building a new laboratory but fourteen employees were still working in the (old) Laboratory (Item 37). Tr. 921-23, 945-46.

BP personnel testified that the Ohio refinery had a three-part facility siting program, which consisted of an "inside-out" strategy that addressed higher risks first by focusing on buildings located nearest to the process units and then progressively working outward toward the perimeter of the refinery. Dec. 41 (citing Tr. 3627). The program reserved the highest priority for buildings inside the process block where employees worked for twenty-four hours each day. Risks to these buildings would be addressed in the first phase of the program. Tr. 4029. Then, during the second phase, BP planned to focus on the buildings located along the perimeter of the process units. *Id.* The final phase would involve the buildings along the fence line. *Id.* The nine cited buildings were located outside of the process block and, therefore, fell within the second or third stages. *Id.* On the date OSHA's inspection began, which was approximately fifteen years after BP learned that the employees working in the nine cited buildings were at risk, the work on eight of the nine cited buildings had not yet begun.

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<sup>21</sup> The 2006 study indicated that the HSEQ Building could sustain heavy building damage and the walls facing the blast could sustain major damage. Ex. RBPP-275 at 5.

b. *Interim Measures*

By the time OSHA's 2009 inspection began, BP had completed some *interim* measures related to the cited buildings. *See, e.g.*, Ex. RBPP-274. However, all of the buildings were still populated. Tr. 893-903, 915-928. By the time of the hearing, more than two and a half years after the inspection, BP had taken more interim measures and had further plans to mitigate the facility siting hazards. *See, e.g.* Tr. 4071, 4129. Relevant information about the buildings' population and use and the interim measures is summarized below:

i. *Item 32: WGI Insulators Building*

At the time of the inspection, approximately six employees worked in the WGI Insulators Building. Tr. 894. The start-of-shift safety meetings and breaks occur in this building. Tr. 1496, 4070. The employees worked in the plant for the remainder of their shifts. Tr. 4070. Prior to the inspection, BP installed new film on the windows, secured the lighting, posted building evacuation signs, reviewed the building's ability to withstand overpressure, and verified that an eyewash station was approximately fifty yards away from the building. Ex. RBPP-274 at 4.

At the time of the hearing, the WGI Insulators Building was still in use. Tr. 1498. BP planned to relocate the functions that occurred in this building to a warehouse after completing modifications in 2013. Tr. 4071, 4129.

ii. *Item 33: Blender Control Building*

At the time of the inspection, approximately four employees worked in the Blender Control Building. Tr. 898. Prior to the inspection, BP posted a standard building evacuation sign on the wall, secured the lighting, installed film on the windows, reviewed the building's ability to withstand overpressure, upgraded the fire protection system, and ensured that the fire extinguisher inspection was current. Ex. RBPP-274 at 3.

BP began moving the Blender Control Buildings' four employees after the inspection. In 2010, BP relocated the blender operators to another building. Tr. 4055. Then, in 2011, the remaining workers were transferred to personnel hardened shelters called "PODs." Tr. 4056.

iii. *Item 34: Boiler Shop*

At the time of the inspection, approximately twelve employees worked in the Boiler Shop. Tr. 902. Prior to the inspection, BP secured the lighting, installed film on the windows, reviewed the building's ability to withstand overpressure, and checked on the building's fire extinguishers. Ex. RBPP-274 at 3. After a report noted the lack of a fire extinguisher in the building's kitchen, BP verified the existence of an extinguisher outside of the kitchen. *Id.*

At the time of the hearing, approximately thirty employees were working in the Boiler Shop.<sup>22</sup> Tr. 4071. BP initially planned to move these employees to a new building located across Cedar Point Road, but later determined that that course of action was less feasible than strengthening existing buildings or building new ones. Tr. 1413, 1419-20. However, a 2011 structural analysis revealed that strengthening the Boiler Shop was not feasible. Tr. 4071-72. As of the hearing, BP was in the process of "reformulating its facility siting plan for this building and has decided to build a new building." BP-Husky Post-Hr'g Br. 87 (citing Tr. 4072).

iv. *Item 35: E&I Shop*

At the time of the inspection, approximately fifteen employees worked in the E&I Shop. Tr. 915. Prior to the inspection, BP secured the lighting, installed film on the windows, reviewed the building's ability to withstand overpressure, and checked on the building's bottled/supplied air. Ex.

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<sup>22</sup> BP has depopulated the Boiler Shop in stages. In 2006, approximately ninety-nine employees worked there. Tr. 4071. Three years later, at the time of the inspection, the building's population had decreased to twelve employees. Tr. 902. However, by the time of the hearing, the building's population had *increased* to thirty. Tr. 4071. It is not clear why more employees are reported to have been working in the Boiler Shop at the time of the hearing than at the time of the inspection.

RBPP-274 at 5. After the report noted an insufficient amount of bottled/supplied air, BP determined that bottled air was not required. *Id.*

In early 2012, BP moved all of the employees who worked in the E&I Shop (along with employees who worked in the WGI Electricians Building) to an addition built onto an existing warehouse. Tr. 4120.

v. *Item 36: HSEQ Building*

At the time of the inspection, approximately sixty employees worked in the HSEQ Building. Tr. 917-18. Prior to the inspection, BP secured the lighting, installed film on the windows, reviewed the building's ability to withstand overpressure, and noted that the shut off sequence for "AC" was complicated.<sup>23</sup> Ex. RBPP-274 at 6. A report indicates that personnel were trained as to the AC shut off sequence in June 2009. *Id.*

BP remodeled this building (which is now known as the HSSE Building) after OSHA's inspection. Tr. 1922-23. The remodel included hardening the walls and strengthening the doors and windows. Tr. 1510, 1922, 4059.

vi. *Item 37: Laboratory*

At the time of the inspection, approximately fourteen employees worked in the Laboratory. Tr. 921. Prior to the inspection, BP secured the lighting, installed film on the windows, reviewed the building's ability to withstand overpressure, and checked on the building's exterior fire protection. Ex. RBPP-274 at 6. BP had also begun construction on a new laboratory; the building was completed at the end of 2010 (*See* Tr. 1442, 1512). The old Laboratory's employees were moved when the new laboratory was completed. *See* Tr. 1512.

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<sup>23</sup> The term "AC" is not defined in the record.

vii. *Item 38: Main Office Building*

The Main Office Building is made up of two separate structures (a single story building and a two-story addition) connected by an attached corridor. Tr. 924. At the time of the inspection, approximately sixty employees worked in the building overall. Tr. 923-24. Prior to the inspection, BP secured the lighting, installed film on the windows, and reviewed the building's ability to withstand overpressure. Ex. RBPP-274 at 3.

At the time of the hearing, approximately fifteen employees were working in the single-story portion of the Main Office Building. Tr. 4074. Another sixty were working in the newly strengthened two-story extension. *Id.* Mark Dangler, who was BP's Business Unit Leader and Ohio Refinery Manager at the time of the hearing, testified that the refinery was in the process of relocating additional employees from the single-story portion of the building to the strengthened extension in order to reduce risk. Tr. 4074-75.

viii. *Item 39: WGI Administrative Offices*

At the time of the inspection, approximately six employees worked in the WGI Administrative Offices. Tr. 926. Prior to the inspection, BP secured the lighting, installed film on the windows, and reviewed the building's ability to withstand overpressure. Ex. RBPP-274 at 4. The initial findings indicated that boxes were stacked on top of filing cabinets. *Id.* A later observation found no such boxes. *Id.*

The WGI Administrative Offices were still in use at the time of the hearing, but it is not clear how many employees were still working there. Tr. 1515. BP initially planned to move these employees to a new building located across Cedar Point Road, but later determined that "would take too much time." BP-Husky Post-Hr'g Br. 89 (citing Tr. 1413, 4069-70, 4126). After discarding the previous plan, BP decided to move these employees to an existing building. *Id.*

ix. *Item 40: WGI Electricians Building*

At the time of the inspection, approximately six employees worked in the WGI Electricians Building. Tr. 928. Prior to the inspection, BP secured the lighting, installed film on the windows, reviewed the building's ability to withstand overpressure, and posted a standard building evacuation sign on the wall. Ex. RBPP-274 at 5. After the report noted an insufficient amount of bottled/supplied air, BP verified that bottled air was not required. *Id.* In addition, the report notes that employees who were previously not trained in emergency response procedures had been all trained. *Id.* Finally, in response to a notation that the structural steel fireproofing is not adequate, the report notes "in plan to replace building." *Id.*

In early 2012, BP moved all of the employees who worked in the WGI Electricians Building (along with employees who worked in the E&I Shop) to an addition built onto an existing warehouse. Tr. 4120.

**E. The ALJ's Decision**

On July 31, 2013, after a nineteen-day hearing, the ALJ issued a decision vacating sixty-one and affirming (recharacterized as serious) five violations of the OSH Act. In her decision, the ALJ first opined on a few preliminary matters. Relevant to this appeal, she found that the reports issued by BP's engineering safety consultant Middough were "voluntary self-audits," and, as such, should not have been used by OSHA during its inspection. Dec. 4-6.

The ALJ then addressed the alleged violations.<sup>24</sup> First, she vacated Items 2a through 12a and Items 4b through 12b. Dec. 21. Items 2a-12a alleged that BP violated 29 C.F.R. § 1910.119(d)(3)(ii) by failing to document that pressure relief equipment (pressure relief valves and their installations) complied with RAGAGEP because they had inlet pressure drops (IPDs) exceeding a consensus industry standard (the "3% limit"). Citation at 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56. Items 4b-12b

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<sup>24</sup> The description of the vacated items contained in this section includes only those items now before the Commission.

alleged that BP failed to correct the deficiencies the valves cited in the Items 4a-12a, in violation of § 1910.119(j)(5). *Id.* at 41, 43, 45, 47, 49, 51, 53, 55, 57. In vacating these violations, the ALJ found that the Secretary's specific reference to the 3% limit in the citations, rather than to the generic term RAGAGEP, "improperly imposes a requirement on employers not found in the cited standards." Dec. 21. Her decision implied that BP's internal standards could qualify as RAGAGEP. Dec. 17-21. However, she still vacated those alleged violations in which the cited pressure valves had IPds that exceeded BP's internal IPd limit because the Secretary did not cite BP for failing to comply with an alternative RAGAGEP. Dec. 21.

Next, the ALJ considered Items 13a and 14a, which related to undersized pressure relief valves. Dec. 22-24. These items alleged that BP failed to document that certain pressure safety valves complied with RAGAGEP. Citation at 58, 60. The ALJ affirmed these violations, finding that the valves, which BP conceded were undersized, exposed Ohio refinery employees to death or serious injury because an undersized valve with an inadequate relieving rate could lead to loss of containment. Dec. 22-23. She also found that a June 2008 draft Middough report, which identified the undersized valves, alerted BP to the violative conditions. Dec. 23. However, because she found that there was no evidence that BP had a heightened awareness of illegality regarding the valves' deficiency, the ALJ reclassified these violations from willful to serious. Dec. 51.

The ALJ also vacated Items 15a and 15b, which related to a pressure safety valve that provided protection to the Second Stage Butane Treater Drum. Dec. 25-26. Item 15a alleged that BP failed to document that PSV-136, which provided protection to the Treater Drum, complied with RAGAGEP, as required by § 1910.119(d)(3)(ii). Citation at 62. Because the ALJ found that the Treater Drum was drained and taken out of service prior to the OSHA inspection, she held that the undersized relief valve did not pose a danger to BP's employees. Dec. 25. Item 15b alleged that BP failed to correct the deficiencies in PSV-136 before further use, in violation of § 1910.119(j)(5).

Citation at 63. The ALJ held that the Secretary failed to establish that BP was not in compliance with the standard's terms because the Treater Drum was not in service at the time of the inspection. Dec. 25-26.

The ALJ next addressed Items 16a, 17a, and 18a, which related to three deficient relief valves. Dec. 26. The Secretary alleged that BP failed to document compliance with RAGAGEP by ensuring that the valves had back pressure of less than or equal to 10% of their set pressure. Citation at 64, 66, 68. The ALJ affirmed the citation, but found that there was no evidence that BP had a heightened awareness of illegality regarding the relief valves. Dec. 27, 50-51. Consequently, she recharacterized the violation from willful to serious. Dec. 51.

The ALJ next reviewed Items 19-27. Dec. 28-32. Items 19a-27a alleged that BP failed to document that the cited pressure vessels complied with RAGAGEP because they lacked one or more pressure relief devices. Citation at 70, 72, 74, 76, 78, 80, 82, 84, 86. Items 19b-27b charged that these deficiencies were not corrected before further use or in a safe and timely manner. *Id.* at 71, 73, 75, 77, 79, 81, 83, 85, 87. The ALJ found that BP failed to comply with the relevant RAGAGEP and that employees in the Ohio refinery were exposed to the hazard, but vacated Items 19a-27a due to lack of employer knowledge and Items 19b-27b based on OSHA's failure to prove noncompliance with the terms of the standard. Dec. 30-31.

The ALJ also vacated Items 31a and 31b, which involved BP's fire water system. Dec. 41. In Item 31b, the Secretary alleged that BP's PHA did not address "the existence of permanent connections between the plant fire water system and process systems that could lead to the contamination of fire water supply with hydrocarbons or other process fluids...." Citation at 92. Item 31a alleged that BP failed to document that the fire water system was designed, maintained, inspected, tested, and operated in a safe manner. *Id.* at 91. The ALJ vacated these items based on failure to prove noncompliance because "there is no credible risk of hazard...." Dec. 41. She reasoned that if

there was no hazard, “there was no need for BPNA’s PHA team to address the hazards of the process.” Dec. 41.

Finally, the ALJ vacated Items 32-40, which addressed building or facility-siting hazards. Dec. 47. These items alleged that BP failed to establish a system to assure that PHA recommendations to strengthen or to remove employees from nine buildings subject to explosion damage were resolved in a timely manner, and that the resolutions were documented, in violation of § 1910.119(e)(5). Citation at 93-101. The ALJ held that the Secretary failed to show that BP’s facility-siting program and its progress in resolving findings and recommendations were untimely, and that the Secretary’s “primary issue” was BP’s failure to resolve the recommendations on the “Secretary’s timetable.” Dec. 45.

### **SUMMARY OF ARGUMENT**

The ALJ erred in vacating Items 2a-12a, 4b-12b, 15a, 15b, 19a-27a, 19b-27b, 31a, 31b, and 32-40. The PSM provisions cited in Items 4a-12a, 4b-12b, 15a, 15b, 19a-27a, and 19b-27b, 29 C.F.R. § 1910.119(d)(3)(ii) and (j)(5), require employers to document that equipment complies with RAGAGEP and correct deficiencies in equipment that are outside acceptable limits before further use or in a safe and timely manner when necessary means are taken to assure safe operation. The Commission should reverse the ALJ’s vacation of Items 4a-12a and 4b-12b because the relevant RAGAGEP required IPd levels of no higher than 3%, the IPd levels of the cited valves exceeded 3%, and BP’s internal standards do not qualify as RAGAGEP. The Commission should also reject the ALJ’s holding that the Secretary’s reference to the 3% limit in his citation, rather than to the generic term “RAGAGEP,” transformed the PSM standard into a specification standard because, among other things, this holding ignores Commission precedent on how to view pleadings. In addition, the Commission should reverse the ALJ’s decision as to Items 2a and 3a because BP failed to document compliance with RAGAGEP as required by 29 C.F.R. § 1910.119(d)(3)(ii).

BP's violations of the PSM standard, as described in Items 6a, 6b, 9a-12a, 9b-12b, should be affirmed as willful because the company's failure to follow its own internal standards regarding IPd levels for the cited valves and tolerance for levels perilously close to an assumed blowdown level constitute plain indifference to employee safety. Moreover, BP had a heightened awareness of the requirements of the standard as it applies to IPd levels because it had previously been cited for exceeding the 3% limit.

The ALJ also incorrectly found a lack of employee exposure to the hazard caused by the undersized PSV-136, which provided inadequate protection to the Second Stage Butane Treater Drum, and therefore erred in vacating Item 15a and 15b. The Commission should reverse the ALJ's decision because the weight of the evidence shows that: (1) PSV-136 was undersized based on the relevant RAGAGEP; (2) BP learned of the violation prior to the inspection; and (3) the Treater Drum was not taken out of service until late in 2009, after OSHA's inspection had begun, and thus employees were exposed to the cited hazard. These violations should be affirmed as willful because BP knew of the violations for more than a year and failed to remedy them, and because BP knew from previous inspections and citations that OSHA required employers to inspect their equipment and correct deficiencies.

