United States of America
OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION
1120 20th Street, N.W., Ninth Floor
Washington, DC 20036-3457

SECRETARY OF LABOR, Complainant, v. HOUSTON AQUARIUM, INC., And its Successors, Respondent.	OSHRC Docket No. 12-1617

ON BRIEFS:

Scott Glabman, Senior Appellate Attorney; Charles F. James, Counsel for Appellate Litigation; Ann Rosenthal, Associate Solicitor of Labor for Occupational Safety and Health; M. Patricia Smith, Solicitor of Labor; U.S. Department of Labor, Washington, DC
For the Complainant

R. Edward Perkins; Sheehy, Ware & Pappas, P.C., Houston, TX
For the Respondent

Sara Beth Watson; Steptoe & Johnson LLP, Washington, DC
For Amicus Curiae Association of Zoos & Aquariums

DECISION

Before: MACDOUGALL, Chairman; ATTWOOD and SULLIVAN, Commissioners.

BY THE COMMISSION:

Houston Aquarium, Inc., operates a four-story entertainment complex in Houston, Texas, known as the "Downtown Aquarium." The complex houses several large tanks displaying various species of marine life, as well as bird and reptile exhibits, a restaurant, and rides such as a train and carrousel. Following an inspection of the Downtown Aquarium, the Occupational Safety and Health Administration issued Houston Aquarium a citation alleging six serious violations of the Commercial Diving Operations standard, 29 C.F.R. Part 1910, Subpart T. The Secretary grouped these violations into five citation items, one of which he withdrew before the hearing (Item 2); a

total penalty of $19,800 is proposed for the remaining items. The five citation items collectively allege that violations of five provisions of the diving standard occurred in six of the complex's aquatic tanks.[1]

During a three-day hearing, the Secretary introduced evidence that Houston Aquarium's divers perform several different activities in each tank.[2] The parties disputed whether those activities are covered by the diving standard, which does not apply to "any diving operation . . . [d]efined as scientific diving" and performed pursuant to a diving program that meets certain criteria. 29 C.F.R. § 1910.401(a)(2)(iv).[3] Administrative Law Judge Sharon D. Calhoun concluded that some of the cited diving activities are covered by the standard and affirmed Items 1, 3, 5a, and 5b; she vacated Item 4 on other grounds. She assessed a total penalty of $4,500 ($1,500 each for Items 1 and 3, and a single penalty of $1,500 for Items 5a and 5b).

On review, Houston Aquarium does not dispute that, for each affirmed citation item, at least one of the diving activities that took place in each tank was an "event dive," which the

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[1] The cited provisions are: 29 C.F.R. § 1910.422(c)(1)(i) (two-way communications) (Item 1); 29 C.F.R. § 1910.424(c)(4)(i) (reserve breathing gas supply) (Item 3); 29 C.F.R. § 1910.430(g)(1) (depth gauges) (Item 4); 29 C.F.R. § 1910.430(j)(2)(i) (safety harnesses with positive buckling devices) (Item 5a); and 29 C.F.R. § 1910.430(j)(2)(ii) (attachment points for umbilical cords) (Item 5b).

[2] Divers engage in three different types of dives: feeding and cleaning dives, "event dives," and "mortality dives." Event dives are performed to entertain visitors; for instance, a diver might hold up a sign with a marriage proposal or dress up as Santa or an elf and hold up a sign saying "Merry Fishmas." "Mortality dives" are done to remove dead fish that are then taken to the aquarium's lab for examination.

[3] The subsection provides in relevant part:

> (2) This standard applies to diving and related support operations conducted in connection with all types of work and employment, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring. However, this standard does not apply to any diving operation:
>
> * * *
>
> (iv) Defined as scientific diving and which is under the direction and control of a diving program containing at least the following elements:
>
> (A) Diving safety manual . . . .
>
> (B) Diving control (safety) board . . . .

29 C.F.R. § 1910.401(a)(2).

company concedes does not qualify as scientific diving under the standard; the company also does not dispute that it violated the cited provisions when performing event dives.[4] Houston Aquarium argues, however, that the judge erred to the extent she found that "feeding and cleaning dives" did not qualify as scientific diving.[5] The company asserts that given this error,[6] the case should be remanded for the judge to reduce the penalties she assessed so that they are based only on the event dives. Because we conclude the judge correctly found that Houston Aquarium has not shown that its feeding and cleaning dives qualify for the "scientific diving" exception to the Commercial Diving Operations standard, we affirm the judge's decision in full.[7]

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[4] In its review brief, Houston Aquarium states that it now has new procedures for event dives.

[5] The judge concluded that Houston Aquarium's "mortality dives" "marginally qualif[ied]" as scientific diving. On review, the Secretary does not challenge the judge's finding that these dives are exempt from the diving standard. Thus, only the feeding and cleaning dives are the subject of our review.

[6] The Association of Zoos and Aquariums ("AZA") filed an amicus brief in support of Houston Aquarium's position that its feeding and cleaning dives qualify as scientific diving. AZA is "a nonprofit organization that was founded in 1924 with the dual objective of bringing zoos and aquariums together in a collective effort to save species, and to work as a group to improve animal housing and care in zoos and aquariums." AZA states that it is "the accrediting body for the top zoos and aquariums in the United States and six other countries." To become accredited, AZA requires that members "undergo an inspection and rigorous review to ensure they meet AZA's standards for best practices in animal care, welfare and management." Houston Aquarium is accredited by AZA.

[7] In its Petition for Discretionary Review, Houston Aquarium also argued that the judge erred in rejecting its claim that the diving standard does not apply to its diving activities because these activities do not fall within the terms of 29 C.F.R. § 1910.401(a)(1), which sets forth the standard's geographic scope. The judge rejected the company's argument based on her finding that the standard plainly states it applies "to every place of employment within the waters of the United States, *or within any State . . . .*" *Id*. (emphasis added). Commissioner Attwood agrees with the judge's reasoning and also finds that the standard plainly applies to the company's diving activities.

Commissioner Sullivan agrees to affirm the citation items but remains convinced that dives performed within aquaria were likely not intended to be subject to the Commercial Diving Standard when it was published as a final rule in 1977. 42 Fed. Reg. 37,650 (July 22, 1977). The standard covers commercial dives (construction, welding, shipwrecking, etc.) performed within the "waters of the United States." 29 C.F.R. § 1910.401(a)(1). After the standard was finalized, a clarification was issued exempting "scientific diving" from its coverage because those dives were not considered "commercial dives." 47 Fed. Reg. 53,357, 53,358 (Nov. 26, 1982) ("The [public comments] convinced OSHA that there was a significant difference between educational/scientific

BACKGROUND

A. The Aquarium

The Downtown Aquarium complex consists of several buildings as well as a Ferris wheel; a carrousel; a fair-like area with games; and other amusements, such as the "Shark Voyage" ride—a small train that takes riders through a tunnel in the shark tank exhibit. The first floor of the main building in the complex houses several large tanks displaying various species of marine life, as well as exhibits of reptiles, birds, and a white tiger. The main building's second floor contains a restaurant, whose seating area surrounds a large, 90,000-gallon saltwater tank called the "Dining Room Tank."[8]

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diving and commercial diving."). This exemption did not state, however, whether the newly exempted "scientific" dives would include dives in aquaria or enclosed tanks, or whether such dives were already exempt from the standard because as Houston Aquarium contends, they are not performed "within the waters of the United States."

Nonetheless, it is clear that in the "scientific diving" exemption, OSHA made no express exception for dives conducted in aquaria and there is nothing to indicate that during the rulemaking process, or the drafting of the "scientific diving" exemption, operators of aquaria urged the adoption of language exempting them from coverage based on the body of water in which aquaria dives are performed.

Not surprisingly, as unrebutted testimony presented by Houston Aquarium establishes, OSHA rarely, if ever, conducts inspections of aquaria or zoos under the diving standard. While OSHA will no doubt attribute this fact to its "prosecutorial discretion," Commissioner Sullivan considers this strong evidence that the standard was likely never meant to cover employers such as Houston Aquarium.