Likewise, the Commission should reverse the ALJ's decision on Items 19-27, which relate to missing pressure relief devices. The ALJ's holding that BP did not have constructive knowledge of the missing pressure relief devices because discovering their absence is difficult misconstrues the Commission's decisions on constructive knowledge, undermines the requirements of the standard, and ignores record evidence that BP could have discovered the lack of pressure relief devices through the exercise of reasonable diligence. Again, BP knew of the standard's requirements and the need for pressure relief. Given this knowledge, its failure to investigate and carry out known duties amounted to deliberate indifference and is a willful violation.

The Commission should also reverse the ALJ's holding as to Items 31a and 31b. The cited standards, 29 C.F.R. § 1910.119(d)(3)(iii) and (e)(3)(i), require employers to: (1) determine and document that existing equipment (that was designed and constructed in accordance with codes, standards, or practices that are no longer in general use) is designed, maintained, inspected, tested, and operating in a safe manner; and (2) ensure that the PHA addresses the hazards of the process. The evidence shows that BP had known about the hazards posed by cross-connections since the mid-1980s and was familiar with both of the cited standards from previous inspections. In addition, a 2009 audit showed that the Ohio refinery had developed an action plan to address the hazards in 2006. Despite more than two decades of knowledge about the hazard, the cross-connections remained unabated and the potential danger they posed remained undocumented in the PHA. The Commission should affirm this deliberate disregard for employee safety as willful.

The ALJ's holding on Items 32-40, which relate to the siting of nine buildings, was equally erroneous. The cited standard, 29 C.F.R. § 1910.119(e)(5), requires employers to establish a system to promptly address the PHA team's findings and recommendations and assure that the recommendations are resolved in a timely manner and that the resolution is documented. The evidence shows that BP at the time of the inspection had known of the dangers posed to employees in the nine cited buildings for over fifteen years. Such an extensive delay does not qualify as timely under the standard. Moreover, BP's failure to abate these hazards over a fifteen-year period, when combined with its familiarity with the standard, the hazards, and the horrific consequences that come from failing to address these types of hazards, constitutes willfulness.

The ALJ correctly affirmed Items 13a, 14a, and 16a-18a, but erred in recharacterizing these violations as serious, rather than willful. Each of these citations charged that BP failed to document that a pressure safety valve complied with RAGAGEP, as required by 29 C.F.R. § 1910.119(d)(3)(ii). Record evidence showed that the cited valves did not comply with RAGAGEP and BP failed to

correct the deficiencies that made the cited valves non-RAGAGEP compliant and, thus, did not document compliance with RAGAGEP. The Commission should affirm Items 13a and 14a as willful because BP had previously been cited for undersized valves and had a heightened awareness of the importance of pressure relief valves and the need for adequate relieving rates. In addition, the Commission should affirm Items 16a-18a as willful because: (1) BP knew that the valves cited in Items 16a and 17a, which relieved to the flare system, had previously experienced high back pressures and yet failed to document compliance with RAGAGEP for more than ten years; (2) the company allowed a contractor to reconfigure the valve cited in Item 18a to relieve to the same flare system without checking the back pressure; and (3) at the time of the inspection the back pressures on all three valves had risen far above the level allowed under RAGAGEP.

The ALJ's characterization of the Middough reports as "voluntary self-audits" under OSHA's final policy on voluntary safety and health audits was also in error because the reports do not meet the policy's definition of "voluntary." In addition, although the ALJ's order did not specifically address abatement, the Commission's authority to issue orders directing "other appropriate relief" could include the abatement described in the Citations and Notification of Penalty; i.e., the abatement of both the cited valves and of all other relief devices that protect all pressure vessels in the Ohio refinery.

Finally, the ALJ appropriately rejected BP's request to group individual violations for penalty purposes because the Secretary charged and proved the violations individually. The law on this point is clear: the Commission's authority to set a penalty different from that proposed by the Secretary does not encompass the authority to change the number of violations charged and disregard the number of violations proven.

## ARGUMENT

### **I. The Secretary's Burden of Proof**

To establish a violation of a standard, the Secretary must show: (1) the standard applied to the cited condition; (2) the terms of the standard were violated; (3) one or more employees had access to the cited condition; and (4) the cited employer knew or could have known of the condition with the exercise of reasonable diligence. *Astra Pharm. Prods, Inc.*, 9 BNA OSHC 2126, 2129 (No. 78-6247, 1981), *aff'd in part, remanded in part*, 681 F.2d 69 (1st Cir. 1982). BP does not contest the applicability of the cited standard, and there is no question that the standard applied. *See* Dec. 6-7. The dispute, then, focuses on the other elements.

### **II. The ALJ Erred in Vacating Items 4a-12a and 4b-12b Because the Record Demonstrates that BP Failed to Comply with RAGAGEP, and Items 2a and 3a Because BP Failed to Document Compliance with RAGAGEP.**

In Items 2a through 12a, the Secretary alleged that BP failed to document that eleven pressure safety valves complied with RAGAGEP, thereby violating 29 C.F.R. § 1910.119(d)(3)(ii), because each of the named valve installations was subject to an inlet pressure drop (IPd) greater than 3%. *See* Citation at 36-57. In Items 4b through 12b, the Secretary alleged that BP failed to correct the deficiencies in the cited valve installations before further use or in a safe and timely manner, in violation of § 1910.119(j)(5), again, because the cited valves' IPd levels did not comply with the only applicable RAGAGEP, i.e., the 3% limit. *Id.* The ALJ vacated these items because she found that the Secretary's citations, which referenced the only existing RAGAGEP, "improperly imposed a requirement on employers not found in the cited standards[.]" Dec. 21.

The ALJ's decision betrays a fundamental misunderstanding of the meaning of the term RAGAGEP, the requirements of the cited provisions, and the Commission's precedent on how to view pleadings. Not only did she fail to undertake a thorough analysis of whether 3% is the only relevant RAGAGEP, she also did not assess whether BP's internal IPd standards qualified as

RAGAGEP. The evidence establishes that BP's internal standards are not RAGAGEP. In addition, the Secretary's reference to the 3% limit in the citation did not transform the PSM standard into a specification standard. The record shows that BP violated § 1910.119(d)(3)(ii) and (j)(5), as described in Items 4-12, because the valves cited in those items did not comply with the only applicable RAGAGEP, i.e., the 3% limit. And BP also failed to comply with § 1910.119(d)(3)(ii), as described in Items 2a and 3a, because it did not document compliance with RAGAGEP. Because BP failed to comply with RAGAGEP and also failed to document compliance with RAGAGEP, these violations should be affirmed.

A. *To Qualify as RAGAGEP, Engineering Practices Must Be "Recognized," "Generally Accepted," and "Good Engineering Practices."*

Because the violations described in Items 2a-12a allege that BP failed to document compliance with the applicable RAGAGEP and, the violations described in Items 4b-12b allege that BP failed to comply with RAGAGEP, the key issue is how to define the term "RAGAGEP." The term, which appeared in both the proposed and final versions of the rule, is not defined in the regulatory text, but the text and the preamble to the final rule provide guidance as to its meaning. *See* 55 Fed. Reg. 29,150, 29,153 (July 17, 1990); 57 Fed. Reg. at 6375, 6390.

The most authoritative guide to the term's meaning is its own language: to constitute RAGAGEP, an internal standard must be "recognized," "generally accepted," and "good engineering practices." As noted in the preamble the term RAGAGEP includes "*appropriate* internal standards of a facility, as well as codes and standards published by NFPA, ASTM, ANDI, NFPA, etc." 57 Fed. Reg. at 6390. The phrasing of this statement makes clear that codes and standards that are published by consensus organizations, such as NFPA, API, and ASME, qualify as RAGAGEP. Internal standards, however, must be *appropriate*.

The preamble to the final rule does not further explain the term "appropriate internal standards." Nevertheless, it is clear that where there is a consensus of applicable codes and industry

standards that speak directly to a given engineering practice, the PSM standard does not allow an employer to disregard the consensus and substitute its own less protective practice.<sup>25</sup> Such a practice would not meet the standard's basic requirements of being "recognized" and "generally accepted." To allow the employer to follow its own practice in such circumstances would deprive the standard of all meaning.

This does not mean that internal standards are never appropriate. On the contrary, the preamble discussion indicates that in some circumstances internal standards may better protect employees than consensus standards. In those situations, an internal standard would be "appropriate," and, thus, qualify as RAGAGEP. For example, an employer's internal standard might be appropriate where the applicable codes and standards are "outdated and no longer represent a consensus of 'good engineering practices[,]'" or where the available codes and standards "no longer represent a consensus

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<sup>25</sup> The ALJ's decision makes much of the preamble's declaration that "[t]he Agency did not intend to incorporate by reference all of the codes and standards published by these consensus groups." Dec. 20 (quoting 57 Fed. Reg. at 6390). However, this ALJ misinterprets the context in which this statement was made. The proposed PSM standard included a provision, paragraph (j)(3)(ii), which would have required that "inspection procedures follow applicable codes and standards." 57 Fed. Reg. at 6390. The proposed provision "also contained examples of codes and standards that an employer could use to comply with this proposed provision." *Id.*

As stated in the preamble, "[m]any rulemaking participants disagreed with this proposed provision." *Id.* Commenters were "concerned that the Agency would incorporate by reference *all* of the codes applicable to testing and inspection." *Id.* (emphasis added). These commenters were concerned about the logistics and the guesswork involved; they asserted that "it would be difficult to obtain all such standards and decide which standards the Agency intended them to use." *Id.* They also expressed concerns that "some of the standards may conflict with each other," which would, of course, be problematic, if OSHA intended to require employers to comply with *all* of the published codes and standards that are applicable to testing and inspection. In addition, stakeholders commented that the consensus standards might be "outdated," "no longer applicable to [certain] process equipment[,]'" "no longer represent a consensus of 'good engineering practices,'" or "represent the minimum [amount of protection] agreed to by the participants in the [consensus] organization." *Id.*

It was within the context of these concerns, i.e., that OSHA intended to require employers to procure and obey *all* the applicable codes and standards, regardless of whether they conflict or were outdated, that OSHA stated that it "did not intend to incorporate by reference all of the codes and standards published by these consensus groups." *Id.* This statement was meant as a clarification and a reassurance, not a license to use unrecognized standards that are neither recognized, generally accepted, nor good.

of ‘good engineering practices.’” 57 Fed. Reg. at 6390. Similarly, an internal standard that is *more* protective than a minimally protective code or consensus standard could also qualify as RAGAGEP. *See id.* Again, the key questions to ask are whether an employer’s internal standards are “recognized,” “generally accepted,” and “good” engineering practices, and, thus, appropriately protect employees. *See id.* (“The purpose of this proposed provision is to make sure that process equipment is inspected and tested properly, and that the inspections and tests are performed in accordance with appropriate codes and standards.”).

B. *The 3% IPd Limit Set by API, ASME, and Other Organizations is RAGAGEP for the Valve Installations at Issue in Items 2-12.*

The RAGAGEP for relief valve IPds has been 3% of a valve’s set point for the past fifty years. In 1963, API established 3% of the valve’s set point as the limit. Dec. 14 (citing Tr. 2861, 2863). In addition, ASME (Ex. JX-55, p. 593), the State of Ohio (Tr. 2217-19, 2403-04), the CCPS (Ex. JX-23 at 5; *see* Tr. 218, 2260-61), and at least two major valve manufacturers (Tr. 561, 2722-39; CX-18A at 1, 5; CX-20 at 18, 19; CX-21 at 17, 18; CX-23 at 2, 6, 46, 47; CX-25 at 2, 3; CX-26 at 2, 6, 7) have adopted or reference the 3% limit. As Cassandra Hamlin, the previous owner of the consulting company commissioned by API to study pressure relief valves, explained at trial, the 3% limit is “both the industry standard and the only possible RAGAGEP a reasonably prudent employer could consider with regard to a pressure relief valve.” Dec. 17 (summarizing Ms. Hamlin’s testimony and citing Tr. 551, 560, 561).

It is of no moment that in December 1994, API amended its recommended practice to remove the word “shall” (with regard to the IPd limit) to state that the IPd “should” not exceed 3%, and added an exception that stated, “[a]n engineering analysis of the valve performance at higher inlet losses may permit increasing the allowable pressure loss above 3 percent.” Tr. 2897-98; Ex. JX-17 at 3, 9. This is because the use of the word “should” and the inclusion of an option to instead use an engineering analysis indicated API’s intent to provide the industry with a choice, i.e., refineries

*should* keep IPds at or below 3%, but, in the alternative, it is *possible* that an engineering analysis *may* permit increasing the allowable IPd above 3%.<sup>26</sup> Put another way, to comply with API's published guidance, refineries *must* do one of these two things. Moreover, for RAGAGEP purposes, the difference between "should" and "shall" (as used in API's recommended practice) does not have the same meaning as it might where the terms are used in a regulatory provision.<sup>27</sup> Here, the standard expressly states that a RAGAGEP is a *recognized and generally accepted, good* engineering practice. API's "should" provision meets this definition as easily as a "shall" provision. This is especially true where, as here, there is no evidence in the record that any industry consensus groups have found an IPd level higher than 3% to be RAGAGEP. Nor has BP performed the required engineering analysis to demonstrate the appropriateness of a higher level. *See infra* pp. 45-47. The ALJ therefore erred in rejecting the 3% limit as the applicable RAGAGEP for valve IPd.

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<sup>26</sup> API's use of the word "should" indicates that the first option (ensuring that IPd levels do not exceed 3%) is its preferred practice.

<sup>27</sup> The language API chose to use when it changed the "shall" to a "should" also distinguishes this case from the line of cases on the promulgation of national consensus standards as occupational safety or health standards under section 6(a) of the OSH Act. 29 U.S.C. § 655(a); *see, e.g., Kennecott Copper Corp.*, 4 BNA OSHC 1400 (No. 5958, 1976), *aff'd*, 577 F.2d 1113 (10th Cir. 1977). As noted above, when API changed its guidance to use the term "should," it also added an exception. Tr. 2897-98; Ex. JX-17 at 3, 9. Together, the "should" provision and the exception created an "either/or" situation. In other words, under the API guidance, an employer *must* do one or the other.

Moreover, even if API's guidance did not require employers to choose one of these options, this case would still be distinguishable from the 6(a) cases, because the courts in the 6(a) cases only prohibited the Secretary from promulgating advisory standards as mandatory rules because doing so was inconsistent with the authority delegated to the Secretary by the Congress. *See Weatherby Eng'g Co.*, 9 BNA OSHC 1292, 1293 (No. 77-4333, 1981) (citing *Kennecott Copper*, 4 BNA OSHC at 1401 for the proposition that a change from "should" to "shall" is "a substantive change requiring the Secretary to use section 6(b) notice and comment procedures," instead of promulgating the standard without notice and comment under section 6(a)). No such limitation on the Secretary's authority exists here. On the contrary, the language of the PSM standard practically requires employers to look to recognized authorities, like consensus standards and codes, to determine what the industry as a whole believes to be RAGAGEP.

BP does not appear to contest the Secretary's assertion that the 3% limit constitutes RAGAGEP.<sup>28</sup> BP instead argued, and the ALJ appeared to agree, that BP's internal standards *could* also qualify as RAGAGEP.<sup>29</sup> Dec. 21. These internal standards began to take shape in 1996 when engineer Edward Zamecj moved to BP. Tr. 2811-13, 2836-37. Mr. Zamecj brought internal Amoco guidance with him that allowed IPds up to 7% or blowdown, whichever was lower, for existing installations. Tr. 2811-13, 2836-37; Exs. CX-107 at 2, JX-15 at 339. BP formally adopted the 7% standard in 2006 in GP 44-70 (2006).

In October 2009, during OSHA's inspection, a new version of GP 44-70 became effective. Tr. 2922; *see* Ex. JX-49 (GP 44-70 (2009)). The new guidance limited IPds for existing installations to 5% or blowdown, whichever was lower (Ex. JX-49 at 76; Tr. 2688-90), because it recognized that the 7% limit did not allow for *any* safety margin between IPd and blowdown (Tr. 2689).<sup>30</sup> As BP's expert, Dr. Melhem, testified, "You can't have a zero percent margin." Tr. 2620.

Neither of BP's internal standards (the 2006 and 2009 versions of GP 44-70) qualify as RAGAGEP under either the applicable codes and standards or otherwise.<sup>31</sup> First, they allow IPd levels above that which *every* standard setting organization that has opined on the issue has found to be safe and appropriate. As stated above, permitting employers to utilize internal standards that provide *less* protection than that called for by *every* single national consensus standard and code,

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<sup>28</sup> Indeed, BP's internal standard for new and modified equipment is 3% IPd. Tr. 2742-43.

<sup>29</sup> In its PDR, BP-Husky argues that the ALJ correctly ruled that BP's internal guidelines are RAGAGEP. BP-Husky PDR 4. The assumption underlying this argument is false: the ALJ did not reach the issue of whether BP's internal guidelines qualify as RAGAGEP.

<sup>30</sup> Because safety valves typically come from the manufacturer with their blowdowns set at 7% or more, Dec. 15 (quoting Ex. JX-23 at 36), if a valve were perfectly configured and worked precisely as rated, a 5% IPd would allow for a 2% safety margin.

<sup>31</sup> As noted above, the ALJ's decision does not assess whether BP's internal standards actually *do* qualify as RAGAGEP. She simply appears to find that they *could* qualify. *See* Dec. 18-21.

where: (1) applicable codes and standards exist, (2) do not conflict, (3) and have not been shown to be outdated, is completely inconsistent with the language and purpose of the PSM standard. Second, they do not meet API's exception for standards which are based on an "engineering analys[es] of the valve performance at higher inlet losses," because they are not supported by an engineering analysis of the valve performance at *any* level, much less valve performance at inlet losses in excess of 3%. *See* Tr. 2897-98; Ex. JX-17 at 3, 9.

As mentioned above, API's Recommended Practice 520 on Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries, Part II-Installation, states that IPd should not exceed 3% of the set pressure of the valve. Ex. JX-17 at 3, 9. It also includes an exception for "an engineering analysis of the valve performance at higher inlet losses," which "may permit increasing the allowable pressure loss above 3 percent." *Id.* at 9. The phrase "engineering analysis" is not defined in the API publication and API's attempts to define the term or otherwise determine how companies can safely deviate from the 3% limit have yet to come to fruition. *See* Ex. JX-17; Tr. 481, 551, 585, 560-61, 2266-67. However, the exception makes it clear that it must include an "analysis of the valve performance at higher inlet losses." Ex. JX-17 at 3, 9. Neither of BP's internal standards is based on an analysis of valve performance at any level.

BP's 7% internal standard originated at Amoco in the mid-1990s. Tr. 2813-14. According to Mr. Zamecj, Amoco researched the historical basis for the 3% limit and surveyed major valve manufacturers about the blowdown settings on conventional relief valves and concluded that a relief valve operating within its normal operating range that had a calculated IPd of less than 7% would operate stably, because the IPd was less than the valve's blowdown. *See* BPNA Post-Hr'g Br. 22

(citing Tr. 2814–18). There is no evidence that this conclusion, which allowed valves to have a zero percent safety margin, was based on an engineering analysis of valve performance at any level.<sup>32</sup>

BP's current 5% internal standard is also not based on an analysis of valve performance at any IPd level and, thus, fails to qualify as an engineering analysis under API's guidance. According to Dr. Melham, the BP expert who endorsed BP's so-called "engineering analysis for its 5% inlet pressure internal policy," BP's analysis calculated the IPd on a valve-by-valve basis under various scenarios. Tr. 2530. However, Dr. Melhem's testimony did not establish that BP analyzed the *performance* of the valve, as recommended by API. His description of the analysis only shows that the company calculated the IPd and compared that with the valve's rated blowdown number.<sup>33</sup> There is no evidence that BP calculated that the valve as installed and configured would operate reliably if the IPd

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<sup>32</sup> The ALJ states that BP informed OSHA that it had conducted an engineering analysis. Dec. 18. However, the portion of the transcript she cites on this point merely states that BP told OSHA that it had "an engineering guide[, presumably GP 44-70 (2006)], which they followed with respect to [IPd]." Tr. 153. In addition, the ALJ notes that Mr. Zamecj modeled GP 44-70 on API's methodology. Dec. 18 (citing Tr. 2825). Again, the portion of the transcript the ALJ cites does not support this point. Instead, it shows that BP edited the document based on its own knowledge of pressure relief systems, circulated it among BP refineries, and then made final decisions based on the comments received. Tr. 2825. This is evidence that BP thought about and received comments on the draft from other BP refineries, not that it conducted an engineering analysis regarding inlet pressure drop.

<sup>33</sup> Steve Cloutier's testimony about BP's consideration of the "basic physics of [a valve's] disc and the flow path through the relief valve" also is not evidence that BP conducted an engineering analysis of valve performance. Tr. 2692. It only shows that BP considered how these valves typically work, not that BP analyzed how they actually work at higher IPds. Moreover, the only factor that Mr. Cloutier mentions considering, other than "basic physics" is the sizing of the valves. He testifies that the committee [tasked with revising GP 44-70(2006)] discussed the fact that if you "allow the pressure drop to go more, you have to make the valve a little bit bigger to get the same capacity, so there had to be a capacity adjustment to properly size the valve, and those things would have been taken into account." *Id.* First, there is no evidence in the record that the committee actually did take factors such as this into account - just that Mr. Cloutier believes they "would have." *Id.* Second, even if the committee did take that and similar factors "into account," there is no evidence about what taking them into account entailed. For example, there is no evidence that BP analyzed whether valve sizes would need to increase to accommodate higher IPds, how much bigger the valves should be, or that BP actually replaced its valves where necessary to allow for higher IPds.

was in excess of 3%.<sup>34</sup> See Tr. 2605-06 (discussing blowdown assumptions). This incomplete analysis is not sufficient to qualify as an engineering analysis under API's recommended guidelines.<sup>35</sup>

C. *BP's Internal Standards Are Not an Alternative RAGAGEP.*

Because the industry has recognized a 3% IPd limit for the valve installations at issue, BP's less stringent internal limits cannot be considered an alternative RAGAGEP. As explained above, *supra* pp. 40-42, recognition and general acceptance are defining criteria for determining RAGAGEP. Where there is industry agreement upon a minimum level of protection, the employer is foreclosed, as a legal matter, from relying upon an internal engineering practice affording less protection. Put another way, employers cannot disregard the method of protection called for by *every* applicable published code or standard and instead substitute a less protective, unrecognized *internal* standard.

In any event, the record shows that BP's internal standards are neither recognized nor generally accepted. Although BP argues that some large operators involved with the API pressure relief working group allowed IPds above 3% for existing installations, Steve Cloutier, a former BP employee who attended the API meetings, stated that even among this group of operators, "there was

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<sup>34</sup> This omission is even more concerning when read alongside Dr. Melhem's testimony regarding the inaccuracy of blowdown ratings. Tr. 2609-10; *see also* Tr. 498-99, 2308, 2606-10, 2608-10 (testimony discussing the Petroleum Environmental Research Forum project results showing that actual blowdown rates could be significantly below the expected 7% rate, providing margins of less than 4% with a 3% IPd). In addition, there is no way to test for blowdown at the Ohio refinery, and the blowdown number does not appear in the manufacturers' manuals, the Middough calculations, or the valve documentation. Tr. 1611, 1798-1801, 2710-13, 2720; Ex. CX-16 through CX-27 (manufacturers' manuals), RBPP-94 through 95, RBPP-97 through 140 (Middough calculations). Moreover, BP's own internal policy recognizes that blowdown may be less than the assumed 7%. Ex. JX-15 at 339. Even if Dr. Melhem's testimony that a "refinery's internal guidelines comply with the PSM Standard so long as they result in [IPd] below blowdown" were true, and the Secretary asserts that it is not, BP would still be in violation of RAGAGEP because it did not verify the valves' blowdown numbers. *See* BP-Husky Post-Hr'g Br. 19 (citing Tr. 2602-03).

<sup>35</sup> BP also did not offer evidence that its analysis addressed the elements considered by the API committee responsible for working on pressure relief to be necessary parts of an acceptable engineering analysis. The group's 2010 ballot initiative (later withdrawn) included activities such as verifying a valve's blowdown with the manufacturer and reviewing inspection records for instances of chatter. Tr. 2697-2700, 2761, 2766; Ex. RBPP-51 at 3. Although the initiative was withdrawn, it offers some insight into the working group's views on what constituted an acceptable analysis.

no consensus on the number.” Tr. 2687. In addition, Edward Zamecj, a former employee of both BP and Amoco who was heavily involved with the API working group on the 3% limit, and who brought the 7% limit with him from Amoco, corroborated that there was no consensus among large operators on a different number. Tr. 2884, 2893.

In an attempt to bolster the claim that the 7% number is recognized and generally accepted, BP points toward an OSHA inspection of another company’s refinery in Lima, Ohio that occurred approximately one year before OSHA inspected the refinery at issue in this case. *See* BP-Husky PDR 7; BPNA PDR 6. At the time of OSHA’s inspection, the Lima refinery had guidelines allowing IPd up to 7%. Tr. 1198, 1220. Nevertheless, OSHA did not cite it for failure to comply with RAGAGEP. Tr. 1220. It is unclear from BP’s briefs whether it intends *only* to argue that one refinery’s guideline establishes that a practice is recognized or generally accepted or also that OSHA’s failure to cite suggest that OSHA recognized that 7% was RAGAGEP. Both of these arguments fail.

First, the fact that one, or a handful, of U.S. refineries may have allowed IPd up to 7% is not sufficient to establish that something is “recognized” or “generally accepted.”<sup>36</sup> The case law surrounding a similar term, “recognized hazard,” offers some helpful guidance on whether a practice is “recognized.” Under the general duty clause, section 5(a)(1) of the OSH Act, employers are required to provide their employees with a place of employment that is “free from recognized hazards that are causing or likely to cause death or serious harm to...employees.” 29 U.S.C. § 654(a)(1). A “recognized hazard” is “a condition that is known to be hazardous, and is known not necessarily by each and every individual employer but is known taking into account the standard of knowledge in the industry.” *Brennan v. OSHRC*, 501 F.2d 1196, 1201 (7th Cir. 1974). Put simply, whether something is “recognized” involves looking at the industry as a whole; identifying a small number of outliers

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<sup>36</sup> Of course, even if allowing IPd to exceed 3% *were* a recognized or generally accepted practice that would not mean it is a safe or “good engineering practice.”

who do not know a condition is hazardous is not enough to prove a hazard is not “recognized.”<sup>37</sup>

Likewise, BP’s attempt to point to a handful of employers, including the Lima Refining Company, who allegedly believed that allowing IPd above 3% was safe, is not enough to show that the practice was “recognized.” There was no consensus on a safe number other than 3%.

Second, to the extent that BP is relying on the Lima inspection to show that OSHA agreed that allowing IPd levels above 3% was RAGAGEP, Commission precedent is clear: no such inference may be drawn. Even if the prior inspection had occurred at the Ohio refinery, BP would not be justified in relying on the failure to cite. As explained by the D.C. Circuit Court, “We believe that recognizing such a right [to rely on OSHA’s failure to identify violations in a previous inspection] would discourage self-enforcement of the Act by businessmen who have far greater knowledge about conditions at their workplaces than do OSHA inspectors.” *Cedar Constr. Co. v. OSHRC*, 587 F.2d 1303, 1306 (D.C. Cir. 1978); see *Seibel Modern Mfg. & Welding Corp.*, 15 BNA OSHC 1218, 1224 (No. 88-821, 1991) (Commission cases “rule against deducing from uneventful prior inspections that particular operations are nonhazardous.”). And here, BP had actual notice from OSHA’s 2007 inspection of its Texas City refinery that OSHA considered the 3% limit to be the only RAGAGEP for IPd levels. See Tr. 1082-89.

The bottom line is that BP’s internal standards, which did not include an analysis of the performance of the Ohio refinery’s relief valves or analyses of the other factors considered by the API working group, are not good engineering practices.<sup>38</sup> At a minimum, a sound analysis should have

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<sup>37</sup> This parallel analysis for PSM is underscored by the inclusion of the phrase “generally accepted” in the term RAGAGEP.

<sup>38</sup> BP-Husky also appears to be arguing that the lack of accidents attributable to IPd levels above 3% is evidence that the practice is safe. BP-Husky PDR 6. But it is equally possible that the lack of accidents is a factor more appropriately attributed to chance. See *Stearns-Roger, Inc.*, 7 BNA OSHC 1919, 1921 n. 4 (No. 76-2326, 1979) (“The absence of injuries is not controlling in determining whether a potential for injury exists. A hazard requiring abatement may exist in the absence of recorded injuries. The [OSH] Act is designed to prevent the first injury.”); *Kaiser Alum. & Chem.*

included an assessment of the individual valve installation's characteristics and configuration to provide some assurance that the valve has not been chattering. Tr. 2183-84, 2192-93, 2696-97. Consequently, BP's internal standards do not qualify as RAGAGEP.

D. *The ALJ Incorrectly Found that Reference to the 3% Limit in the Citation Transformed the PSM Standard into a Specification Standard.*

The ALJ also incorrectly held the Secretary's reference to the 3% limit in her citation, rather than to the generic term "RAGAGEP," "erased the performance aspect of the RAGAGEP standards." Dec. 21. This holding was in error and ignores Commission precedent on how to view pleadings. The rule that administrative pleadings under the OSH Act should be construed liberally is "well-settled law." *Gen. Dynamics Land Sys. Div., Inc.*, 15 BNA OSHC 1275, 1279 (No. 82-1293, 1991) (citations omitted) "This [rule] has been particularly true for citations issued under the [OSH] Act, which are drafted by non-legal personnel who are required to act with dispatch. To inflexibly hold the Secretary to a narrow construction of the language of a citation would unduly cripple enforcement of the [OSH] Act." *Id.* (citations omitted).

Of course, the rule that administrative pleadings must be liberally construed does not "obviate the need for particularity in the statement of the charge against the employer." *Id.* A pleading must provide the employer with "a fair opportunity to prepare and present a defense." *Id.* Here, the ALJ is not faulting the Secretary for failing to provide BP with enough information to prepare its case but rather with providing *too much* information. By specifying that BP violated the 3% limit, instead of generically pleading that the companies violated RAGAGEP, the Secretary enabled BP to craft a better-informed defense.<sup>39</sup>

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*Corp.*, 5 BNA OSHC 1835, 1836 (No. 76-2040, 1977) (ALJ) ("Respondent points out that a fire has never occurred in the lunchrooms or tool rooms...during the 20 years the plant has been in existence. This does not insure that a fire will never occur. The potential for such an eventuality exists and could occur. One of the purposes of the Act is to prevent the first injury.")

<sup>39</sup> After a 2007 inspection of BP's Texas City refinery, OSHA cited BP for violating 1910.119(j)(5) because the refinery had a relief valve with IPDs of above 3%. Tr. 1088. The citation in that case did

Moreover, the ALJ's holding defies simple logic. To be sure, performance standards allow employers a great deal of flexibility. *See* Tr. 117. OSHA has favored this approach for a host of reasons, several of which are stated in the PSM rulemaking. *See* 57 Fed. Reg. at 6390. For example, OSHA included the phrase "recognized and generally accepted good engineering practices" in § 1910.119(d)(3)(ii), instead of merely referencing industry consensus standards, in part because there *could* be circumstances where existing consensus standard were outdated or otherwise inappropriate. *See* 57 Fed. Reg. at 6390. However, OSHA's choice to promulgate a performance standard does not allow employers to comply by using ineffective methods of protection—it is merely OSHA's recognition that there *may* be more than one method of protecting employees from a particular hazard that *may* be appropriate. Performance standards merely leave the door open to multiple methods of protection; they do not guarantee that more than one manner of protection exists at a given point in time, nor do they dispense with the requirement that an employer's chosen method must actually protect its employees from hazards.

Here, the industry consensus is that IPds should not exceed 3%. There is no agreed upon method of performing "an engineering analysis of the valve performance at higher inlet losses," as allowed by the API exception. And there is no consensus among refinery operators as to what level above 3% could be safe. The only RAGAGEP related to IPd that the Secretary knows of requires IPds to remain at or below 3%. The Secretary's inclusion of this conclusion in the citations issued to BP does not, however, necessarily imply that the Secretary did not consider whether either of BP's internal limits (7% or 5%) qualifies as RAGAGEP. It is also not evidence that alternative RAGAGEP could not emerge in the future. The citation only provides BP with notice that at this point in time the Secretary believes that 3% is the only RAGAGEP.

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not reference the 3% limit. Tr. 1089. Nevertheless, it was clear that the 3% limit was the basis of OSHA's case. OSHA had a number of meetings with BP and invited its expert to talk to the company and explain what the relevant industry code required. Tr. 1089. In addition, the 3% limit was identified in OSHA's citation worksheet. Tr. 1089-90. The only difference between that case and the instant case is non-legal personnel included the reasoning behind OSHA's case in the body of the Ohio refinery citations, rather than in the worksheets.