But the plain language of the standard does not allow for the imposition of this "likely intent" over the "letter of the law." Words in standards like this one may often have an impact on an industry or employer not originally contemplated by the agency and, for that reason, Commissioner Sullivan cannot conclude that OSHA intended to exclude aquaria from the diving standard's coverage. It is also quite possible that the agency had no real intention one way or the other as to whether the standard would apply to aquaria. Presumably if it had, OSHA would likely have made this intent clear in the language used. Under such circumstances, it is not appropriate for a judge, commission, or court to presume intent. The text of the standard is the best indication of intent, and, in this particular situation, the language used does not exempt aquaria from the standard's coverage. *See, e.g., Good Samaritan Hosp. v. Shalala*, 508 U.S. 402, 409 (1993).

[8] The third floor consists of a banquet area and kitchen, suitable for celebrations such as bar mitzvahs and weddings, while the fourth floor contains the main offices, the staff break room, and a biology area containing quarantined exhibits and a holding space for birds and reptiles not on exhibit.

Houston Aquarium employs divers whose primary duty is to dive in all of the tanks on a regular basis, primarily to clean them and feed the marine animals housed in them. The divers usually feed the animals immediately before cleaning and perform all of the cleaning tasks on the same dive. Regular cleaning tasks include scrubbing the tank's acrylic windows, rocks, and decorations to remove algae, and vacuuming the gravel at the bottom of the tanks to remove feces and food particles.

B. The Commercial Diving Operations Standard

OSHA published the commercial diving operations standard as a final rule on July 22, 1977. 42 Fed. Reg. 37,650. That version of the standard applied to "diving and related support operations conducted in connection with all types of work and employment[], including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring." 29 C.F.R. § 1910.401(a)(2) (1978). It also stated that the standard did not apply to certain activities (none of which are germane to this case), but "scientific diving" was not one of them.[9] *Id.* In response to expressed concerns that the rule did not exempt scientific diving, which had been voluntarily regulated for several years, OSHA engaged in notice-and-comment rulemaking and amended the diving standard on November 26, 1982, to add "scientific diving" to the list of activities to which the standard does not apply and include a definition of "scientific diving." 47 Fed. Reg. 53,357, 53,365 (Nov. 26, 1982).

The amended rule was challenged in the Court of Appeals for the District of Columbia Circuit, and during those proceedings the court issued an order requiring the Secretary to "authoritatively state guidelines that would indicate how the 'scientific' and 'commercial' classifications will be applied to arguably ambiguous cases." 49 Fed. Reg. 29,105, 29,106 (July 18, 1984). In response, OSHA published a notice in the Federal Register that included a set of four interpretive guidelines the agency stated it would use in "scrutiniz[ing] . . . seemingly close cases" and "*all of which must be met* for diving to qualify as scientific." *Id.* at 29,108 (emphasis added). After providing a comment period, OSHA published the guidelines in an appendix to Subpart T ("Appendix B—Guidelines for Scientific Diving"). 50 Fed. Reg. 1,046, 1,050 (Jan. 9,

[9] The three other limited exceptions to the standard apply to certain diving operations: 1) performed solely for instructional purposes; 2) performed solely for search, rescue, or related public safety purposes; or 3) governed by certain rules or regulations which regulate research, development, or related purposes involving human subjects. 29 C.F.R. § 1910.401(a)(2)(i)-(iii).

1985). Unlike the initial Federal Register notice, the final Appendix does not state whether each guideline must be met for a diving activity to qualify as scientific diving. *Id*. However, in the preamble to its publication, OSHA stated that "[p]rograms must meet *all of the criteria* in the Final Rule as interpreted by the final guidelines to avail themselves of the exemption." *Id.* at 1,047 (emphasis added). And the text introducing the four guidelines states that they will be used "in conjunction" with the definition and other criteria to determine whether a diving program qualifies as scientific diving. 29 C.F.R. § 1910 subpt. T, Appendix B.

C. The Judge's Decision

The judge found that the feeding and cleaning dives did not constitute "scientific diving" within the meaning of the commercial diving standard. Of particular significance here, she found that:

> [T]he dives performed by Houston Aquarium's employees for the purposes of feeding the animals and cleaning the exhibit tanks fall short of meeting the requirements for scientific diving. Scientific diving must be solely for the purpose of performing scientific research tasks. Scientific research requires the systematic collection and analysis of data. Other than recording the minimal information listed on the Facility Dive Log (which shows only that an assignment has been completed), the diver gathers no data about the animals or their environment during a feeding or cleaning dive. The dives foster the health and wellbeing of the animals in the care of Houston Aquarium, but they are not part of "a *process* for proposing and refining theoretical explanations about the world that are subject to further testing and refinement."

(quoting *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 590 (1993)). The judge noted that the company's expert "conceded Houston Aquarium was not engaged in a research project: 'It wasn't as if they were performing a scientific project in conjunction with a university. They were just maintaining exhibits[.]' " Further, the judge found it "telling that Houston Aquarium adduced no evidence documenting observations made or data gathered about the animals during feeding or cleaning dives."[10]

DISCUSSION

The diving standard applies broadly to "diving and related support operations conducted in connection with all types of work and employments," but does not apply to any diving operation "[d]efined as scientific diving and which is under the direction and control of a diving program"

[10] The judge also discussed the application of the guidelines for scientific diving, finding that the feeding and cleaning dives comported with all but one of them.

that meets certain requirements. 29 C.F.R. § 1910.401(a)(2). The question presented by this case is whether the standard's scientific diving provision exempts from the commercial diving standard's coverage the feeding and cleaning dives performed by Houston Aquarium's divers. Because "scientific diving" is defined in the standard,[11] a threshold question is whether the Aquarium's feeding and cleaning dives meet that definition.[12]

A. Definition of Scientific Diving

The parties dispute whether the feeding and cleaning dives meet two of the criteria for a diving activity to qualify for the scientific diving exception: the definition itself and the Appendix B guidelines. Although Houston Aquarium, which has the burden of proving that its diving activities qualify for the exception, does not dispute that the dives must meet both criteria to qualify

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[11] The standard defines "scientific diving" as follows:

> *Scientific diving* means diving performed solely as a necessary part of a scientific, research, or educational activity by employees whose sole purpose for diving is to perform scientific research tasks. Scientific diving does not include performing any tasks usually associated with commercial diving such as: Placing or removing heavy objects underwater; inspection of pipelines and similar objects; construction; demolition; cutting or welding; or the use of explosives.

[12] Our dissenting colleague criticizes our analysis of the language in the standard's definition of scientific diving and accuses us of thinking we know better than Houston Aquarium and members of the "scientific diving community" what that language means. But the issue before the Commission is a question of law—whether the feeding and cleaning dives meet the criteria for the "scientific diving" exception set forth in the Commercial Diving Operations standard, including the standard's definition of "scientific diving." The issue is not whether Houston Aquarium or its purported community considers its feeding and cleaning dives "scientific." A question of law requires interpreting the standard's text, and whether Houston Aquarium considers the dives "scientific" is not relevant to such a question. Interpreting regulatory text is the Commission's very role as an adjudicative body; doing so does not require its members to have scientific expertise. Moreover, while Houston Aquarium's opinion on this issue is not relevant, we note that evidence in the record shows Houston Aquarium itself did not consider such dives "scientific" prior to these proceedings. The Secretary produced an internal Houston Aquarium record, titled "Downtown Aquarium 2012 Internal Statistics," which catalogs the types of dives performed during the year in which the cited diving activities occurred. In this record, Houston Aquarium identified four distinct types of dives: "proficiency"; "scientific"; "scientific training"; and "animal care." In 2012, the Downtown Aquarium performed 21,832 dives for animal care, 134 dives for proficiency, and 0 dives for either scientific or scientific training purposes.

for the exception, its arguments on review focus almost entirely on the guidelines.[13] While the guidelines are mandatory,[14] the requirements they contain plainly supplement, rather than

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[13] Houston Aquarium challenges the judge's finding that, because scientific diving is an exception to the diving standard, the company has the burden of proving that the feeding and cleaning dives meet the applicable criteria. According to the company, it is the Secretary who must prove the company was *not* engaged in scientific diving because he has the burden of proving the applicability of a standard. *See, e.g., N&N Contractors, Inc. v. OSHRC*, 255 F.3d 122, 125-26 (4th Cir. 2001). However, the Commission has long held that the party claiming the benefit of an exception bears the burden of proof. *See C.J. Hughes Constr., Inc.*, 17 BNA OSHC 1753, 1756 (No. 93-3177, 1996) ("A party seeking the benefit of an exception to a legal requirement has the burden of proof to show that it qualifies for that exception."); *see also Stephenson Enters., Inc.*, 4 BNA OSHC 1702, 1705 (No. 5873, 1976) ("We have consistently held . . . that it is the burden of the party who is claiming an exemption to prove its applicability."), *aff'd*, 578 F.2d 1021 (5th Cir. 1978).