Thus, the ALJ's holding on this point ignores the fact at this time industry consensus is that the 3% limit is the only relevant RAGAGEP. Referencing the 3% limit in the citation was therefore appropriate, and in no way "impermissibly shoehorned [a prescriptive standard] into a performance standard." Dec. 21.

- E. *BP Violated § 1910.119(d)(3)(ii) and (j)(5) Because the Valves Cited in Items 4a-12a and 4b-12b Exceeded 3% IPd, and § 1910.119(d)(3)(ii) Because It Failed to Document that the Valves Cited in Items 2a and 3a Complied with RAGAGEP.*

The evidence demonstrates that BP violated § 1910.119(d)(3)(ii) and (j)(5) because the valves cited in Items 4a-12a and 4b-12b did not comply with the relevant RAGAGEP, i.e., the 3% limit. The record also establishes that BP violated § 1910.119(d)(3)(ii) because it failed to document that the valves cited in Items 2a and 3a complied with RAGAGEP. The ALJ's ruling to the contrary was in error.

1. *BP Violated § 1910.119(d)(3)(ii) Because the Valves Cited in Items 4a-12a Did Not Comply with the Applicable RAGAGEP.*

Section 1910.119(d)(3)(ii) requires employers to "document that equipment complies with RAGAGEP." In Items 4a through 12a, the Secretary alleged that BP failed to document that nine pressure safety valves complied with RAGAGEP because each of the named valve installations did not comply with RAGAGEP, i.e., the 3% limit. *See* Citation at 40, 42, 44, 46, 48, 50, 52, 54, 56. BP's failure to inspect these valves, calculate their IPds, bring them into compliance with RAGAGEP, and document compliance exposed its employees to the risk of serious injury or death.

As noted above, *supra* p. 8, as part of its inspection, OSHA reviewed reports issued by BP safety consultant Middough. Tr. 223. Middough's reports indicated that the nine valves cited in Items 4a-12a were subject to IPds of more than 3%. In fact, five of the cited valves (those cited in Items 6a, and 9a-12a) had IPds in excess of 5%, i.e., above the level BP endorsed in its 2009 internal standard. Dec. 11; Ex. CX-2; *see* Ex. JX-49 (GP 44-70 (2009)).

BP knew or should have known that these valves' IPds did not comply with RAGAGEP or, at a minimum, that it had not documented the valves' compliance. Although the company was familiar with the standard's requirements, the Ohio refinery did not undertake a comprehensive review of the pressure relief equipment until 2008, many years after employers were required to complete their initial PHAs. Tr. 1588-89, 1626, 2915; *see* 29 C.F.R. § 1910.119(e)(1) (requiring employers to perform initial PHAs on processes covered by the standard by May 26, 1997). BP also knew of and ignored recommendations from its 2009 corporate audit that related to pressure relief valve documentation. *See* Ex. JX-1 at 20-21, 23.

Moreover, Edward Zamecj, a former BP employee and technical expert who was the architect of the 7% IPd guidance and who trained other BP employees about pressure relief, testified that BP was aware as early as 1997 that it had equipment that did not comply with the 3% limit. Tr. 2837. The previous PSM citations issued in 1992, 1997, and 2001 provided notice of the PSM standards and their requirements. Exs. CX-38, CX-44, CX-47. The 2007 Texas City citation and discussions between BP and OSHA put BP on notice that OSHA intended to enforce the 3% limit. Tr. 1088-89, 1978-81; Ex. CX-45 at 11. In addition, BP had actual knowledge that the valves cited in Items 4, 6, 7, and 8 exceeded the 3% limit well before Middough started its work in 2008. Tr. 326-27, 341-42, 346-47, 1775-77, 2938-44, 2963-65, 2983-84, 3090-91; Exs. RBPP-38 at 24, 34, 47, 48, 109, 242; RBPP-140 at 49. BP also had the duty to inspect its equipment to ensure and document compliance with RAGAGEP. *See infra* pp. 57-58.

BP's failure to document compliance with RAGAGEP, by ensuring that the cited valves were in compliance with the 3% limit, exposed its employees to the risk of serious injury or death. Excessive IPds can cause a valve to close prematurely and affect its capacity to relieve overpressures safely. Tr. 552-53, 2193, 2521, 2523-24; *see, e.g.*, Ex. RBPP-140 at 49. During chatter, the relief valve opens and closes so rapidly and violently that it can become damaged and possibly fail. Tr.

550-552, 2193; Ex. JX-23 at 5; *see* Tr. 557 (describing chatter as having the “force of...30 of 40 cars slamming up and down 60 times a second”). Failure of the relief valve could result in the release (loss of containment) of hot hydrocarbons that could explode and burn, causing serious injuries or death to employees in a refinery. Tr. 542-34, 552-53, 2877-78.

Because BP knowingly failed to comply with the applicable RAGAGEP (and document such compliance) and this failure exposed its employees to the risk of serious injury or death, the Commission should affirm these violations.

2. *BP Violated § 1910.119(j)(5) Because It Did Not Correct the Deficiencies in the Valves Cited in Items 4a-12a By Bringing Them Into Compliance with the Applicable RAGAGEP.*

Section 1910.119(j)(5) requires employers to “correct deficiencies in equipment that are outside acceptable limits (defined by the process safety information in paragraph (d)...) before further use or in a safe and timely manner when necessary means are taken to assure safe operation.” In Items 4b through 12b, the Secretary alleged that BP failed to correct the deficiencies in the cited valve installations before further use or in a safe and timely manner, as required by § 1910.119(j)(5). Citation at 41, 43, 45, 47, 49, 51, 53, 55, 57. BP’s failure to correct these deficiencies exposed its employees to the risk of serious injury or death.

As laid out above, *supra* p. 16, 52-55, Middough’s calculations show that the valves cited in Items 4b-12b were subject to IPds in excess of 3%, which is the only relevant RAGAGEP at this time.<sup>40</sup> BP knew or should have known of the deficiencies. Tr. 326-27, 341-42, 346-47, 1088-89, 1775-77, 1978-81, 2837, 2938-44, 2963-65, 2983-84, 3090-91; Exs. CX-45 at 11; RBPP-38 at 24, 34, 47, 48, 109, 242; RBPP-140 at 49. Excessive IPd levels can lead to chatter, which increases the risk

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<sup>40</sup> The fact that PSV-1321 (Item 7) and PSV-1338A (Item 8) were calculated to exceed 3% by .2% is not grounds to find that there was no deficiency under the standard. Section 1910.119(j)(5) requires correction of deficiencies that are “outside acceptable limits.” Here, the cited equipment was outside acceptable limits as defined by RAGAGEP. BP was therefore required to bring the equipment into compliance.

of loss of containment of hydrocarbons. Tr. 550-53, 2193, 2521, 2523-24; Ex. JX-23 at 5. The hydrocarbons could, then, explode and burn, causing death and injury. Tr. 542-34, 552-53, 2877-78. In addition, BP did not offer any evidence of interim measures that would ensure safe operations until the deficiencies could be corrected. Consequently, BP violated § 1910.119(j)(5).

3. *BP Violated § 1910.119(d)(3)(ii) Because It Failed to Document that the Valves Cited in Items 2a and 3a Complied with RAGAGEP.*

BP's failure to document that the valves cited in Items 2a and 3a complied with RAGAGEP also violated § 1910.119(d)(3)(ii). The fact that Middough determined that these valves' IPds did not actually exceed 3% is of no moment. The provision requires employers to *document* compliance with RAGAGEP. BP has not offered any proof of the required documentation. In fact, from 2008 until Middough revised its calculations, BP believed that these valves did not comply with RAGAGEP. *See* Ex. CX-2 at 3; Tr. 2928-30. This confusion illustrates the importance of consistently inspecting and documenting compliance with RAGAGEP, as required by the standard: for more than a year the IPds of each of these valves could have posed a danger to BP's employees, but the company did not know for certain because it failed to follow the standard. At the time of the inspection, these valves, like those cited in Items 4-12, had existed for years without any documentation that they complied with RAGAGEP. These failures, which amount to rolling the dice on employee safety, constitute violations of § 1910.119(d)(3)(ii).

**III. The ALJ Properly Affirmed Items 13a, 14a, and 16a-18a Because BP Failed to Document that the Cited Undersized Valves Complied With RAGAGEP, as Required by § 1910.119(d)(3)(ii).**

The ALJ properly affirmed Items 13a, 14a, and 16a-18a because BP failed to document compliance with the applicable RAGAGEP, as required by § 1910.119(d)(3)(ii). This decision was appropriate despite the ALJ's vacation of the alleged violations of (j)(5) with which each of the (a) items was grouped, i.e., Items 13b, 14b, and 16b-18b. BP disagrees, arguing that it was somehow unfair or improper of the ALJ to affirm the § 1910.119(d)(3)(ii) items and vacate the § 1910.119(j)(5)

items. These arguments misinterpret the requirements of § 1910.119(d)(3)(ii) and misconstrue (d)(3)(ii)'s relationship to § 1910.119(j)(5).

The valves cited in Items 13a and 14a (PSV-115 and PSV-124) were undersized and did not have adequate relieving rates during relief scenarios, as required by RAGAGEP. Tr. 226, 367-374, 3005-08; Exs. CX-3 at 46, RBPP-84 at 2-4, RBPP-88 at 2-5. The undersized valves were still installed on the equipment during OSHA's inspection, even though the Middough report provided BP with actual knowledge of the deficiencies in 2008. Exs. RBPP-84 at 2-4, RBPP-88 at 2-5; *see* Tr. 368-69, 372-74 (describing the results of Middough calculations for the valves in 2008 and November 2009 – two months after OSHA's inspection began). The valves described in Items 16a-18a (PSV-1280, PSV-1281, and PSV-1301) had back pressures far above that required by RAGAGEP. Exs. RBPP-108 at 3, RBPP-115 at 3, RBPP-126 at 3-4. Again, even though BP had actual knowledge of this deviation from RAGAGEP prior to the inspection, it failed to bring the valves into and document compliance before the time the inspection began. Exs. RBPP-108 at 3, RBPP-115 at 3, RBPP-126 at 3-4; *see* Exs. RBPP-113 at 3, RBPP-120 at 3, RBPP-132 at 2 (calculations for PSV-1280, 1281, and 1301 in 2011). As the ALJ held, these facts establish five violations of § 1910.119(d)(3)(ii), which presumes that equipment that is out of compliance with RAGAGEP is dangerous, and therefore requires employers to document compliance with RAGAGEP. Dec. 22-23, 26-28.

The vacated violations of § 1910.119(j)(5) are separate and distinct from the affirmed items. In the vacated citations, the Secretary alleged that BP failed to correct deficiencies in equipment (the five valves listed above) that are outside acceptable limits (as defined by the process safety information in 1910.119(d)) before further use or in a safe and timely manner when necessary means are taken to assure safe operation. Citation at 59, 61, 65, 67, 69. The ALJ vacated these citations because she found that by the time the inspection began BP had already put interim measures in place to assure safe operation of the equipment until the deficiencies could be corrected. Dec. 23-25, 28.

However, these interim measures did not bring the equipment into compliance with RAGAGEP. Consequently, they did not remedy the violation of § 1910.119(d)(3)(ii), which requires documentation of *compliance* with RAGAGEP. The interim measures merely acted as stopgap measures—protecting employees until BP meets its obligations under § 1910.119(d)(3)(ii) and documents compliance with RAGAGEP.

BP argues that the ALJ's vacation of the alleged violations of § 1910.119(j)(5) and affirmance of the violations of § 1910.119(d)(3)(ii) is unfair. *See* BPNA PDR 20-23. In essence, BP is arguing that it is not fair to hold them responsible for violating one provision related to the cited valves, when it is in compliance with another. However, BP fails to recognize that the two provisions cited here are independent obligations. To comply with § 1910.119(d)(3)(ii), employers must document that their equipment complies with RAGAGEP. Failure to do so is a violation of the PSM standard. But OSHA was realistic when it drafted the PSM standard—it recognized that sometimes employers do not carry out their obligation to document compliance with RAGAGEP and, thus, expose their employees to the risk of serious injury or death. Consequently, OSHA included provisions like § 1910.119(j)(5) in its standard, which focuses on the “when” of protecting employees. As explained in the preamble to the final PSM standard, the purpose of the proposed provision on which (j)(5) was based “was to require equipment deficiencies to be corrected *promptly* if the equipment was outside acceptable limits specified in the process safety information.” 57 Fed. Reg. 6391. Put another way, employers violate (j)(5) if they do not remove the deficient equipment from service or take other measures to ensure safe operations until it can be repaired. This provision ensures that deficient equipment does not harm employees before the deficiencies can be corrected. An employer's failure to act promptly to protect its employees from deficient equipment is a separate violation from the failure to document RAGAGEP compliant equipment, and, thus, the ALJ's holding affirming the § 1910.119(d)(3)(ii) violations was in no way unfair.

BP's mistaken notion that § 1910.119(d)(3)(ii) is "a documentation requirement" also does not invalidate the ALJ's affirmance of Items 13a, 14a, and 16a-18a. Although § 1910.119(d)(3)(ii) is written to require "documentation of compliance with RAGAGEP," it requires far more than paperwork. The testimony about PSV-115, the valve cited in Item 13a, offers a useful example. PSV-115, which was installed in 1995, provides protection to the Recycle Isobutane Coalescer. Tr. 367-68; Ex. RBPP-84 at 2-4, 26. Documenting compliance with RAGAGEP necessarily entails determining whether it complies with RAGAGEP. In order to make this determination, BP hired Middough. *See* Tr. 2914-17. Middough, then, had to perform a number of actions, including finding the correct RAGAGEP, deciding which relief scenarios applied to the equipment (under the applicable RAGAGEP), calculating the relieving rate required under the scenarios, determining the relieving rate provided by PSV-115, and comparing the rate provided by PSV-115 with the required rate to see whether the equipment complied with RAGAGEP. *See* Tr. 366-72 (OSHA Safety Engineer James Lay describing various Middough determinations and calculations for PSV-115). When these calculations indicated that the valve did not comply with RAGAGEP, the only way to remedy the violation of § 1910.119(d)(3)(ii) would be to take the actions necessary to bring it into compliance with RAGAGEP and, then, document compliance. BP did not take these necessary actions and, thus, violated § 1910.119(d)(3)(ii). *See* Dec. 23 (citing Tr. 1607-10, 3005-11 and noting that BP "implemented interim actions...pending a permanent solution").

**IV. The ALJ Erred in Vacating Item 15a Based on Lack of Employee Exposure and 15b Based on Failure to Prove Noncompliance with the Standard.**

*A. The ALJ Erred in Vacating Item 15a Because the Weight of the Evidence Shows that Employees Were Exposed to the Cited Hazard.*

Item 15a alleged that BP failed to document that PSV-136, which provided protection to the Second Stage Butane Treater Drum, complied with the applicable RAGAGEP, as required by § 1910.119(d)(3)(ii). Citation at 62. Specifically, the Secretary alleged that PSV-136 was undersized

and did not have an adequate relieving rate during relief scenarios. *Id.* BP does not dispute that PSV-136 was undersized based on the relevant RAGAGEP.<sup>41</sup> *See* Dec. 25. Instead, the dispute centers on whether BP's employees had access to the violative condition. Because the ALJ found that the pressure vessel was drained and taken out of service in May 2009, four months before OSHA's inspection began, she held that the undersized relief valve did not pose a hazard to BP's employees. Dec. 25. The ALJ's holding, which ignores conflicting evidence and misconstrues the testimony of one of OSHA's witnesses, is erroneous.<sup>42</sup> The great weight of the evidence indicates that the Treater Drum was not taken out of service until after OSHA's inspection, and thus employees were exposed to the cited hazard.

Three of BP's employees gave conflicting testimony about when the Treater Drum was drained and taken out of service. Rich Rothbard, an operations coordinator at the Ohio refinery (Tr. 3586), testified that the Treater Drum was taken out of service in 2007 (Tr. 3588). Tim Smith, the BP Technical Manager (Tr. 1711-12), stated that the Treater Drum was drained and taken out of service approximately two years later, in May of 2009 (Tr. 3012-13). David Hasselbach, BP's Relief Systems Technical Authority (Tr. 1585-86), indicated that the Treater Drum was drained and taken out of service *during* the inspection (Tr. 1638-1639). The ALJ erred in failing to consider and weigh this

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<sup>41</sup> BP also does not appear to have contested the fourth prong of the Secretary's prima facie case at trial, i.e., that the cited employer knew or could have known of the condition with the exercise of reasonable diligence. *See Astra Pharm. Prods, Inc.*, 9 BNA OSHC at 2129. Indeed, BP did not challenge this element in its post-hearing briefs, focusing instead on arguing only that BP's alleged lack of actual knowledge precluded a finding of willfulness. *See* BPNA Post-Hr'g Br. 55-62; BP-Husky Post-Hr'g Brg. at 36-38, 103-04. Neither party argued that BP lacked knowledge of the cited condition in its PDR. *See* BPNA PDR; BP-Husky PDR.