As the regulatory text plainly evinces, scientific diving is one of four specific diving circumstances that have been excluded from the standard's broad scope. *See Meacham v. Knolls Atomic Power Lab.*, 554 U.S. 84, 91 (2008) (although not expressly labeled "exceptions," instances in the Age Discrimination in Employment Act, 29 U.S.C. § 621 *et seq*, in which the prohibition on age discrimination did not apply, were exceptions based on "how the statute reads, with [such] exemptions laid out apart from the prohibitions"). The list of activities not covered by the diving standard is prefaced by an introductory clause: "*However*, this standard does not apply to . . . ." This language is similar to "provided, however," which has historically been considered "proviso" language. *See, e.g., United States v. Washington*, 157 F.3d 630, 639, 643 (9th Cir. 1998) (describing treaty provision that begins, "*Provided, however*, That . . . .", as a "proviso" and stating that the proviso "is an exception" that must be "strictly construed") (emphasis in original); *United States v. Fraidin*, 63 F.Supp. 271, 281 (D.Md. 1945) ("That proviso reads as follows: 'Provided, however, That . . . ."); *Peavey Grain Co.*, 15 BNA OSHC 1354, 1359 (No. 89-3046, 1991) (standard allowing employer with less than ten employees to use direct voice communication to serve as an alarm system instead of meeting other alarm requirements "provided [that] all employees can hear the alarm" was an "exception" and "the party claiming an exception has the burden to prove it comes within the exception.") (internal citations omitted).

Moreover, the guidelines expressly state that they serve to distinguish "those scientific diving programs which are *exempt* from the requirements for commercial diving." (emphasis added). We find, therefore, that Houston Aquarium carries the burden of proving its feeding and cleaning dives meet the definition of scientific diving and the other applicable criteria. *See, e.g., C.J. Hughes*, 17 BNA OSHC at 1756. And as we discuss below, Houston Aquarium has failed to meet that burden.

[14] In its explanation of the proposed guidelines, OSHA refers to the guidelines as "interpretive," 49 Fed. Reg. 29,105, 29,108 (July 18, 1984), which suggests that they are the agency's interpretation of the standard rather than regulatory requirements (i.e. an "interpretive rule"); at the same time, the guidelines were appended to the standard after notice and comment, which is a prerequisite for promulgating a "legislative rule" under the Occupational Safety and Health Act and the Administrative Procedure Act (APA). *See* 50 Fed. Reg. 1,046, 1,050 (Jan. 9, 1985); 29

supplant, the standard's "scientific diving" definition and other criteria.[15] And, as we conclude the feeding and cleaning dives fail to meet the plain terms of the definition of "scientific diving," it is unnecessary to address whether the dives also meet the guidelines' supplemental requirements.

U.S.C. § 655(b); 5 U.S.C. § 553; 5 U.S.C. § 551(4) (defining a "rule," for purposes of APA requirements, broadly as "an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy or describing the organization, procedure, or practice requirements of an agency . . . ."); 5 U.S.C. § 553(b)(A) (excepting "interpretive rules" and "general statements of policy" from the APA's notice-and-comment requirements for rulemaking); *Perez v. Mortgage Bankers Ass'n*, 135 S.Ct. 1199, 1203-04 (2015) (discussing the distinction between "legislative rules," which have "the force and effect of law" and must be issued through the notice-and-comment process, and "interpretative rules," which "do not have the force and effect of law," and noting that the difference between the two types of agency action is a "source of much scholarly and judicial debate.") (internal citations omitted).

Notwithstanding the reference to "interpretive guidelines" in its explanation of the proposed guidelines, OSHA clearly intended the guidelines to be a "legislative rule" with binding legal effect. Materials included in the Code of Federal Regulations are presumed to be mandatory unless the agency evidences an intent to the contrary. *See Am. Mining Congress v. Mine Safety & Health Admin.*, 995 F.2d 1106, 1109 (D.C. Cir. 1993) ("[A]n agency seems likely to have intended a rule to be legislative if it has the rule published in the Code of Federal Regulations; 44 U.S.C. § 1510 limits publication in that code to rules 'having general applicability and legal effect.' "); *Brock v. Cathedral Bluffs Shale Oil Co.*, 796 F.2d 533, 539 (D.C. Cir. 1986) (noting that the "real dividing point between regulations [with binding legal effect] and general statements of policy [that are not binding] is publication in the Code of Federal Regulations."); *see also Nat'l Mining Ass'n v. McCarthy*, 758 F.3d 243 (D.C. Cir. 2014) (describing factors to be considered when determining the nature of an agency action, including the agency's intent). In addition to using notice-and-comment rulemaking to promulgate them, the guidelines themselves use mandatory language: "This appendix contains guidelines *that will be used* in conjunction with § 1910.401(a)(2)(iv) to determine those scientific diving programs which are exempt from the requirements for commercial diving." 29 C.F.R. § 1910 subpt. T, Appendix B (emphasis added). Consistent with this language, in describing the guidelines in the preamble, OSHA states that "[p]rograms *must meet* all of the criteria in the Final Rule as interpreted by the final guidelines to avail themselves of the exemption." 50 Fed. Reg. at 1,047 (emphasis added).

[15] The guidelines expressly state that they "will be used *in conjunction with* § 1910.401(a)(2)(iv)," which contains the scientific diving provision and the diving safety manual and diving control board requirements. 29 C.F.R. § 1910 subpt. T, Appendix B; *see also Am. Fed'n of Gov't Employees, Local 2782 v. Fed. Labor Relations Auth.*, 803 F.2d 737, 740 (D.C. Cir. 1986) ("[R]egulations are to be read as a whole with 'each part or section . . . construed in connection with every other part or section.' ") (citation omitted). Moreover, OSHA has stated that it intended the guidelines to help distinguish scientific diving from commercial diving only in "seemingly close cases," not to take the place of the definition and other requirements. 49 Fed. Reg. 29,105, 29,109 (July 18, 1984). Indeed, the guidelines do not comprehensively address matters covered in the definition or in the other criteria. For example, § 1910.401(a)(2)(iv) includes criteria for a

When determining the meaning of the language in a standard, the Commission must first look to its text and structure, and, for the following reasons, that is where our inquiry necessarily ends as well. *Superior Masonry Builders, Inc*., 20 BNA OSHC 1182, 1184 (No. 96-1043, 2003). "If the meaning of [regulatory] language is 'sufficiently clear,' the inquiry ends there." *Beverly Healthcare-Hillview*, 21 BNA OSHC 1684, 1685 (No. 04-1091, 2006) (consolidated) (citation omitted), *aff'd in relevant part*, 541 F.3d 193 (3d Cir. 2008). As the Commission stated with regard to the similar process of statutory construction, " '[It] is elementary that the meaning of a statute must, in the first instance, be sought in the language in which the act is framed, and if that is plain . . . the sole function of the courts is to enforce it according to its terms.' " *Gen. Motors Corp.*, 17 BNA OSHC 1217, 1219 (No. 91-2973, 1995) (consolidated) (quoting *Caminetti v. United States*, 242 U.S. 470 (1917)), *aff'd*, 89 F.3d 313 (6th Cir. 1996).

As previously noted, "scientific diving" is defined as follows:

> *Scientific diving* means diving performed solely as a necessary part of a scientific, research, or educational activity by employees whose sole purpose for diving is to perform scientific research tasks. Scientific diving does not include performing any tasks usually associated with commercial diving such as: Placing or removing heavy objects underwater; inspection of pipelines and similar objects; construction; demolition; cutting or welding; or the use of explosives.

This definition contains three basic requirements, all of which must be met for a diving activity to qualify as "scientific diving": it must be performed (1) "solely as a necessary part of a scientific, research, or educational activity," (2) "by employees whose sole purpose for diving is to perform scientific research tasks," and (3) it must not include "tasks usually associated with commercial diving" (i.e., tasks similar to those listed in the definition as examples of commercial diving activities).

Both before the judge and on review, Houston Aquarium has made no attempt to explain how its feeding and cleaning dives meet the second requirement of the definition—that dives be for the "*sole* purpose" of "perform[ing] *scientific research tasks*."[16] Instead, Houston Aquarium

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diving safety manual, but the guidelines do not address any aspect of this manual. *Id*. Rather, the guidelines address only very specific issues, for example requiring that the information and data resulting from a project be non-proprietary. In any event, the case before us is not a close one, as we decide it based on plain meaning.

[16] Our dissenting colleague also does not directly confront this "scientific research tasks" requirement, and instead begins her inquiry into what constitutes "scientific diving" by focusing

simply asserts that these dives are not covered by the diving standard because the "marine research" and "scientific work" the company claims it conducts "is not possible without proper cleaning and maintenance." This argument fails for two reasons: (1) there is no evidence that Houston Aquarium conducts any scientific research, either as a general matter or during its feeding and cleaning dives; and (2) even if it were conducting scientific research, it has not shown that the *sole* purpose of the feeding and cleaning dives is "to perform scientific research tasks."

1. No Evidence that Houston Aquarium Conducts Scientific Research

Although the standard defines "scientific diving," the definition itself uses, rather than defines, the words "scientific" and "research." *See* 29 C.F.R. § 1910.402. Therefore, we turn to the dictionary for guidance as to the meaning of this phrase. *See United States v. Sherburne*, 249 F.3d 1121, 1126 (9th Cir. 2001) ("turn[ing] to the dictionary for guidance" in absence of statutory definition); *Crawford v. Metro. Gov't of Nashville & Davidson Cty.*, 555 U.S. 271, 276 (2009) (undefined term "carries its ordinary meaning"). The word "scientific" means "of, pertaining to, or concerned with a science or the sciences." RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY

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on the third requirement, which provides examples of what it is not. Thus, she argues that *in comparison to* the types of commercial diving activities mentioned in the scientific diving exception—"[p]lacing or removing heavy objects underwater; inspection of pipelines and similar objects; construction; demolition; cutting or welding; or the use of explosives"—Houston Aquarium's feeding and cleaning dives more closely resemble scientific diving and therefore must meet the definition of scientific diving. But this analysis turns the inquiry on its head. Simply because the feeding and cleaning dives do not resemble the examples of commercial diving activities mentioned in the scientific diving definition (a point no one could dispute) does not mean they must automatically fall within the scientific diving exception; there are innumerable diving activities which are not similar to the listed examples and are clearly not scientific research tasks, such as guiding tourists on underwater excursions and gathering marine life from the seabed for sale. Indeed, the scientific diving exception *is an exception*. Its purpose is to distinguish scientific diving *from all other diving*, which under the standard is by default considered commercial diving. Thus, our colleague's contrary analysis effectively rewrites the standard so that scientific diving is the rule and commercial diving the exception—a result plainly contrary to the standard's text and purpose.

The fallacy of our colleague's analysis is further demonstrated by Houston Aquarium's event dives—dives the aquarium itself concedes are subject to the Commercial Diving standard. But under our colleague's backward analysis, although the aquarium's event dives are performed primarily for entertainment purposes, they too should also be considered scientific diving because they obviously do not involve "[p]lacing or removing heavy objects underwater; inspection of pipelines and similar objects; construction; demolition; cutting or welding; or the use of explosives."

1159 (Deluxe ed. 1997). And "science" is "a branch of knowledge or study dealing with a body of facts or truths systematically arranged and showing the operation of general laws," or, more broadly, "systematic knowledge of the physical or material world gained through observation and experimentation." *Id.* "Research" means "diligent and systematic inquiry into a subject in order to discover or revise facts, theories, etc." *Id.* at 1105. Therefore, a "scientific research task" is one that involves a diligent investigation or study in furtherance of an organized body of knowledge or knowledge obtained through exact observation and organized experiment.[17] There is absolutely no evidence in the record that Houston Aquarium performs scientific research, so it is not surprising that there is also no evidence its divers engage in scientific research tasks during feeding and cleaning dives.

Houston Aquarium vaguely alludes to conducting "research work" several times in its review brief and asserts that its Downtown Aquarium is "truly a scientific research and education center," but the company does not identify a single example of a study or research project it has performed, much less one that is being performed while engaging in feeding and cleaning dives. Nor does the record reveal any such research or study.[18] Thus, for example, when the company's Director of Animal Operations, Jim Prappas, was asked the types of research projects in which Houston Aquarium engages, he responded: "Well, anything that we're doing with an endangered species is considered a research project or it's considered a significant part of supporting the industry's animal welfare knowledge." As an example, Prappas pointed to Houston Aquarium's possession of a potentially breeding pair of endangered microdon sawfish, suggesting that these animals constitute a "research project" because the pair would be needed for "future pro[geny] or any exhibits that we want to develop . . . for research or education[.]" He did not claim, however,

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[17] This conception of "scientific research task" accords with the statement in Appendix B's second guideline that "[t]he purpose of the project using scientific diving is the *advancement* of science . . . ." 29 C.F.R.§ 1910 subpt. T, Appendix B, Guideline 2 (emphasis added).

[18] Our colleague's dissent describes the daily maintenance of the tanks itself as an "ongoing laboratory experiment," apparently under the theory that such maintenance furthers knowledge of how to care for marine animals. As discussed below, even if it is true that a coincidental byproduct of the feeding and cleaning dives is that they enhance the institutional knowledge of how to care for marine animals in aquaria, there is simply no evidence that obtaining such knowledge is the company's purpose for maintaining the Downtown Aquarium's tanks. A laboratory experiment (or other research project) is a purposeful activity conducted with the specific goal of learning more about a subject, not simply an activity that happens to advance knowledge on a subject (as all human activities have the potential to do).

that Houston Aquarium had engaged in any systematic investigation to further knowledge regarding the sawfish (or any other animal), nor did he identify any other research that the company has actually performed. Merely possessing an endangered species that *might* be used for a future scientific research project does not itself constitute "scientific research."

Houston Aquarium (and our dissenting colleague) also contends that by caring for the marine animals and maintaining their exhibits during feeding and cleaning dives it is engaged in the science of animal husbandry, and its divers collect information that "becomes part of the institutional knowledge on how to care properly for the animals." Specifically, the company contends that its divers observe various conditions while performing feeding and cleaning dives, such as whether any animals appear injured or are acting in an unusual manner: "[i]nformation regarding animal health, animal behavior, time spent cleaning, the types of material used to clean, the effectiveness of the materials used, the time of day, the depth of the water and the observations of organisms is documented and shared." Derek Smith, who the judge found qualified to testify as an expert on behalf of Houston Aquarium on SCUBA diving and aquarium science, testified that because the company is accredited by the AZA, it is "required to keep extensive records on the animal[s'] care; the amount of food they're given, the amount of cleaning that's done . . . ." Smith also claimed that Houston Aquarium's animal care "data" are shared with other aquariums and that this information-sharing helps advance animal husbandry science. But Smith did not identify any instance in which the company's purported data had actually advanced the aquarium community's knowledge of animal husbandry. Simply possessing and taking care of animals in the absence of any evidence that the company also engages in a systematic attempt to further knowledge regarding animal husbandry or the animals themselves, does not qualify as "scientific research" under the plain meaning of that term.