<sup>42</sup> BP argues that the ALJ did not ignore the conflicting evidence, but rather made a credibility determination. *See* BPNA PDR 17-18. However, as the Commission explained in *L.E. Myers*, "a valid credibility determination requires some support." 16 BNA OSHC 1037, 1047 n. 17 (No. 90-045, 1993) (citation omitted). Here, as in *L.E. Myers*, the ALJ failed "to give any reason for rejecting [the evidence cited by the Secretary], but, in h[er] decision, the judge appears to have totally ignored [the cited evidence]." *Id.* "Therefore, the judge's finding cannot be considered a credibility determination to which the Commission must defer." *Id.*

conflicting testimony. *See Local No. 627, AFL-CIO v. NLRB*, 518 F.2d 1040, 1047 & n. 14 (D.C. Cir. 1975), *aff'd sub nom and rev'd on other grounds, South Prairie Constr. Co. v. Local No. 627, AFL-CIO, NLRB*, 425 U.S. 800 (1976) (appellate court reviewing administrative board decision must ensure that the administrative body gave “reasoned consideration to all the material facts and issues” and “articulate[d] with reasonable clarity...[the] reasons for [the] decision, and [] identif[ied] the significance of crucial facts.”).

The ALJ also failed to consider three exhibits on this point. The first piece of evidence, the May 20, 2009 “operators [sic] log,” indicated that the Treater Drum had not been drained as of that date. Ex. RBPP-184 at 2 (“The petrico treater is being mothballed. The caustic is out and waiting on om&s to be able to push the butane out.”) (Joseph Guidera, a BP process operator (Tr. 2111), discussing the operators log). The second and third items, the tracking sheet prepared by BP employees to resolve pressure relief equipment issues identified by Middough and the December Middough report, both indicated which equipment was out of service. *See, e.g.*, Exs. CX-2 at 2, 3, 9; CX-3 at 16, 29, 46. The Treater Drum at issue here was not included on either list.

In addition to ignoring three exhibits and failing to resolve the conflicting witness testimony, the ALJ misconstrued testimony given by George Yoksas, OSHA’s area director for its Milwaukee office. Dec. 25. The ALJ states that A/D Yoksas “conceded there was no hazard to employees posed by PSV-136.” Dec. 25 (citing Tr. 191). A/D Yoksas, however, actually testified that he did not know whether the Treater Drum had been drained. Tr. 191. Only in response to a hypothetical posed to him by the questioning attorney, Mr. Yoksas opined that *if* the vessel was drained and out of service at the time of the inspection, *then* there would be no hazard. *Id.* The ALJ’s failure to appropriately consider and weigh this and the other relevant pieces of evidence was erroneous. *See Wensel v. Director, OWCP*, 888 F.2d 14, 16 (3d Cir. 1989) (stating that “there is a particularly acute need for some explanation by the ALJ when s/he has rejected relevant evidence or when there is conflicting

probative evidence in the record”). The ALJ’s decision on this item is not supported by the weight of the evidence, and should be reversed and the citation affirmed.<sup>43</sup>

B. *The ALJ Erred in Vacating Item 15b Because BP Failed to Correct the Deficiencies in PSV-136 as Required by § 1910.119(j)(5).*

Item 15b alleged that BP violated § 1910.119(j)(5) by failing to correct the deficiencies in PSV-136 before further use or in a safe and timely manner. Citation at 63. The ALJ held that the Secretary failed to establish that BP was not in compliance with the standard because BP took the Treater Drum out of service prior to OSHA’s inspection. Dec. 25-26. As discussed above, the ALJ erred in failing to consider evidence that the Treater Drum was not taken out of service and drained prior to the inspection; if, as the weight of the evidence demonstrates, the Treater Drum was still in service at the time of the inspection, BP violated § 1910.119(j)(5) because it had failed to correct the noted deficiencies.

V. **The ALJ Erred in Vacating Items 19-27 Because BP Should Have Known that the Cited Pressure Vessels Lacked Appropriate Pressure Relief.**

A. *The ALJ Erred in Vacating Items 19a-27a Because BP Had Constructive Knowledge of the Missing Pressure Relief Devices Prior to the Inspection.*

Items 19a-27a addressed the lack of pressure relief devices on a series of pressure vessels - eight heat exchangers (Items 19a-22a and 24a-27a) and the Stripper Reboiler Condensate Pot (Item 23a). The Secretary alleged that BP failed to document that these vessels complied with RAGAGEP. Citation at 70, 72, 74, 76, 78, 80, 82, 84, 86. The ALJ agreed that BP failed to comply with the relevant RAGAGEP and that employees in the Ohio refinery were exposed to the hazard, but vacated

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<sup>43</sup> The Commission can render judgment on all issues it could decide as the initial decision-maker. *Stevens Equip. Co.*, 1 BNA OSHC 1227, 1229 (No. 1060, 1973) (citing the Administrative Procedure Act § 6, 5 U.S.C. § 557(b) (2000)). It may disagree with an ALJ’s decision on questions of law, and, giving due regard to the ALJ’s credibility findings, may also disagree on issues of fact. *See id.*; *see also Little Beaver Creek Ranches*, 10 BNA OSHC 1806, 1810 (No. 77-2096, 1982) (“The Commission is not limited to the role of a reviewing court that must sustain factual findings of administrative agencies if such findings are supported by substantial evidence.”).

the citation due to lack of employer knowledge.<sup>44</sup> Dec. 30-31. Specifically, she found that BP first learned of the missing pressure relief devices in the December 2009 Middough report.<sup>45</sup> Dec. 31. She also determined that BP did not have constructive knowledge of the missing pressure relief devices because discovering their absence is difficult. Dec. 31. The ALJ's holdings misconstrue the Commission's decisions on constructive knowledge and undermine the requirements of the standard.

An employer is charged with knowledge of a hazard if it knew, or with the exercise of reasonable diligence could have known, of the presence of the violative condition. *Revoli Constr. Co.*, 19 BNA OSHC 1682, 1685 (No. 00-0315, 2001). To exercise reasonable diligence, an employer must make a reasonable effort to anticipate the hazards to which its employees may be exposed and take the necessary steps to prevent such exposure. *Automatic Sprinkler Corp. of Am.*, 8 BNA OSHC 1384, 1387 (No. 76-5089, 1980); *Sw. Bell Tel. Co.*, 7 BNA OSHC 1058, 1059 (No. 15841, 1979). Specifically, an employer must inspect the area to determine what hazards exist or may arise during the work before permitting employees to work in an area, and must give appropriate instructions to prevent exposure to unsafe conditions. *Automatic Sprinkler*, 8 BNA OSHC at 1387.

The ALJ's ruling on constructive knowledge diminishes an employer's duty to exercise reasonable diligence. In essence, she held that an employer cannot be found to have constructive knowledge of a violative condition, unless the condition is easy to find. *See* Dec. 31. This reasoning is contrary to Commission precedent. An employer's duty to exercise reasonable diligence requires "a reasonable effort to anticipate the hazards to which its employees may be exposed." *Automatic*

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<sup>44</sup> Neither BP nor BP-Husky's PDR challenged the ALJ's findings on compliance with the terms of the standard or employee access to the violative conditions. *See* BPNA PDR; BP-Husky PDR.

<sup>45</sup> This finding was also erroneous in substantial part. As noted above, Middough noted that six of the cited exchangers (those cited in Items 19-22, 24, and 25) and the Stripper Reboiler Condensate Pot (cited in Item 23) lacked appropriate pressure relief in August of 2009. Tr. 816; *see* Ex. RBPP-01 at 501, 517, 533, 549, 564, 580, 594. OSHA obtained the Middough reports from BP. Tr. 618. Thus, BP must have had a copy of the August report and had *actual*, as well as constructive, knowledge of the violations described in Items 19-25.

*Sprinkler Corp.*, 8 BNA OSHC at 1387. Thus, the relevant question is not whether a particular hazard is obvious or easily found, but rather, whether the employer made a reasonable effort to think through the hazards to which its employees might be exposed, given the circumstances surrounding their work.<sup>46</sup>

To be sure, there are times where a violative condition will be obvious. In those cases, detection of the condition might require little more than a walk around a worksite. For example, where a jobsite requires employees to work at heights of six feet or more, an employer *might* be able to tell that its employees are not wearing necessary fall protection by simply glancing at the workers and the worksite before work begins. Similarly, an experienced excavation contractor *might* notice that a trench lacks necessary cave-in protection the moment he or she walks onto a construction site. However, the employer and the contractor are not excused from anticipating less obvious hazards to which their employees might be exposed. Likewise, employers in more complex workplaces, like refineries, are not excused from thinking through possible hazards and exercising reasonable diligence to identify and remedy violative conditions simply because the nature of their work and the equipment involved make those conditions tricky to uncover.

Here, record evidence, which was ignored by the ALJ, shows that an examination of the P&IDs for the cited vessels could have revealed that the vessels lacked the required pressure relief devices. *See, e.g.*, Tr. 385-421, 805-08, 820-21, 829-41, 1599; Ex. CX-2 at 10. Even BP technical authority David Hasselbach, who claimed that the lack of pressure relief devices was not “readily

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<sup>46</sup> In its PDR, BP-Husky appears to be citing David Hasselbach’s testimony that he was surprised by Middough’s discovery of the missing pressure relief devices because “we had been through PHAs over the years and we had good teams looking at these every five years and we hadn’t caught this in the past” as evidence that BP inspected the pressure vessels. Tr. 1598; *see* BP-Husky PDR 13. However, Mr. Hasselbach could not explain whether the PHAs were done to identify deficiencies in the equipment’s process safety information or if they are done based on the process safety information. Tr. 1598. He also did not testify to having been “involved in any PHA teams” at BP. *See id.* In fact, BP did not offer any evidence to show that the PHA teams checked to see if the cited vessels had appropriate pressure relieving devices.

apparent” from reviewing the P&IDs or a field examination, admitted that there were “some signs [BP] should have caught.” Tr. 1599. In addition, OSHA’s representatives, one of whom was not a chemical engineer, easily read the P&IDs in court and testified that the drawings reflected the lack of a pressure relief device.<sup>47</sup> Tr. 385-421, 805-08, 829-41. Moreover, CSHO Sternes verified the lack of pressure relief devices by viewing all but two of the vessels in the field with BP managers. Tr. 820-21. And Middough identified the lack of pressure relief devices during its audit. Ex. CX-2 at 10.

The ALJ’s holding also improperly limits the requirements of the cited standard. Under § 1910.119(d)(3)(ii), employers must “document that equipment complies with [RAGAGEP].” An employer cannot document whether a particular piece of equipment complies with RAGAGEP without assessing or inspecting that particular piece of equipment and examining the relevant process safety information to determine whether it meets the various RAGAGEP requirements. Where an employer does not inspect its equipment to document compliance, it should not be permitted to avoid responsibility by explaining that determining compliance with RAGAGEP would have been difficult.

B. *The ALJ Erred in Vacating Items 19b-27b Because BP Had Constructive Knowledge of the Missing Pressure Relief Devices Prior to the Inspection and Should Have Corrected the Deficiencies Before the Inspection.*

Items 19b-27b also involved the missing pressure relief devices. The Secretary alleged that BP failed to correct the equipment deficiencies before further use or in a safe and timely manner, in

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<sup>47</sup> In their respective PDRs, BPNA and BP-Husky take issue with the Secretary’s characterization of the difficulty of identifying relief system protection on heat exchangers. *See* BPNA PDR 12; BP-Husky PDR 13. For example, BPNA claims that the Secretary’s statement that OSHA’s representative “easily read the P&IDs” is “an egregious mischaracterization of the testimony.” BPNA PDR 12. To illustrate its point that the CSHO could not “easily” read the P&IDs, BPNA directs the Commission to review the fifty-one pages of testimony in which the CSHO discusses the P&IDs. *Id.* This argument misinterprets the Secretary’s point—the Secretary does not dispute BPNA’s contention that P&IDs are complicated documents that take time to explain. Rather, the Secretary contends that if an OSHA representative, who is not a chemical engineer, can read the P&IDs and identify the lack of pressure relief devices on these complex documents without difficulty at trial, it follows that BP’s engineers and other experts who are familiar with the Ohio refinery should be able to do so as well.

violation of 29 C.F.R. § 1910.119(j)(5). Citation at 71, 73, 75, 77, 79, 81, 83, 85, 87. The ALJ's decision on these items relies on her lack of employer knowledge finding on Items 19a-27a. Dec. 32. She appears to hold that BP's duty to correct deficiencies under the standard did not arise until the date on which BP had knowledge of the deficiencies. Dec. 32. Because she found that BP did not have actual or constructive knowledge of the missing pressure relief devices until they received the Middough report in December 2009, she implies that the duty did not arise until that date. Dec. 32. The ALJ also found that BP implemented interim measures to correct the deficiencies after receiving the Middough report. Dec. 32.

As explained above, the Secretary disagrees with the assumptions underlying this holding, and the ALJ therefore also erred in vacating these items. BP had constructive knowledge of the missing pressure relief devices before they received the Middough report. At a minimum, BP should have noticed the missing pressure relief devices during the initial PHA, which had to be completed by May 26, 1997, or in one of the three required PHA revalidations. *See* 29 C.F.R. § § 1910.119(e)(1)(iv), (e)(6). Nevertheless, the deficiencies remained unabated (with no interim measures in place) until at least December 2009. *See* Dec. 32; Tr. 846.

#### **VI. The ALJ Erred in Vacating Items 31a and 31b Because BP Failed to Address the Fire Water System's Cross-Connections in its PHA.**

The ALJ erred in vacating Item 31a because BP failed to address the fire water systems cross-connections in its PHA, as required by 29 C.F.R. § 1910.119(e)(3)(i), and 31b because BP did not document that the system was designed, maintained, inspected, tested, and operated in a safe manner, as required by § 1910.119(d)(3)(iii). The ALJ vacated these items because she found that a post-inspection evaluation of the cross-connections indicated that "there is no credible risk of hazard..." Dec 41. She erroneously reasoned that if there was no hazard, "there was no need for BPNA's PHA team to address the hazards of the process." *Id.*

This holding misconstrues an employer’s responsibilities under the PSM standard. Among other things, the PSM standard requires employers to document that the equipment is safe to operate and to perform a hazard analysis. 29 C.F.R. § 1910.119(d)(3)(iii), (e)(3)(i). OSHA is then responsible for checking to see whether employers have performed the required documentation and hazard analysis.<sup>48</sup> OSHA is not responsible for performing a hazard analysis. Because the standard presumes the hazard, the Secretary is required to show only that the employer failed to comply with its terms. See *Trinity Indus. Inc.*, 15 BNA OSHC 1481, 1486 (No. 88-2691, 1992); *StanBest, Inc.*, 11 BNA OSHC 1222, 1231 (No. 76-4355, 1983) (citing cases). “When a standard prescribes specific means of enhancing employee safety, a hazard is presumed to exist if the terms of the standard are violated.” *Randalls Food and Drugs, Inc.*, 20 BNA OSHC 1587, 1592 (No. 02-1398, 2003). In any event, even if the Secretary were required to demonstrate a hazard, the record evidence establishes that one clearly exists.

A. *PHA Requirements Apply to BP’s Fire Water System and BP Failed to Comply with Them.*

The PSM standard requires employers to undertake an initial PHA on processes covered by the standard. See 29 C.F.R. § 1910.119(e)(3)(i). It also requires employers to update and revalidate the PHA every five years. § 1910.119(e)(6). As explained in the preamble to the final PSM rule, “[by] properly performing a hazard analysis, the employer can determine where problems may occur, take corrective measures to improve the safety of the process and preplan the actions that would be necessary if there were a failure of safety controls or other failures in the process.” 57 Fed. Reg. at 6375. The standard also requires employers to document that existing equipment that was designed and constructed under obsolete codes, standards, or practices is operating in a safe manner.

§ 1910.119(d)(3)(ii).

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<sup>48</sup> OSHA expressly rejected having compliance personnel perform hazard analyses to determine coverage. 57 Fed. Reg. at 6366.