There is also no evidence that the company makes or maintains records to further scientific knowledge of aquarium maintenance and feeding methods. For example, there is no evidence that Houston Aquarium catalogs or tracks its findings in some organized manner; there is not even a single document in evidence in which the company compiled or otherwise recorded any findings it made as a result of its diving activities over the twelve years it had been in operation as of the time of the hearing. Nor is there: (1) any record in evidence in which observations made by its divers while performing feeding and cleaning dives were recorded; (2) evidence of meetings in which such observations were discussed; (3) evidence that employees had drafted papers based on

any diving activities; or (4) any other documentary evidence reflecting that the company kept track of the development of any knowledge it purportedly gained about marine life or aquarium maintenance methods.[19] Apart from dive logs kept by the Downtown Aquarium that simply record the length of time spent underwater and contain one or two-word descriptions of the dive's purpose (e.g., "scrub," "feed/clean"), Houston Aquarium has provided no examples of the animal care records it claims to maintain.

And, although William Boyes, a Houston Aquarium Dive Safety Officer, testified that the divers "keep detailed records of who eats what," he did not say *why* these records are kept or how they are used, and Houston Aquarium did not present any examples of such records. When asked if the divers collected any data while cleaning the tanks, former Houston Aquarium diver Justin Clay replied:

> No, we didn't. I don't think so. I don't think we really collected data or anything . . . . I mean, besides just logging [the purpose and time length of] the dives . . . . But in terms of data, I don't think we did collect anything . . . .
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> ***
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> I think, for the most part, it was cleaning and it was – you know, I mean if we noticed anything, like, if a fish had an injury or something like that. I mean, I – but that was all up to you. I always would make a point to tell the biologist things that I saw.

Indeed, Smith acknowledged that "[i]t wasn't as if [the Houston Aquarium divers] were performing a scientific project in conjunction with a university. They were just maintaining the exhibits . . . ." Thus, Houston Aquarium has failed to show that it engaged in scientific research in the fields of animal husbandry, aquarium maintenance methods, or any other subjects. Consequently, the company's contention that its feeding and cleaning dives are exempt scientific

[19] Our colleague apparently recognizes that Houston Aquarium has produced no written documents that would support its argument that it engages in scientific research, for she asserts that we incorrectly conclude that data gathering "must include written records." Data means "a body or collection of facts or particulars, information." RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY, *supra* at 336. We think it is unlikely that scientific research can be conducted without the use of the written word.

dives because they support the scientific research it purportedly conducts is based on an unsupported premise.[20]

2. Performing Scientific Research Tasks is not the Sole Purpose of these Dives

In arguing that the exception applies because proper feeding and cleaning is necessary for its scientific research, Houston Aquarium also ignores the definition's requirement that "the *sole* purpose for diving is to perform scientific research tasks." 29 C.F.R. § 1910.402 (emphasis added). The scientific diving definition includes the following language: "Scientific diving means diving performed solely as a necessary part of a scientific, research, or educational activity by employees whose sole purpose for diving is to perform scientific research tasks." There is a key difference in the wording between the first and second parts of this sentence. Specifically, the first clause—"[s]cientific diving means diving performed solely *as a necessary part of* a scientific, research, or

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[20] Our colleague finds that feeding and cleaning are aspects of animal husbandry, and claims that because the divers' day-to-day tasks further animal husbandry knowledge, those dives fall within the scientific diving exception. While it may be that the regular performance of these dives generally helps further institutional knowledge of animal husbandry practices in a very broad sense (just as the performance of *any* job tasks could enhance knowledge regarding such tasks over time), there is no evidence that the purpose for the feeding and cleaning dives was to advance animal husbandry knowledge or even that any new knowledge had ever been gained as a result of the dives. The dissent quotes the AZA's vague assertion in its amicus brief that the dives advance animal husbandry knowledge (and treats that claim as a fact without pointing to any evidence in support). But the AZA does not provide any examples of instances in which the dives have advanced animal husbandry knowledge. Considering a job-related activity "scientific research" simply because it potentially furthers knowledge of that activity over time would turn every occupation into scientific research. For example, does a doctor engage in scientific research simply by virtue of the fact that she examines patients? The dissent emphasizes that the divers must have specialized knowledge to perform their tasks, and must be careful and observant in the tanks to avoid harmful results. While there may be a difference in degree, it would be disrespectful to the cleaning staff and cashiers at the Downtown Aquarium to not acknowledge that they too must have specialized knowledge and training to perform their assigned tasks and must be careful and observant when doing so to avoid harmful results.

Our colleague apparently views our decision today as an assault on science—stating that we have determined that divers conducting feeding and cleaning dives "are not really engaged in science—just fake science . . . ." In fact, we have no disagreement with her assertion that the divers are engaged in some activities that are based on scientific (i.e., specialized) knowledge—for example, it is scientific knowledge that dictates careful handling of aiptasia, a small marine animal that the record shows can multiply to dangerous numbers if pieces of the animal are broken off. And, of course, scientific knowledge also informs decisions about how much and what to feed various fish. However, it is not the use of scientific *knowledge* or scientific *techniques*, that qualifies diving operations as "scientific" within the meaning of the exception; it is scientific *research.*

educational *activity* . . . ." encompasses activities that are a necessary part of a research endeavor. But the clause that follows—"by employees whose *sole* purpose for diving is to perform scientific research *tasks*"—is stricter, as it omits the phrase "as a necessary part of," and uses "task," which is a narrower concept than "activity." *Id.*; RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY, *supra* at 14, 1318 (defining "task" as "a piece of work assigned to or expected of a person," and defining "activity" as "the state or quality of being active").

To give effect to this difference in wording, the second clause has to be read as requiring more than a task that just facilitates research—it must itself be a "scientific research task[]," and it must be one that has no other purpose, i.e. "sole." *See S.E.C. v. McCarthy*, 322 F.3d 650, 656 (9th Cir. 2003) ("It is a well-established canon of statutory interpretation that the use of different words or terms within a statute demonstrates that Congress intended to convey a different meaning for those words."); *Persinger v. Islamic Republic of Iran*, 729 F.2d 835, 843 (D.C. Cir. 1984) ("When Congress uses explicit language in one part of a statute to cover a particular situation and then uses different language in another part of the same statute, a strong inference arises that the two provisions do not mean the same thing."); *Comm'r of Internal Revenue v. Clark*, 489 U.S. 726, 739 (1989) ("In construing [statutes] in which a general statement of policy is qualified by an exception, we usually read the exception narrowly in order to preserve the primary operation of the provision."); *A. Philip Randolph Institute v. Husted*, 838 F.3d 699, 708 (6th Cir. 2016) ("[T]he traditional rule of statutory construction dictat[es] that exceptions to a statute's general rules be construed narrowly."), *rev'd on other grounds*, 138 S.Ct. 1833 (2018).

This means that even if Houston Aquarium had shown that it conducts "scientific research" at the Downtown Aquarium *and* that some of its divers' activities during the feeding and cleaning dives qualify as scientific research tasks, that would be insufficient to establish the exception's applicability—Houston Aquarium must demonstrate that *all* of the tasks performed during feeding and cleaning dives meet the definition,[21] i.e., that the *sole* purpose of these dives is to perform scientific research tasks. Houston Aquarium has provided no evidence that *any* of the divers' feeding and cleaning tasks are performed for scientific research purposes, much less that scientific research is the *sole purpose* for these dives. Indeed, none of the entries in the "purpose" column

[21] While it appears that the tasks performed on a given dive vary, Houston Aquarium claims that *all* of its feeding and cleaning dives qualify as "scientific research," not merely feeding and cleaning dives that only involve specific tasks.

on Houston Aquarium's dive logs state that the purpose for the dive was to conduct research or any similar task, and there is no evidence that the tasks that are listed—which include: "clean"; "feed/clean"; "windows"; "scrub"; and "vacuum"—serve a scientific research purpose. On the contrary, the record shows that one of the main tasks the divers perform—scrubbing the tank windows with a scratch pad to remove algae—has a distinctly *non-scientific* purpose. Three Houston Aquarium employees testified that the purpose of this task is to make sure visitors outside the tanks have a clear view of the inside.[22]

Houston Aquarium argues generally that the cleaning of its tanks (including the windows) has to be done carefully to avoid harming the marine animals and emphasizes that the divers make observations at the same time that they engage in cleaning activities. While there is evidence to support Houston Aquarium's assertion that the cleaning must be done carefully to avoid harming the animals,[23] this does not transform the task of cleaning the tank windows into a "scientific research task"—any aquarium diver would have to clean with equal care. Here, cleaning the windows to allow customers of the Downtown Aquarium to better view the exhibits serves an aesthetic, entertainment, or educational end, but it is not a scientific research task. And even if the window cleaning were somehow considered a task performed, in part, for scientific research purposes, the "*sole* purpose" for the dive would not be "to perform scientific research tasks" given that the diving activity also serves a non-research purpose. 29 C.F.R. § 1910.402 (emphasis added). Similarly, this requirement would not be met even if the divers engage in various types of observations for research (which no evidence supports) in addition to the window cleaning. *Id*.

For all of these reasons, Houston Aquarium's feeding and cleaning dives do not constitute "scientific dives" within the plain meaning of that phrase under the diving standard.

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[22] The divers also reposition decorations moved by fish, and occasionally fix the substrate (the gravel and other materials at the bottom of the tank) when the base of a plant is showing. There is no evidence showing how these are scientific research tasks; indeed, there is no evidence that they are performed for anything other than aesthetic purposes.

[23] For example, former Houston Aquarium diver Shea Kelley testified that divers need to be careful to avoid disturbing fish eggs, and Smith testified that the divers need to selectively remove algae that could be harmful to the animals' health and to observe the animals' overall health and behavior.

B. Regulatory History

Because Houston Aquarium has failed to show that its feeding and cleaning dives meet the plain language of the standard's definition, consideration of the definition's regulatory history is not warranted. *Superior Masonry Builders, Inc.*, 20 BNA OSHC at 1184. In any event, we conclude that the regulatory history supports our conclusion.[24] *See U.S. Postal Serv.*, 21 BNA OSHC 1767, 1770 (No. 04-0316, 2006) ("When the meaning of the language in a standard is ambiguous, the Commission looks for interpretative guidance in the standard's regulatory history."); *Am. Sterilizer Co.*, 15 BNA OSHC 1476, 1478 (No. 86-1179, 1992) ("[T]he preamble is the best and most authoritative statement of the Secretary's legislative intent.") (internal citation omitted).

In the preamble to the publication of the scientific diving exception, OSHA states: (1) it does not intend scientific diving to include "an overly or improperly broad" group of activities; (2) it "believes this concern is addressed by focusing on the tasks of the diver in the definition"; and (3) scientific diving "includes such tasks as scientific observation of natural phenomena or responses of natural systems, and gathering data for scientific analysis." 47 Fed. Reg. 53,357, 53,362-63 (Nov. 26, 1982). These statements support the Secretary's contention that the scientific diving definition should be narrowly construed, which undermines Houston Aquarium's claim that, in essence, as long as a diving activity has *some* role in keeping the marine animals healthy, it should qualify as a scientific research task. In addition, nothing in the regulatory history contradicts the plain language in the regulatory text mandating that the tasks be *solely* for scientific research. On the contrary, OSHA states that the definition excludes dives with mixed purposes: "Thus, if an employee was diving for the purpose of scientific observation of marine life and, in

[24] In cases involving an ambiguous standard, the Commission defers to the Secretary's reasonable interpretation. *Martin v. OSHRC (CF&I)*, 499 U.S. 144, 149 (1991) ("It is well established that an agency's construction of its own regulations is entitled to substantial deference . . . . In situations in which the meaning of [regulatory] language is not free from doubt, the reviewing court should give effect to the agency's interpretation so long as it is reasonable . . . .") (internal citations omitted); *Oberdorfer Indus. Inc.*, 20 BNA OSHC 1321, 1329 (No. 97-0469, 2003) ("When the meaning of a standard cannot be determined from its language or the available legislative history, deference will be given to the Secretary's interpretation if it is reasonable, taking into account such factors as the consistency with which the interpretation has been applied, adequacy of notice to regulated parties, and the quality of the Secretary's elaboration of pertinent policy considerations.").

addition, was also inspecting a pipe for cracks, *the exemption would not apply since the sole purpose of the dive would not be scientific research*." *Id.* at 53,363 (emphasis added).

C. Conclusion

In sum, Houston Aquarium's feeding and cleaning dives do not qualify for the diving standard's exception because the company has not met its burden of establishing that the dives meet the plain meaning of the definition of "scientific diving." The record fails to show that Houston Aquarium performs scientific research, so unsurprisingly it also fails to show that the sole purpose of these dives is to perform scientific research tasks. Accordingly, we find violations of the diving standard on the basis of Houston Aquarium's feeding and cleaning dives in addition to its event dives. As the company has made no other arguments regarding the penalty amount, or challenged the serious characterization of the violations, we also affirm the $4,500 penalty assessed by the judge. *See e.g.*, *KS Energy*, 22 BNA OSHC 1261, 1268 n.11 (No. 06-1416, 2008) (affirming characterization and penalty as proposed where they were not in dispute).

SO ORDERED.

/s/
Cynthia L. Attwood
Commissioner

/s/
James J. Sullivan, Jr.
Commissioner

Dated: February 15, 2019

MACDOUGALL, Chairman, dissenting:

At issue in this case is whether a certain diving activity at Houston Aquarium—"cleaning and feeding" dives—is "scientific diving" and therefore not subject to the requirements of the cited provisions for commercial diving under the Commercial Diving Operations standard, 29 C.F.R. pt. 1910, subpt. T. My colleagues, who are neither experts in animal husbandry nor any other type of scientist, have determined that the Houston Aquarium scientists conducting these dives are not really engaged in science—just fake science; while we are often called upon to assess expert testimony on technical matters, this may be the first time that the Commission has diminished an entire field of science by informing the scientists engaged in their respective field that their work is not really science. One must wonder if my colleagues cannot recall from their years of primary or secondary education the teachings that sought to instill a love of science or scientific discovery. Unfortunately, the majority concludes that they know better than the scientific diving community, including the very institution that has accredited the aquarium, which has for decades concluded that Houston Aquarium's cleaning and feeding dives (which are no doubt like the dives performed at many other aquatic institutions) are indeed an important part of scientific diving. I would find that Houston Aquarium's cleaning and feeding dives are not subject to the Commercial Diving Operations standard as they meet the standard's exemption for scientific diving.

BACKGROUND

Houston Aquarium operates a complex in Houston, Texas, known as the "Downtown Aquarium." The Downtown Aquarium is a scientific research center that includes dining and entertainment facilities used to educate the public. The main building is four stories tall and contains several tanks, both fresh and saltwater, with a wide variety of marine life for observation and study. The Downtown Aquarium's aquatic exhibits include various scientific, research, and educational tanks, such as the:

- "Gulf of Mexico Tank," a 10-foot deep, 25,000-gallon tank designed to resemble an off-shore oil rig;
- "Grouper Tank," a 6-foot deep, 9,330-gallon tank designed to resemble a shipwreck;
- "Demi Tank," a 10-foot deep, 11,300-gallon tank designed to resemble a sunken temple;
- "Shark Tank," a 12-foot deep, 165,745-gallon tank;

- "Lionfish Tank," a 3-foot deep, 1,250-gallon tank with venomous fish located on the first floor of the main building, which is very small and with limited space for divers; and
- "Tower Tank," a 40-foot deep, 12,000-gallon cylindrical tank, which is the deepest tank at the aquarium.

The Downtown Aquarium also has exhibits displaying birds, reptiles, and a white tiger. The top floor of the building has a biology area and an office that includes a zone for fish that are quarantined for further study and a holding area for bird and reptile species. In addition, at the time of the hearing the aquarium had the only pair of microdon sawfish in North America potentially capable of breeding. This species is critically endangered, and another pair was not expected to be imported into the United States.