As explained above, *supra* p. 23, RAGAGEP calls for refinery fire water systems to be independent of other water systems. Tr. 3276, 3279-80; Ex. JX-1 at 10-11. This practice ensures that fire water will be available in case of fire, and guards against the risk that the fire water may be contaminated by hydrocarbons. Tr. 3279-82; *see* Ex. JX-1 at 10 (BP Corporate Audit stating that “permanent connections between the fire water system and any process system shall be prohibited to prevent contamination by any process fluids”).

Because the Ohio refinery was built before RAGAGEP began requiring independent fire water systems, its fire water system included a number of cross-connections. Although refinery management has been removing the cross-connections between the refinery’s fire water system and other systems since the 1980s, BP’s corporate audit team found five unresolved connections in May of 2009. Tr. 948-50; Ex. JX-1 at 10-11. The team’s listed corrective actions that should be taken with regard to these connections included analyzing the “worst case capacities of these cross-connections to assess how much fire water could potentially be diverted from the fire water system for non-fire water uses,” and “inclusion of these cross-connections in a [PHA] for an assessment of the reverse flow risk.” Ex. JX-1 at 11.

When OSHA began its inspection in September of 2009, BP had not completed these tasks. OSHA CSHO Chad Positano reviewed the audit findings and questioned BP representatives, including the Ohio refinery’s emergency response specialist, Chris Herman, about the connections. Tr. 950-56, 3414. BP located the connections on the fire water site plan for CSHO Positano, but it did not provide any documentation that the locations had been analyzed and found to comply with applicable RAGAGEP, or to not pose a risk to fire-fighting capability. Tr. 955-56. No PHAs or risk analyses pertaining to the cross-connections were introduced at the hearing.<sup>49</sup> Tr. 3418-22.

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<sup>49</sup> BP claims that the Secretary did not request the documentation required under the standard. *See* BP-Husky PDR 16. However, the testimony cited on this point shows only that CSHO Positano could not remember whether OSHA had asked for “the design documents for the fire water connections.”

Instead of offering evidence that the company had assessed and documented potential hazards posed by these cross-connections, as required by the standard and recommended by BP's corporate audit, BP offered testimony by two witnesses: expert Bradley Wolf and emergency response specialist, Chris Herman. Tr. 3263-3412, 3414-3426. Both of these witnesses testified that they did not believe that the cross-connections cited by OSHA posed a hazard.<sup>50</sup> Tr. 3285, 3417. However, *neither* of these witnesses testified that they analyzed the connections prior to OSHA's inspection, as required by the cited standards. *See* § 1910.119(d)(3)(iii) and (e)(3)(i). Nevertheless, BP argued, and

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Tr. 964; *see* Tr. 964-65. CSHO Positano's ability to recall whether OSHA requested a single set of documents in this case is immaterial. During discovery OSHA asked for "[a]ny and all risk analyses or other documents relating to the cross-connections between the process water systems and plant firewater systems identified in Citation No. 2, Item 31a." Sec'y's First Request for Production at 3-4. If BP had documents to show it had determined and documented that the equipment was designed, maintained, inspected, tested, and operated in a safe manner, it should have been submitted in response to this discovery request. In addition, BP's argument ignores CSHO Positano's testimony about his interviews with BP's health and safety representatives, review of BP's fire water site plan, and, most importantly, the findings of BP's own internal audit group that the connections potentially posed a hazard. *See* Tr. 949, Ex. JX-1 at 10-11.

<sup>50</sup> In its PDR, BP claims that Mr. Herman testified that he participated in "multiple PHA[s] where they discussed fire risk exposures and the cross-connections." BPNA PDR 16 (citing Tr. 3415-16). BPNA also claims that Mr. Herman "testified that the [Ohio r]efinery PHA teams determined that there was no credible risk of contamination from the cross-connections." *Id.* at 16 (citing Tr. 3416-17). These claims misinterpret Mr. Herman's testimony. On the cited pages, Mr. Herman is discussing his previous involvement in PHAs at the Ohio refinery. Tr. 3416-17. His testimony establishes that he has been involved in four to eight PHAs each year at the refinery, is invited to participate in most (but not all) of the refinery's PHAs, and is usually invited to participate to "evaluate fire risk exposures, facility siting, things of that sort." Tr. 3416. However, when counsel for BP asked him whether he had "been involved in PHAs where [he had] identified--the PHA identified particular issues involving cross-contaminations?" Tr. 3416. He indicated only that "There are places in the PHA where fire water systems are used, yes." Tr. 3416. He also testified that the places in the PHA where fire water systems are used have been addressed in PHAs in this past. Tr. 3416-17. In addition, he stated that he did not believe that there was a credible risk of cross-contamination in the cross-connections. Tr. 3417. Finally, he testified that *if* he had been on a PHA team that was analyzing these particular cross-connections, that would have been addressed in writing in the PHA (as having been evaluated "and whatever condition came out of that evaluation would be noted"). Tr. 3417. Although these statements do establish that Mr. Herman does not believe the cross-connections posed a hazard, none of them establish that he participated in one or more than one PHA in which *any* cross-connections (much less the *cited* cross-connections) were discussed or that *any* PHA team actually evaluated the cited cross-connection.

the ALJ agreed, that Mr. Wolf and Mr. Herman's post-inspection evaluations of the connections established that no hazard existed and, thus, BP did not need to address the cross-connections as "hazards of the process" under § 1910.119(d)(3)(iii) and (e)(3)(i). Dec. 41.

This "no harm, no foul" defense misses the point of the cited provisions. The applicable RAGAGEP requires fire water systems to be independent of other water systems. Tr. 3276, 3279-80; Ex. JX-1 at 10-11. Cross-connections are *potential* hazards. See Tr. 3279-82 (discussing general "concerns" with cross-connections). As potential hazards, they should have been addressed under BP's initial PHA, which was to be completed by May 26, 1997, and in subsequent PHAs, in accordance with § 1910.119(e)(3)(i).<sup>51</sup> See also 29 C.F.R. § 1910.119(e)(1). Here, they were not. The PSM standard simply does not allow employers to roll the dice and hope that unassessed potential hazards are not actually hazardous. BP's repeated failure to complete these required assessments and to document that the fire water system was designed, maintained, inspected, tested, and operated in a safe manner, as required by § 1910.119(d)(3)(ii), continued through the OSHA inspection in 2009. OSHA therefore properly cited BP for violations of § 1910.119(d)(3)(iii) and (e)(3)(i).

B. *The Hazards Posed by the Ohio Refinery's Fire Water System*

As discussed above, the requirements found in § 1910.119(d)(3)(iii) and (e)(3)(i) presume the hazard. See *supra* pp. 65-66. OSHA is therefore not required to show a hazard exists to establish a violation of these provisions. See *Randalls*, 20 BNA OSHC at 1592. Even assuming that OSHA was required to show that BP's fire water system was hazardous, the evidence clearly establishes this point, and the ALJ's contrary holding is in error. For example, the ALJ erred in vacating instance (e) of Items 31a and 31b based on Mr. Wolf's testimony because Mr. Wolf did not analyze the fire water

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<sup>51</sup> Mr. Herman admitted that if he had been on a PHA team that was analyzing the cited cross-connections that he would have addressed the cross-connections in writing. Tr. 3417. The PHA would have stated that the connections had been evaluated and whatever condition came out of that evaluation would be noted. *Id.*

booster pump connection.<sup>52</sup> This is because when he viewed the Ohio refinery in 2011, BP was replacing the old booster pump with a new pump. Tr. 3343-49; *see* Citation at 91-92 (Instances (e)). And, according to BP’s 2009 corporate audit, this connection posed a risk of contamination. *See* Ex. JX-1 at 11 (the main booster pump used “cooling water that could be contaminated by hydrocarbon leaks”).

In addition, the ALJ ignored the portions of Mr. Wolf’s testimony regarding the filter washing procedures in the Sulfur Recovery Unit. *See* Citation at 91-92 (Instances (c)). Mr. Wolf admitted there was a cross-connection and stated that preventing contamination depended on employees’ rigid adherence to administrative procedures. *See* Tr. 3334-35 (Mr. Wolf discussing one of the complex procedures). At a minimum, the risks that employees might fail to follow these rigid procedures should have been discussed in a PHA. *See* § 1910.119(e)(3)(i).

Finally, the ALJ noted, but failed to consider, CSHO Positano’s testimony that BP’s corporate audit team found evidence that the fire water connections potentially posed a hazard.<sup>53</sup> Dec. 39 (citing Tr. 949-950). The ALJ failed to explain why she chose to rely on Msrs. Wolf and Herman’s conclusions instead of those of BP’s audit team.

**VII. The ALJ Erred in Vacating Items 32-40 Because BP Failed to Establish a System to Assure that the PHA Team’s Recommendations for the Cited Buildings Were Resolved in a Timely Manner and Documented.**

Section 1910.119(e)(5) of the PSM standard requires employers to “establish a system to promptly address the [PHA] team’s findings and recommendations [and] assure that the recommendations are resolved in a timely manner and that the resolution is documented....” In Items

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<sup>52</sup> In the citation for Items 31a and 31b, the Secretary pled each cross-connection as a separate “instance.” *See* Citation and Notification of Penalty at 91-92. The ALJ did not discuss the evidence related to each of the instances alleged. She vacated all five instances based on Mr. Wolf and Mr. Herman’s testimony. *See* Dec. 39-41.

<sup>53</sup> The ALJ appears to reference the audit team’s June 3, 2009 report solely to explain how the Secretary initially knew about the cross-connections.

32 through 40, the Secretary alleged that BP failed to establish a system to assure that the facility-siting PHA recommendations for nine buildings were resolved in a timely manner and documented. Citation at 93-101. The ALJ vacated these items, finding that the Secretary failed to establish that the terms of the standard were violated. Dec. 45-47. Specifically, she found that the Secretary “failed to show that the refinery’s extensive project for building, moving, and remodeling its facility, using the inside-out strategy for risk assessment was not done in a timely manner.” Dec. 47. The ALJ’s holding ignores evidence that BP had known about the risks posed by these buildings for approximately *fifteen years* before OSHA’s inspection. *See* Ex. CX-92A at 2-6, 8-10. Such an extensive delay does not qualify as “timely” under the standard, nor were effective interim measures implemented. The Commission should therefore reverse the ALJ’s decision on these items.

A. *The ALJ Erred in Holding that an Abatement Period of More than Fifteen Years Qualifies as Timely Under the Standard.*

For over fifteen years, BP knew that the siting of the nine cited buildings posed a risk of serious injury or death to occupants from a vapor cloud explosion. Ex. CX-92A at 2-6, 8-10. A 1995 BP Oil Refining memorandum recommended the relocation and strengthening of four of the cited buildings as “cost-effective” strategies to abate the risk. Tr. 872-75; Exs. CX-94 at 5-7; CX-94A at 2, 5-7. Further studies in 2006 and 2008 reconfirmed that all the cited buildings would sustain at least moderate damage, with several buildings, including the Laboratory, collapsing in an explosion. Tr. 877-84, 887; Exs. RBPP-271 at 3, 6; RBPP-275 at 3, 5, 17; *see also* Ex. CX-11 at 173 (2007 independent safety review panel report warning that the technical consultants “in their professional judgment” considered the pace at which the Ohio refinery was addressing facility siting hazards in the process units was “too slow”).

In late 2009, at the time of the OSHA inspection, BP had not resolved these findings and recommendations. Tr. 883-86; *see* Ex. JX-1 at 44-45. There were no plans to control the hazards posed to the WGI Insulator’s Building (Item 32), the Blender Control Room (Item 33), the Boiler

Shop (Item 34), the E&I Shop (Item 35), the HSEQ Building (Item 36), the Main Office (Item 38), the WGI Administrative Building (Item 39), and the WGI Electrician's Building (Item 40).<sup>54</sup> Tr. 857-902, 945-47. The Ohio refinery was building a new laboratory but fourteen employees were still working in the old Laboratory building (Item 37). Tr. 921-23, 945-46.

BP's only defense, which was embraced by the ALJ, was that they were working on it. BP claims its "actions were not untimely given the context of its long-term, complex, resource-intensive facility siting program and thus were not in violation of the' cited standard." Dec. 43 (quoting BPNA's Post-Hr'g Br. 107). The siting program consisted of an "inside-out" strategy that addressed higher risks first by focusing on buildings located nearest to the process units and progressively working outward toward the perimeter of the Ohio refinery. Tr. 3627. The program reserved the highest priority for areas where employees worked around the clock and for employees who were closest to the process units. Tr. 1517-18, 3635-36. Lower priority was given to areas where employees worked farther away from the process units. Tr. 1517-18, 3635-36. The ALJ found that the cited buildings were part of the later phases of the program because they were located outside the process block. Dec. 42 (citing Tr. 4029). Although OSHA generally agrees that it is important to control greater risks first, delaying the abatement of other deadly hazards for fifteen years simply does not qualify as timely abatement, and the ALJ erred in holding to the contrary.

The ALJ's decision relied in large part on the fact that § 1910.119(e)(5) does not provide a timetable for the resolution of PHA recommendations or offer a sample schedule for completion. *See* Dec. 46-47. While the standard contains no set time frame to correct findings, a compliant system must "*promptly* address the [PHA] team's findings and recommendations" and the actions must be

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<sup>54</sup> The ALJ's decision lays out various steps taken or planned under the facility-siting program for each of the cited buildings. Dec. 43-45. However, she failed to recognize that the majority of these actions were taken *after* the inspection. *See e.g.* Dec. 44 (noting that "The Blender Control Room was completely depopulated" in 2011).

taken “*as soon as possible.*” § 1910.119(e)(5) (emphasis added). An abatement effort that lasts over fifteen years does not qualify as prompt. *See* 57 Fed. Reg. at 6379 (stating that “[i]t is OSHA’s intention that the actions to be taken as a result of the [PHA] recommendations be completed as soon as possible” and explaining that OSHA “believes that employers will be able to complete these actions within a one to two year timeframe, but notes that in unusual circumstances longer completion periods may be necessary”); *Randalls*, 20 BNA OSHC at 1591 (quoting 57 Fed. Reg. at 6379).

Moreover, not only had BP failed to resolve the findings and recommendations as to these buildings, the Ohio refinery did not even have specific plans on how the findings and recommendations as to eight of the nine buildings *would* be resolved in the future.<sup>55</sup> Tr. 857-902, 945-47. Instead of addressing this issue, BP pointed to the actions it had taken to resolve findings and recommendations as to *other* buildings; the large sum of money it has spent renovating and remodeling the refinery; the status of the cited buildings in the refinery’s overall facility siting plan, i.e., that they will be replaced during phase two or three; and the problems BP was encountering.<sup>56</sup> *See, e.g.*, BPNA Post-Hr’g Br. 107-108. What BP has *not* done is offer evidence of a firm plan for the eight buildings. The reason for this failure is clear from the record: no such plan existed. As explained by CSHO Chad Positano, there were no documented efforts to resolve the

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<sup>55</sup> As noted above, the new laboratory was under construction during the inspection. Tr. 921-23, 945-46.

<sup>56</sup> The Ohio refinery managers testified at length about activities addressing facility-siting hazards that BP had completed as part of a long-term plan to address risks in the process units first. Tr. 3625-58, 3663-3700, 4046-4117. This testimony is immaterial and distracts from the issue at hand: what BP had not done to resolve the hazards posed by the siting of the *cited* buildings. Equally irrelevant is the testimony by expert witness, John Steven Arendt, that seven of the cited buildings were low risk and would not have required abatement under a risk-based analysis. *See* Tr. 3929. Mr. Arendt’s post-inspection analysis does not negate the fact that BP had previously identified the buildings as risks (using a consequence-based analysis that met industry standards) and then failed to timely resolve the findings and recommendations that flowed from the risk identification. Instead, it is another instance of BP rolling the dice on its employees’ safety and then, when caught, doing yet another analysis to try to invalidate its own pre-inspection findings.

recommendations with respect to these buildings. Tr. 884-86. To the contrary, the documentation CSHO Positano received showed that the plans to abate these hazards were either in development or at risk of not being completed.<sup>57</sup> Tr. 887-89; Ex. RBPP-283 at 6.