Houston Aquarium employees dive in all these tanks on a regular basis; the dives at issue here involve cleaning and feeding. The divers must perform these dives in a way that does not disturb or disrupt the marine environment. As a result, these divers are all scientists who receive extensive training and have diving certifications. All diving operations, including all safety procedures, are under the control of Houston Aquarium's Dive Control Board, whose members are all scientists and divers, and conducted in accordance with its Dive Manual. No manager or officer of Houston Aquarium can reverse a decision of the Dive Control Board. The Dive Manual covers every aspect of diving at the Downtown Aquarium, including policies and procedures for pre-dive operations, and the submission of dive plans to a dive safety officer. The Dive Manual is based on the requirements for scientific diving established by the American Academy of Underwater Sciences (AAUS), with additional provisions based on input from Houston Aquarium's Dive Safety Board.[1] Houston Aquarium requires that all of its divers be trained according to AAUS's standards for scientific diving. Many aquaria around the country use Houston Aquarium's dive program as a guide for their own dive programs.

[1] AAUS was officially chartered in 1983 by individuals and organizations involved in the effort, described below, to add the scientific diving exemption to OSHA's Commercial Diving Operations standard. Today, AAUS has more than 130 organizational members and over 1,100 individual members. Organization membership includes colleges and universities, government agencies, museums and aquaria, environmental and archaeological consulting firms, and community science groups sharing the common thread of using diving as a research tool and being committed to the health and safety of scientific divers.

Following an inspection,[2] OSHA issued Houston Aquarium a citation alleging six violations of the Commercial Diving Operations standard, which the Secretary grouped into five citation items (one of which he withdrew before the hearing). The five citation items collectively allege that violations of five provisions of the standard occurred in six of the complex's aquatic tanks as to three different types of dives including those associated with cleaning and feeding.

A three-day hearing was held before Administrative Law Judge Sharon D. Calhoun, at which the testimony of an expert witness, Derek Smith, Diving Safety Officer for the Albanian Center for Marine Research, was submitted on behalf of Houston Aquarium by video deposition. Smith testified that the aquarium's cleaning and feeding dives meet the AAUS's standards for scientific diving. Other witnesses included OSHA Compliance Officer Mark Chapman and current and former employees of Houston Aquarium—including Jim Prappas, Director of Animal Operations; Todd Hall, corporate Dive Safety Officer (DSO); William Boyes, resident DSO; and four divers that are all scientists.

Following the hearing, the judge concluded, even while recognizing that her decision represented "an abrupt departure from OSHA's previous treatment of public aquariums," that the cleaning and feeding dives constituted "commercial diving" and not "scientific diving" under the Commercial Diving Operations standard because the divers do not gather data during those dives.[3] She assessed a total penalty of $4,500 ($1,500 each for Items 1 and 3 and a single penalty of $1,500 for Items 5a and 5b). On review, Houston Aquarium contends that the judge erred in concluding that the cleaning and feeding dives do not qualify for the scientific diving exemption.

DISCUSSION

The issue before the Commission is one of first impression. It is undisputed that the Commercial Diving Operations standard does not apply to scientific diving. At issue is what qualifies as scientific diving rather than commercial diving. Since its inception, Houston

[2] This was the second of two inspections OSHA conducted following a complaint filed by a former employee. The first inspection yielded no citations.

[3] The two other types of diving operations at issue before the judge were "mortality dives," which are conducted to isolate and retrieve dead animals that are then studied in the biology area, and "event dives," performed for specific customer occasions. The judge found that the mortality dives meet the exception for scientific diving but that the event dives do not. Houston Aquarium does not challenge the judge's decision on either of these diving operations. Therefore, as stipulated to by the parties, violations of the cited provisions have been established for the event dives.

Aquarium (along with many other AAUS members), conducted its operations based on the understanding that it is exempt from the Commercial Diving Operations standard under the standard's scientific diving exemption. Today, my colleagues unreasonably and unnecessarily reject the aquarium community's longstanding interpretation of their institutional diving activities—a determination that not only impacts how Houston Aquarium must now conduct diving at its scientific institution, but also has the potential to impact any other AAUS member.

A. The History of the Commercial Diving Operations Standard and Its Exemption for Scientific Diving

OSHA published the Commercial Diving Operations standard as a final rule on July 22, 1977, with an effective date of October 20, 1977. 42 Fed. Reg. 37,650 (July 22, 1977). This version of the standard applied to "diving and related support operations conducted in connection with all types of work and employment[], including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring." 29 C.F.R. § 1910.401(a)(2) (1978). When the standard was promulgated in 1977, it stated that the standard did not apply to certain activities (none of which are germane to this case),[4] but "scientific diving" was not one of them.[5] *Id.*

After the final rule was published, OSHA received requests from various organizations and individuals to reconsider the standard's application to "educational/scientific" diving. 47 Fed. Reg. 53,357, 53,357 (Nov. 26, 1982). They argued that it was inappropriate for OSHA to apply the standard to "educational/scientific diving" because the educational/scientific diving community was already following "well-established, consensual standards of safe practice," including a set of consensual standards that had been developed by the University of California's Scripps Institution of Oceanography (Scripps) in the 1950s. *Id.* at 53,357-58. They also argued that educational/scientific divers choose "work area[s] and diving conditions which will minimize environmental stresses and maximize the safety and efficiency of gathering data." *Id.* at 53,357.

[4] These other activities are: diving solely for instructional purposes; diving performed solely for search, rescue or related public safety purposes; and diving governed by U.S. Department of Health and Human Services regulations concerning research involving human subjects. 29 C.F.R. § 1910.401(a)(2).

[5] OSHA's rulemaking was done in conjunction with rulemaking by the U.S. Coast Guard, which published its own commercial diving operations standard as a final rule on November 16, 1978. 43 Fed. Reg. 53,678 (Nov. 16, 1978); *see also* 47 Fed. Reg. 53,357 (Nov. 26, 1982). Unlike OSHA's 1977 final rule, the Coast Guard's standard exempted diving performed solely for scientific research and development purposes by educational institutions. 43 Fed. Reg. at 53,683.

Based on these requests, OSHA published an advance notice of public rulemaking to obtain further information. 44 Fed. Reg. 48,274 (Aug. 17, 1979). Following the comment period and a public hearing, OSHA amended the Commercial Diving Operations standard on November 26, 1982, to add "scientific diving" to the list of activities to which the standard does not apply and include a definition of "scientific diving." 47 Fed. Reg. at 53,365. In the preamble to the amended rule, OSHA highlighted evidence that the "scientific diving community" already had an effective system of self-regulation in place. *Id.* at 53,359-62. For example, OSHA quoted a diver from the California Department of Fish and Game who stated: "The consensual standard developed by the scientific community represents decades of accumulated wisdom and experience of the divers themselves, including those in private, governmental, and educational organizations, and has resulted in an excellent safety record." *Id.* at 53,359.

OSHA also cited evidence that the types of tasks performed by scientific divers are different from and safer than those of non-scientific divers, quoting a diving officer at the University of California: "Scientific divers do not use explosives, we do not get involved in shipwrecking, we do not get involved in heavy salvage. We are involved in *studying animals and plants and living organisms in their environment*." *Id.* (emphasis added). A diving safety officer from Moss Landing Laboratories similarly distinguished scientific diving:

> I believe that scientific divers are a completely and entirely different class of divers with respect to working conditions, tools and equipment used and risk exposure. Commercial divers typically are involved in underwater construction, repair and maintenance, often in emergency capacity under potentially hazardous conditions. In contrast is the scientific diver who gathers specimens, conducts experiments, photographs the environment, and in general only uses lightweight simple tools underwater.

Id.