B. *The Interim Measures Implemented at the Cited Buildings During the Fifteen Plus Year Abatement Period Do Not Satisfy § 1910.119(e)(5).*

The ALJ's decision also implies that the interim measures implemented by BP at the cited buildings excuse the lengthy delay. *See* Dec. 44-45 (summarizing BP's descriptions of interim measures taken for the cited buildings), 46 (quoting Mr. Arendt's testimony on interim measures). However, the ALJ failed to evaluate the sufficiency of the interim measures to prevent serious or fatal injuries caused by building collapse and damage from an explosion caused by overpressure. *See, e.g.*, Dec. 44. (ALJ noting that BP installed "film on the windows" of the E&I Shop prior to 2008). At the end of 2009, all of the cited buildings had employees working in them, and the only interim measures BP had taken for any of the buildings included: (1) applying window film; (2) moving *some*, but not all, employees out of the buildings; (3) securing lighting attachments; (4) posting building evacuation signs; (5) verifying the location of a nearby eyewash station; (5) upgrading the fire protection system (on one building only); (6) locating a fire extinguisher and ensuring its inspection was current; (7) checked on bottled air; and (8) trained employees in how to shut off the AC. Tr. 893-903, 915-928, 4111-12, 4122-24, 4126-28, 4138-39; Ex. RBPP-274. The argument that these interim measures were sufficient to mitigate the risk that the buildings might *collapse* or suffer significant building damage in an explosion is absurd, and the ALJ's reliance on these measures was therefore improper.

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<sup>57</sup> BP's failure to resolve the cited facility-siting hazards, as required by the standard, is in no way justified by the fact that the cited facilities were not cited following OSHA's 2007 inspection of the Ohio refinery. As explained more thoroughly above, both the D.C. Circuit and the Commission have rejected this type of argument. *See supra* at 48-49 (citing *Cedar Constr.*, 587 F.2d at 1306 and *Seibel Modern Mfg. & Welding Corp.*, 15 BNA OSHC at 1224).

In addition, the ALJ ignored the fact that the interim measures BP completed before OSHA began its inspection were not intended to resolve the largest hazard referenced in the Secretary's citation: "building collapse and damage due to explosion overpressures." *See* Citation at 93-101. The exhibit cited to by both BP and the ALJ as evidence of the interim measures is a spreadsheet entitled "ABS Building Survey July, 2008 Followup." Ex. RBPP-274. The spreadsheet contains five columns which identify: (1) the name of a building; (2) the finding/recommendation as to that building; (3) any observations; (4) follow up action; and (5) resolution.<sup>58</sup> *Id.* Each of the buildings cited by the Secretary is listed in the spreadsheet, and each building has a series of numbered questions or comments listed under the "findings/recommendations columns." *Id.* The specific questions or comments differ, but some are common to all of the cited buildings' lists. *Id.* The "observations" sections contain an "answer" with a number that corresponds to the question or comment. *Id.* For example, each of the buildings has a finding/recommendation that reads "Windows assessed for injury to occupants?" *Id.* The corresponding observations state that "Film was installed on windows." *Id.*

Another finding/recommendation that appears in the column for eight of the nine cited buildings (all except for the Laboratory) asks "Building reviewed for ability to withstand over pressure?" *Id.* The corresponding observations state that the "Building was reviewed." *Id.* The follow up actions, which are also correspondingly numbered, provide "In plan to replace - in order of risk ranking. Nothing else required." *Id.* None of the other interim measures, which were referenced by the ALJ and exhaustively catalogued by BPNA and BP-Husky in their post-hearing briefs purport to address this major hazard: that the cited buildings may not be able to withstand an explosion. As indicated by the 1994 risk assessment and the 2006 report, the cited buildings were at risk of collapse or could suffer significant building damage. Tr. 876-77; Exs. CX-92A at 2-6, 8-10; RBPP-275. Even

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<sup>58</sup> The "resolution" column is blank. *See* Ex. RBPP-274.

the HSEQ Building, the only building with a BDL below 3, could sustain heavy building damage in the event of a blast and the walls facing the blast could sustain major damage. Ex. RBPP-275 at 5. Again, BP's minor interim measures were not intended to mitigate this risk. Consequently, the ALJ's reliance on these measures was inappropriate.

### **VIII. BP Willfully Violated the PSM Standard.**

“The hallmark of a willful violation is the employer's state of mind at the time of the violation — an intentional, knowing, or voluntary disregard for the requirements of the Act or plain indifference to employee safety.” *Altor, Inc.*, 23 BNA OSHC 1458, 1466 (No. 99-0958, 2011), *aff'd*, 23 BNA OSHC 2073, 498 Fed. Appx. 145 (3d Cir. 2012) (quoting *Kaspar Wire Works, Inc.*, 18 BNA OSHC 2178, 2181 (No. 90-2775, 2000), *aff'd*, 268 F.3d 1123 (D.C. Cir. 2001) (internal alterations omitted). “A willful violation is differentiated by heightened awareness of the illegality of the conduct or conditions and by a state of mind of conscious disregard or plain indifference....” *Hern Iron Works, Inc.*, 16 BNA OSHC 1206, 1214 (No. 89-433, 1993). “This state of mind is evident where ‘the employer was actually aware, at the time of the violative act, that the act was unlawful, or that it possessed a state of mind such that if it were informed of the standard, it would not care.’” *Altor, Inc.*, 23 BNA OSHC at 1466 (quoting *AJP Constr. Inc. v. Sec'y of Labor*, 357 F.3d 70, 74 (D.C. Cir. 2004) (internal alterations omitted)). “[A]n employer's prior history of violations, its awareness of the requirements of the standards, and its knowledge of the existence of violative conditions are all relevant considerations in determining whether a violation is willful in nature.” *MJP Constr. Co.*, 19 BNA OSHC 1638, 1648, (No. 98-0502, 2001), *aff'd without published opinion*, 56 F. Appx. 1 (D.C. Cir. 2003). Applying this legal standard, the ALJ's decision to reclassify the affirmed violations as serious, rather than willful, is not supported by the record. The record evidence establishes that these items, as well as many of the vacated items, are properly classified as willful.

A. *The ALJ Erred in Reclassifying Items 13a-14a and 16a-18a as Serious.*

The ALJ erred in reclassifying the violations alleged in Items 13a and 14a. These items related to two pressure safety valves in the ALKY Unit, PSV-115 and PSV-124. The Secretary alleged that BP failed to document compliance with RAGAGEP by ensuring that the valves were properly designed. Citation at 58, 60. The citation further charged that both of the valves were undersized and did not have an adequate relieving rate. *Id.* The ALJ affirmed the citation (Dec. 23), but found that there was no evidence that BP had a heightened awareness of illegality regarding the valves' deficiency (Dec. 50). Specifically, she found that "[n]othing in the record indicates an intentional, knowing or voluntary disregard for the requirements of the Act or plain indifference to employee safety. [BP] self-identified the valve deficiencies and then took steps to ensure safe operation of the equipment until it could replace the valves. There is no illegality of either [BP's] conduct or the cited conditions, and thus no heightened awareness of illegality." Dec. 50.

As discussed above, *supra* pp. 57-58, documenting compliance with RAGAGEP necessarily includes conducting a thorough inspection of the equipment. As seen in the Texas City disaster in 2005, an employer's failure to ensure the adequacy of its safety relief equipment can lead to catastrophe. *See* Tr. 543; CX-11 at 4; [www.csb.gov](http://www.csb.gov). In the aftermath of the Texas City accident, BP followed the recommendation of the U.S. Chemical Safety and Hazard Investigation Board and formed an independent panel to conduct a thorough review of the company's corporate safety culture, safety management systems, and corporate safety oversight at its U.S. refineries. Ex. CX-11 at 4. In 2007, the panel noted issues at the Ohio refinery related to the inspection of relief valves, including postponed inspections. *Id.* at 167. The proper operation of these valves is crucial because they are the last line of defense against an overpressure that could result in the loss of containment of hot hydrocarbons that could explode and burn, causing death and injury. Tr. 542-43, 552-53, 2877-78.

In addition to having a heightened awareness of the need to inspect equipment to determine whether it complies with RAGAGEP, BP knew from previous citations that the standard required pressure safety valves to be adequately sized. As noted above, OSHA's 1991 inspection of the Ohio refinery resulted in citations for violations related to undersized pressure relief valves. *See* CX-38 at 3. Prior citations for the same or similar standards are evidence of the employer's intentional disregard of or plain indifference to its safety obligations under the Act. *See Cedar Constr.*, 587 F.2d at 1305-1306 (employer found to have willfully violated excavation safety standards because it was aware of standards since it had been cited three times before for the same standards).

PSV-115 and PSV-124 were installed in the Ohio refinery in 1995 and 1999, respectively. Tr. 367-68, 372-74. BP's failure to carefully inspect the valves, discover that the pressure safety valves had inadequate relieving rates, and correct the deficiencies during the *decade* prior to OSHA's inspection is inexcusable. Given BP's heightened awareness of the importance of pressure safety valves following the panel's 2007 report and the company's knowledge of the need for adequate relieving rates, its failure to ensure that these valves complied with RAGAGEP amounted to plain indifference to employee safety.

The ALJ also erred in reclassifying the violations described in Items 16a, 17a, and 18a as serious. These items related to three relief valves that protect the FCC Feed Drum. The Secretary alleged that BP failed to document compliance with RAGAGEP by ensuring that the valves had back pressure of less than or equal to 10% of its set pressure. The ALJ affirmed the citation, but found that there was no evidence that BP had a heightened awareness of illegality regarding the relief valves. Dec. 51. This holding ignores evidence that BP management had actual knowledge of specific RAGAGEP deficiencies with respect to this equipment for decades.

Management at the Ohio refinery first became aware of the hazards posed by the FCC Drum from water contamination in the early 1970s. Tr. 3088-90. More than twenty years later, in 1998,

BP's consultant, Stewart & Bottomly, warned the company that PSV-1280 and PSV-1281 (the valves cited in 16a and 17a, respectively), which relieved to the flare system, were subject to excessive built-up back pressures. Tr. 356-57, 361-62, 2978; Ex. RBPP-38 at 49. In response to the 1998 report, BP installed "trip systems" to reduce energy input in the event of a power outage to the cooling system. Tr. 2978-80.

The valve cited in 18a, PSV-1301, which relieved to a blow-down drum, was not experiencing the same issues as PSV-1280 and PSV-1281. Tr. 2978-79. However, after the Texas City refinery 2005 explosion that led to the Chemical Safety Board recommending the removal of blow-down drums, BP reconfigured PSV-1301 to relieve to the flare system. Tr. 1616-18, 2978-79. The consultant retained for the reconfiguration project, Equity Engineering, recommended the installation of a pipe called a "balance line" from the FCC Feed Drum to the Fractionator. Tr. 1615-16. The balance line, which was intended to divert overpressures to the Fractionator, a very large pressure vessel that could handle the predicted overpressures, plugged shortly after its installation in 2007, making it unusable. Tr. 2982-84. Equity Engineering did not calculate the valves' back pressures. Tr. 2987.

Three years after BP reconfigured PSV-1301 to relieve to the flare system, BP's engineering safety consultant, Middough, documented the same deficiencies with all three valves (PSV-1301, PSV-1280, and PSV-1281) that were noted by Stewart & Bottomly on PSV-1280 and PSV-1281 in 1998: elevated back pressures. Tr. 351-52, 358-59; Exs. RBPP-108 at 3, RBPP-115 at 3 (PSV-1280 & PSV-1281); Tr. 331-32, 335; Ex. RBPP-126 at 3-4 (PSV-1301). In its July 2009 report, Middough calculated that PSV-1280 and PSV-1281 had built-up back pressures above 50%, and PSV-1301 had built-up back pressures above 40%. Exs. RBPP-108 at 3, RBPP-115 at 3, RBPP-126 at 3-4. The report also identified credible scenarios requiring very high relief rates. Tr. 331-34, 2984-86; Exs. RBPP-108 at 3-4, 5-6; RBPP-115 at 3-4, 5-6; RBPP-126 at 3-6. In 2011, the built-up back pressures remained above BP's internal guidelines. PSV-1280 and PSV-1281's built-up back pressures rose to

above 60%. Tr. 352, 359; Exs. RBPP-108 at 3, RBPP-115 at 3. PSV-1301's built-up backpressure remained above 40%. Tr. 2998-3001; Ex. RBPP-132 at 3.

Because Ohio refinery management knew of the hazards and that the valves were significantly deficient or at risk for being so, its failure to document compliance and to modify the valves cited in Items 16a and 17a to bring them into compliance at least with respect to excessive back pressures for more than ten years constituted reckless disregard and was therefore willful. *Altor, Inc.*, 23 BNA OSHC at 1475 (citing *Aviation Constrs., Inc.*, 18 BNA OSHC 1917, 1920 (No. 96-0593, 1999)) (“[A]n employer who has notice of the requirements of a standard and is aware of a condition which violates that standard but fails to correct or eliminate employee exposure to the violation demonstrates knowing disregard for purposes of establishing willfulness.”); *A.E. Staley Mfg. Co. v. Sec’y of Labor*, 295 F.3d 1341, 1351-52 (D.C. Cir. 2002). In addition, given PSV-1280 and PSV-1281's history of excessive back pressures, BP's failure to check PSV-1301's back pressure and document compliance with RAGAGEP was also willful.

B. *BP Willfully Violated §§ 1910.119(d)(3)(ii) and (j)(5), as Alleged in Items 6a, 6b, 9a-12a, and 9b-12b.*

Items 6a, 6b, 9a-12a, and 9b-12b related to five pressure safety valves with IPds of greater than 5%. Although the evidence in this case establishes that allowing IPds in excess of 3% is dangerous and against RAGAGEP (and such violations are therefore, at a minimum, serious), BP's failure to follow its own internal standards regarding valve IPd levels for these five pressure safety valves and its tolerance for levels perilously close to an assumed blowdown level constitute plain indifference to employee safety.<sup>59</sup>

As discussed above, when OSHA began its inspection of the Ohio refinery, BP's internal standard allowed IPd levels up to 7% or blowdown, whichever is lower, for existing equipment. If the

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<sup>59</sup> The Secretary withdraws his request for a willful characterization of the violations described in Items 4a and 4b and requests that these violations be affirmed as serious.

pressure relief valve worked perfectly, BP's 7% internal standard provided a *zero* percent safety margin.<sup>60</sup> *See* Tr. 2620. Nevertheless, BP allowed IPds on one of the cited pressure safety valves (Item 6a and 6b) to go above 7%. *See* Ex. RBPP-132 at 2. If this valve performed precisely at 7% blowdown, it would provide less than a zero percent safety margin. BP's failure to ensure that its equipment complied with its 7% internal standard is even more egregious when considered with evidence that BP knew that there was no technical basis for allowing IPds up to 7%. *See* CX-107 (email from BP employee Edward Zamecj discussing efforts to convince ASME to deviate from the 3% limit). Knowingly instituting an internal standard that lacked a technical basis and provided employees with a zero safety margin and then permitting equipment to exceed that standard shows utter indifference to employee safety.

In the fall of 2009, BP lowered its internal IPd standard from 7% to 5% for existing equipment. Tr. 2689-90. As explained above, *supra* pp. 45-47, BP's decision to lower its standard to 5% was not based on a careful analysis of risk or a calculation of whether the valve as installed and configured would operate reliably if the IPd was in excess of 3%, but rather on a comparison between IPd levels and valve blowdown ratings. Put another way, BP did not perform an assessment as to whether the change would actually protect employees; they appear to have simply looked to see how close their existing IPd levels were to the new 5% internal standard. At minimum, this mid-inspection change of its standard is evidence that BP knew that IPds in excess of 5% were hazardous to employees. Again, despite this knowledge, BP allowed the IPds on five of its pressure safety valves to lurch into the range that BP presumably agreed was dangerous (as cited in Items 6a, 6b, 9a-12a, and 9b-12b). Indeed, these unmonitored pressure safety valves had IPds that ranged from 5.3% (with an alleged 1.7% safety margin) to 8.8% (1.8% over the level that Dr. Melhem admitted provided

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<sup>60</sup> As discussed above, there is evidence that actual blowdown rates could be significantly below the expected 7% rate. *See* Tr. 498-99, 2308, 2606-10. Thus, the actual safety margin provided by BP's 7% internal standard may have been *less* than zero.

employees with a safety margin of zero).<sup>61</sup> BP's failure to ensure that the IPd levels did not rise above 5%, and to promptly correct any deficiencies when the levels did rise, also constituted plain indifference to employee safety.

C. *BP Willfully Violated §§ 1910.119(d)(3)(ii) and (j)(5), as Alleged in Item 15.*

In Item 15a, the Secretary alleged that BP failed to document that PSV-136, which provided protection to the Second Stage Butane Treater Drum, complied with RAGAGEP. Item 15b charged that BP failed to correct the deficiencies in the valve before further use. PSV-136, like the valves cited in Items 13a and 14a, was reviewed by consultants in 1990, 1998, and 2008. Dec. 22. The consultants' 1990 and 1998 reports did not identify any problems with PSV-136. However, the August 2008 Middough draft report indicated that the valve was undersized. Ex. RBPP-96. The great weight of the evidence indicates that the Treater Drum was not fully drained until OSHA's inspection, over a year after BP received actual notice of the valve deficiency via the August 2008 report.<sup>62</sup> *See supra* pp. 19-20, 59-61 (citing Tr. 1638-39, 3588, 3012-13). By failing to remedy a known hazard for more than a year, BP displayed a deliberate disregard for employee safety.

Moreover, as discussed above, BP knew from previous inspections and citations issued in 1992 and 2007 that OSHA required employers to inspect their equipment and correct deficiencies. An employer who chooses not to monitor for deficiencies for a ten-year period when it knows that it

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<sup>61</sup> Middough's post-inspection recalculations for these valves confirmed that they were subject to IPds above 5%. *See* Exs. RBPP-3, RBPP-104 at 3, RBPP-113 at 3, RBPP-120 at 3, RBPP-132 at 2. The recalculated IPd for PSV-1301 was especially alarming, registering at above 10%. Ex. RBPP-132 at 2.

<sup>62</sup> As discussed above, the record contains conflicting evidence regarding when the Butane Treater Drum was drained and taken out of service. The dates range from sometime in 2007 to during the OSHA inspection in late 2009. *See supra* pp. 19-20, 59-61 (citing Tr. 1638-39, 3588, 3012-13). Given that BP maintains that its first notice of the undersized valve came in June of 2008 (*see* BPNA Post-Hr'g Br. 56), it is unlikely that BP would have removed the Treater Drum from service in 2007.

is responsible for documenting compliance with RAGAGEP is exhibiting conscious indifference to the standard and employee safety and should be held liable for a willful violation of the OSH Act.

D. *BP Willfully Violated §§ 1910.119(d)(3)(ii) and (j)(5), as Alleged in Items 19-27.*

Items 19-27 address the lack of pressure relief devices on nine pressure vessels. In Items 19a-27a, the Secretary alleged that BP failed to document that the vessels complied with RAGAGEP. Citation at 70, 72, 74, 76, 78, 80, 82, 84, 86. In Items 19b-27b, he alleged that BP failed to correct the equipment deficiencies before further use or in a safe and timely manner. *Id.* at 71, 73, 75, 77, 79, 81, 83, 85, 87. BP argued against a willful characterization because it claimed it lacked knowledge of the deficiencies. *See* BPNA Post-Hr’g Br. 74-76. As explained above, *supra* pp. 61-65, BP’s attempt to avoid responsibility by claiming a lack of knowledge that stemmed from its failure to audit for RAGAGEP compliance perverts the standard’s requirements. “A company may not, practically as a matter of policy, altogether ignore its known OSHA duties and then plead ignorance when it is caught in violation of an OSHA regulation.” *Ga. Elec. Co. v. Marshall*, 595 F.2d 309, 320 (5th Cir. 1979). In a case such as this one, where, after previous inspections and citations issued in 1992 and 2007, the employer was well aware of the standard’s requirements and the need for pressure relief, a failure to investigate and carry out known duties amounted to deliberate indifference and is a willful violation.

E. *BP Willfully Violated §§ 1910.119(d)(3)(iii) and (e)(3)(i), as Alleged in Item 31.*

Item 31a and 31b relate to five cross-connections in BP’s fire water system. Item 31b alleged that BP’s PHA did not address the hazard posed by the connections. Citation at 92. Item 31a alleged that BP failed to document that the fire water system was designed, maintained, inspected, tested, and operated in a safe manner. *Id.* at 91. As explained above, *supra* p. 23, keeping the fire water system independent of other systems ensures that its water will be uncontaminated and available for firefighting. The practice of keeping fire water systems separate from other systems has been RAGAGEP for decades.

Ohio refinery management has known about the hazards posed by cross-connections since the mid-1980s. Tr. 3418. It was also familiar with the requirements of the PSM standard from previous citations and inspections in 1997, 2001, and 2006. *See* Exs. CX-44, CX-47, CX-50. In addition, a 2009 corporate audit indicated that the Ohio refinery had developed an action plan to address the hazards in 2006. Ex. JX-1 at 10-11. However, despite more than two decades of knowledge about the hazard, the cross-connections remained unabated and the potential danger they posed remained undocumented in the PHA.<sup>63</sup> This deliberate disregard for employee safety qualifies as willful.

F. *BP Willfully Violated § 1910.119(e)(5), as Alleged in Items 32-40.*

In Items 32 through 40, the Secretary alleged that BP failed to establish a system to assure that facility-siting PHA recommendations for nine buildings were resolved in a timely manner and that the resolution was documented. Citation at 93-101. As explained above, BP knew about the specific facility-siting hazards cited by the Secretary for approximately fifteen years prior to OSHA's inspection. *See supra* at 26-27. In addition, BP had a "heightened awareness" of facility-siting hazards in general and the relevant OSHA requirements from OSHA's 1997 and 2006 inspections and subsequent citations for facility-siting issues (Exs. CX-44 at 5, CX-50 at 10-12), as well as the 2005 Texas City explosion and the independent safety review panel report (*see* Ex. CX-11). BP's failure to abate these hazards over a fifteen-year period, when combined with its familiarity with the standard, the hazards, and the horrific consequences that come from failing to address these types of hazards,

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<sup>63</sup> BP relies on Mr. Wolf's post-citation determination that the cross-connections pose no hazard. *See e.g.* BPNA Post-Hr'g Br. 100-101. Although the Secretary disagrees with Mr. Wolf's assessment of the dangers posed by these cross-connections, his opinion is irrelevant. The standard requires employers to assess potential hazards and document safe equipment operation at particular times for a reason. Refusing to comply with the standard's requirements within the allotted time period simply means that an employer got lucky—this time the unassessed, undocumented potential hazard did not hurt anyone. Rolling the dice and conducting an assessment after being cited is an extremely risky strategy that amounts to deliberate, willful disregard for the safety of refinery employees.

constitutes willfulness. *See Caterpillar, Inc.*, 17 BNA OSHC 1731, 1733 (No. 93-373, 1996) (clearly inadequate abatement did not obviate willfulness), *aff'd*, 122 F.3d 137 (7th Cir. 1997).

#### **IX. The ALJ Erred in Characterizing the Middough Reports as Voluntary Self-Audits.**

During its inspection of the Ohio refinery, OSHA reviewed draft audit reports prepared by BP's engineering safety consultant, Middough. Tr. 321. The ALJ erroneously found that the audit reports qualified as "voluntary self-audits" and held that OSHA's use of the reports was "in blatant contravention of Agency" internal policy. Dec. 4-6, 49-50. However, because these reports are not voluntary self-audits OSHA's policy does not apply.<sup>64</sup>

OSHA's final policy on voluntary safety and health self-audits was published on July 28, 2000. Final Policy Concerning the Occupational Safety and Health Administration's Treatment of Voluntary Employer Safety and Health Self-Audits, 65 Fed. Reg. 46498 (2000). The summary of the rule states, "[OSHA's] policy provides that the Agency will not routinely request self-audit reports at the initiation of an inspection, and the Agency will not use self-audit reports as a means of identifying hazards upon which to focus during the inspection." *Id.* The policy "applies to audits (1) that are systematic, documented, and objective reviews conducted by, or for, employers to review their operations and practices to ascertain compliance with the act, and (2) that are not mandated by the Act, rules or orders issued pursuant to the Act, or settlement agreements." *Id.* at 46501. The policy explains that the term "voluntary" "means that the self-audit is not required by statute, rule, order, or

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<sup>64</sup> The ALJ noted that she was "troubled by the Secretary's ill-advised use of the Middough reports[, but she did not use]...the...reports as a basis for vacating the alleged violations self-identified in the reports." Dec. 6. Although the ALJ apparently did not use the reports as a basis for her ruling, her finding that the reports are voluntary self-audits is reviewable for three reasons. First, the ALJ's reclassification of the affirmed items as "serious" was based in part on her finding that the reports and the audit were voluntary self-audits. *See* Dec. 49-51. Second, OSHA has an interest in ensuring that Commission ALJs do not misconstrue its internal policies, thereby confusing employers or discouraging them from performing voluntary self-audits. Third, the ALJ's opinion about the reports appears several times in the decision, and it may have colored her view of OSHA's investigation. Dec. 50 (discussing the self-audit policy and the Middough draft reports before assessing the characterization of the affirmed violations).

settlement agreement.” *Id.* at 46502. The policy further provides that “[v]oluntary self-audits may assess compliance with substantive legal requirements (e.g., an audit to assess overall compliance with the general machine guarding requirement in 29 C.F.R. § 1910.212).” *Id.*

The Middough reports do not qualify as “voluntary” self-audits. In 2008, BP commissioned Middough, an engineering safety consultant, to conduct an extensive revalidation of the pressure relief equipment at the Ohio refinery in compliance with the PSM standard. *See* Tr. 3113; BPNA Post-Hr’g Br. 27 (explaining the tasks Middough was performing, including identifying and correcting any gaps in process safety information and relief design information as required under § 1910.119(d)); 29 C.F.R. § 1910.119(e)(6) (requiring employers to update and revalidate the initial PHA at least every five years). BP elected to hire Middough to perform the very work the standard requires. This type of audit—one that is required by the PSM standard—is not a *voluntary* self-audit and, thus, is not covered under OSHA’s internal policy.

**X. The Commission’s Authority to Issue Orders Directing Other Appropriate Relief Could Include the Abatement Described in the Citations and Notifications of Penalty, i.e., the Abatement of the Cited Valves and the Other Relief Devices that Protect All Pressure Vessels in the Ohio Refinery.**

In addition to alleging violations, the Citation described the Secretary’s proposed abatement. *See* Citation at 36, 38, 40-58, 60, 62-64, 66, 68, 70-87, 91-101. Among other things, the proposed abatement for Items 13a and 14a would require BP to “submit an abatement plan describing the actions it is taking to ensure that it is in compliance with the standards for all pressure vessels in the [Ohio] refinery, including documentation that each pressure vessel is evaluated and protected by pressure-relieving device(s) that is appropriate for the vessel in accordance with [RAGAGEP]....” *Id.* at 58, 60. The proposed abatement of Items 16a-18a also required abatement of vessels throughout the refinery: “the employer shall submit an abatement plan describing the actions it is taking...including documentation that each pressure relief valve and associated piping for *all* process units have been evaluated and, if necessary, repaired or replaced to ensure backpressure is limited in accordance with [RAGAGEP]....” *Id.* at 64, 66, 68 (emphasis added).

The ALJ's decision did not specifically address the abatement of the affirmed items (Items 13a, 14a, and 16a-18a). Because the decision did not address this issue and because BP objected to the scope of the abatement proposed in the Secretary's Citation, it filed a "Motion to Correct Decision and Order." Therein, BP argued that "[t]here is no legal basis for the Secretary to require BP Products to abate pressure vessels that were not alleged to be a violation in Citation 2, Items 13a, 14a, 16a, 17a, and 18a or to abate any equipment that was not established to be a violation at the Hearing." In his response, the Secretary explained that although "the Act allows for 'other appropriate relief' as necessary, which could include the abatement as described in the affirmed items," he did "not object to the ALJ entering an order specifying the scope of abatement as appropriate." Sec'y's Aug. 8, 2013 Letter in Resp. to BP Prods.' Mot. to Correct Dec. and Order (Sec'y's Letter in Resp.). The ALJ denied BP's motion on August 12, 2013, stating that she had reviewed the Decision and Order and found no need for clarification. *See* ALJ Order Denying Mot. to Correct Dec. and Order at 1.

Both BPNA and BP-Husky reiterated the argument presented in BPNA's Motion to Correct Decision and Order in their respective PDRs. *See* BPNA PDR 23; BP-Husky PDR 23. Specifically, they allege that the ALJ's denial of the motion was in error because there is no legal basis to require abatement of uncited vessels. *See* BPNA PDR 23; BP-Husky PDR 23. The Secretary disagrees. As noted in the Secretary's August 8, 2013 letter responding to BPNA's motion, the Occupational Safety and Health Act empowers the Commission to issue orders "affirming, modifying, or vacating the Secretary's citation or proposed penalty, or directing other appropriate relief." 29 U.S.C. § 659(c); Sec'y's Letter in Resp. The power to order "other appropriate relief" could include the abatement described in the Citation and Notification of Penalty, i.e., the abatement of both the cited valves *and* the other relief devices that protect all pressure vessels in the Ohio refinery.

**XI. The ALJ Appropriately Rejected BP’s Request to Group Individual Violations for Penalty Purposes Because the Secretary Charged and Proved the Violations Individually.**

Although the ALJ erred in recharacterizing Items 13a, 14a, and 16a-18a as serious, she properly affirmed each item as a separate instance of violation and, thus, correctly imposed separate penalties. *See* Dec. 51-52. In their respective PDRs, BP and BP-Husky argue that the ALJ erred by “refus[ing] to group...Items 13a and 14a [which relate to undersized valves] into one citation with one penalty, and...Items 16a, 17a, and 18a [which involve valves with elevated back pressures] into one citation with one penalty.” BPNA PDR 24; *see* BP-Husky PDR 23-24. Specifically, they contend that OSHA Instruction CPL 2.80, Handling of Cases To Be Proposed for Violation–By–Violation Penalties (October 21, 1990) and OSHA’s Field Operations Manual (FOM) establish “an explicit and longstanding policy” of issuing a single citation for each standard an employer violates unless the employer’s behavior is willful and egregious. BPNA PDR 24; *see* BP-Husky PDR 23-24. This argument fails for three reasons.

First, as laid out above, Items 13a, 14a, and 16a-18a should be affirmed as willful violations and, thus, separate penalties were appropriate under OSHA’s CPL and FOM. *See supra* at 77-80. Second, the Commission has long held that while OSHA’s internal manuals may provide guidance to OSHA professionals, they do not have the force and effect of law, nor do they confer important procedural or substantive rights or duties on individuals. *Caterpillar, Inc.*, 15 BNA OSHC 2153, 2173 n. 24 (No. 87-0922, 1993); *see also Hackensack Steel*, 20 BNA OSHC 1387, 1392 (97-0755, 2003) (stating that OSHA’s Field Inspection Reference Manual and FOM “are only a guide for OSHA personnel to promote efficiency and uniformity, are not binding on OSHA or the Commission, and do not create any substantive rights for employers.”). Therefore, as long as the Secretary’s citation methodology is authorized under the law, she is acting within her prosecutorial discretion.<sup>65</sup> *See*

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<sup>65</sup> BP has not contested the Secretary’s authority to *cite* each instance individually. Instead, they focus their attention on whether the ALJ should have grouped the citations for penalty determination. *See* BPNA PDR 23-24; BP-Husky PDR 23-24.

*Kaspar Wire Works, Inc.*, 18 BNA OSHC at 2181-85 (treating Secretary’s decision to characterize violations as willful as separate inquiry that had no bearing on his authority to issue per-instance citation).

Finally, as explained by the Fifth Circuit in the *Saw Pipes* decision, although “the Commission has the exclusive authority to assess penalties once a proposed penalty is contested,” “[t]he Secretary’s charging decision whether to cite [an] employer for a single violation or for per-instance violations is not itself a penalty proposal.” *Chao v. OSHRC (Saw Pipes)*, 480 F.3d 320, 325 (5th Cir. 2007) (quoting *Chao v. OSHRC*, 401 F.3d 355, 376) (5th Cir. 2005)). “The penalty proposal is the amount the Secretary is seeking, not the number of violations. Therefore, the Commission’s authority to set a penalty different from that proposed by the Secretary does not entail the authority to change the number of violations charged and disregard the number of violations proven.” *Saw Pipes*, 480 F.3d 325.

## CONCLUSION

For the foregoing reasons, the Commission should affirm the ALJ's decision in part and reverse it in part. Specifically, the Commission should affirm the violations charged in Items 13a, 14a, and 16a-18a, but recharacterize them as willful, and assess a penalty of \$70,000 for each violation. In addition, the Commission should reverse the ALJ's decision as to Items 6a, 6b, 9a-12a, 9b-12b, 15a, 15b, 19a-27a, 19b-27b, 31a, 31b, and 32-40, affirm these items as willful violations, and assess the proposed penalty of \$70,000 for each item. Finally, the Commission should reverse the ALJ's decision as to Items 2a, 3a, 4a, 4b, 5a, 5b, 7a, 7b, 8a, 8b, affirm these items as serious, and assess a penalty of \$7000 for each item.

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## CERTIFICATE OF SERVICE

I certify that on the 17th day of January, 2014, I served, by postage pre-paid first class mail, a copy of the foregoing on Respondents' attorneys and the Authorized Employee Representatives listed below, following which I sent courtesy PDF copies via electronic mail as follows:

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