In addition, OSHA acknowledged that union groups had expressed concern that it would be difficult to clearly distinguish between commercial diving operations and scientific diving operations. *Id.* A representative of the Pile Drivers Union (associated with the Carpenters Union) advised OSHA that "[n]o clear distinction between segments of the diving community exist[s]," and maintained that his union had members whose activities "blur any distinction between the segments within the diving community." *Id.* OSHA, though, *disagreed*:

> Based on the comments and other information contained in the record, *OSHA believes, and the final rule recognizes, that the tasks performed by commercial divers are different than those performed by scientific divers*. Commercial diving

> activities necessitate the use of heavy tools and include such tasks as placing or removing heavy objects underwater, inspection of pipelines and similar objects, construction, demolition, cutting or welding, or the use of explosives.
>
> In contrast, the sole purpose of scientific diving is to perform scientific research which includes such tasks as scientific observation of natural phenomena or responses of natural systems, and gathering data for scientific analysis. The tasks performed by scientific divers are usually light, short in duration, and if any hand tools are used, they are usually no more than simple non-powered hand tools such as screwdrivers and pliers.
>
> Because of the differences in tasks performed, OSHA believes that clear distinctions can be made between scientific diving and commercial diving and has incorporated these distinctions in the definition of "scientific diving" in the final rule. . . . OSHA believes that its definition of "scientific diving" addresses the concerns expressed by the Carpenters Union and others as to limiting the scope of the exemption, and virtually eliminates the potential for overlap and confusion between scientific diving and commercial diving.

Id. at 53,359-60 (emphasis added).

As amended, the diving standard states that it "does not apply to any diving operation . . . [d]efined as scientific diving and which is under the direction and control of a diving program containing at least" a "Diving safety manual [meeting specified criteria]" and a "Diving control (safety) board [meeting specified criteria]." 29 C.F.R. § 1910.401(a)(2)(iv)(A) and (B). OSHA based the two features required for a diving safety program—a diving safety manual and a diving control board—on the Scripps consensual safety program and incorporated these two requirements in the standard to ensure that the claimed effective self-regulation relied upon by OSHA in deciding to add the exemption remained in place. 47 Fed. Reg. at 53,363. The "Definitions" section of the amended standard defines "scientific diving" as follows:

> *Scientific diving* means diving performed solely as a necessary part of a scientific, research, or educational activity by employees whose sole purpose for diving is to perform scientific research tasks. Scientific diving does not include performing any tasks usually associated with commercial diving such as: Placing or removing heavy objects underwater; inspection of pipelines and similar objects; construction; demolition; cutting or welding; or the use of explosives.

29 C.F.R. § 1910.402. The preamble to the amended Commercial Diving Operations standard, in discussing the definition's "solely as a necessary part" requirement, stated: "Thus, if an employee was diving for the purpose of observation of marine life and, in addition, was also inspecting a pipe for cracks, the exemption would not apply since the sole purpose of the dive would not be scientific research." 47 Fed. Reg. at 53,363.

After the standard was amended to exempt scientific diving, the United Brotherhood of Carpenters and Joiners filed a petition with the D.C. Circuit challenging the exemption. 49 Fed. Reg. 29,105, 29,106 (July 18, 1984). During the proceedings, the court issued an order requiring the Secretary to "authoritatively state guidelines that would indicate how the 'scientific' and 'commercial' classifications will be applied to arguably ambiguous cases." *Id.* In response, OSHA published a notice in the Federal Register that included a list of four interpretive guidelines the agency stated will be used "in conjunction with the exemption criteria as specified in the Final Rule" to "scrutinize . . . seemingly close cases" and "*all of which must be met* for diving to qualify as scientific":

1. The Diving Control Board consists of a majority of active scientific divers and has autonomous and absolute authority over the scientific diving program's operations.
2. The purpose of the project using scientific diving is the advancement of science; therefore, information and data resulting from the project are non-proprietary.
3. The tasks of a scientific diver are those of an observer and data gatherer. Construction and trouble-shooting tasks traditionally associated with commercial diving are not included within scientific diving.
4. Scientific divers, based on the nature of their activities, must use scientific expertise in studying the underwater environment and, therefore, are scientists or scientists in training.

Id. at 29,108 (emphasis added).

After providing a comment period, OSHA published these four guidelines in an appendix to Subpart T ("Appendix B—Guidelines for Scientific Diving"). 50 Fed. Reg. 1,046, 1,050 (Jan. 9, 1985). Unlike the initial Federal Register notice, the final Appendix does not state whether each guideline must be met for a diving activity to qualify as scientific diving. *Id*. However, in the preamble to its publication, OSHA stated that "[p]rograms must meet *all of the criteria* in the Final Rule as interpreted by the final guidelines to avail themselves of the exemption." *Id.* at 1,047 (emphasis added). Still, OSHA's reasons for promulgating the commercial diving standard and for differentiating scientific diving remain clear from the preamble to Appendix B:

> Based on the rulemaking proceedings on scientific diving, OSHA concluded that significant differences exist between scientific and commercial diving; that *the scientific diving community has been successfully self-regulated for many years based on standards developed by the Scripps Institution of Oceanography; that this successful self-regulation is evidenced by its exemplary safety record; and that an exemption from Subpart T would allow the scientific diving community to perform significant underwater scientific activities while maintaining the safety and health of scientific divers.*

> In its Final Rule, therefore, OSHA established a narrow exemption from the requirements of Subpart T for scientific diving programs that meet specified conditions.

Id. at 1,046 (emphasis added).

B. Houston Aquarium's Cleaning and Feeding Dives

According to the text of the diving standard, a diving activity is exempt from the standard's requirements if it: (1) is conducted under the auspices of a diving program meeting certain requirements under 29 C.F.R. § 1910.401(a)(2); and (2) meets the standard's definition of "scientific diving." 29 C.F.R. § 1910.401(a)(2)(iv). As previously noted, in "seemingly close cases," in determining whether a diving activity meets the definition of "scientific diving," the diving must also satisfy the four interpretive guidelines contained in Appendix B to the standard.[6] 50 Fed. Reg. at 1,046. In litigating the scope of the scientific diving provision, the parties here have stipulated that Houston Aquarium met the first guideline (i.e., there is a diving control board). The judge found that Houston Aquarium met the second guideline (i.e., the diving is for the advancement of science) and fourth guideline (i.e., the divers are scientists). However, the judge determined that Houston Aquarium's cleaning and feeding dives did not meet the third requirement of the guidelines (i.e., the diving tasks are those of an observer and data gatherer).

While I agree with the judge and my colleagues that Houston Aquarium bears the burden of proof on what is an exception to the applicability of the cited standard—indeed, Appendix B expressly states that the guidelines serve to distinguish "those scientific diving programs which are *exempt* from the requirements for commercial diving" (emphasis added)—it is clear to me that Houston Aquarium has met its burden to establish it meets all of the requirements for the exemption. Any other finding not only lacks support in the record but wreaks havoc on the scientific diving exemption to the Commercial Diving Operations standard—after decades of the scientific diving community having proven that its activities do not fall within the scope of the standard and that, as OSHA itself recognizes, it has an effective system of self-regulation.

1. Interpretation of the Definition of "Scientific Diving"

The majority's analysis properly begins not with the guidelines but with the language in the "Definitions" section of the standard, 29 C.F.R. § 1910.402 ("*Scientific diving* means diving

[6] I agree with my colleagues that the guidelines, published in the Code of Federal Regulations after notice and comment, are regulatory with binding effect.

performed solely as a necessary part of a scientific, research, or educational activity by employees whose sole purpose for diving is to perform scientific research tasks."). However, my colleagues state that Houston Aquarium is not engaged in "scientific diving" because it does not engage in "scientific research"—an endeavor they believe, without any support other than circular reasoning, must result in a "research project" or "research study." They then ignore the record evidence that Houston Aquarium does engage in scientific research and even does so in the form of a project or study. After beginning their reasoning with their conclusion, they decide there is no need to analyze the matter further because the answer they have chosen is "plain" and not even a close call.

In interpreting the definition, my colleagues engage in a superficial examination that fails upon a review of the standard (and the record) as a whole. It is well-settled that in regulatory interpretation, "the expounding of a [regulatory] provision strictly according to the letter without regard to other parts . . . would often defeat the object intended to be accomplished." *Helvering v. N.Y. Trust Co*., 292 U.S. 455, 464 (1934); *see also Green Valley Util. Dist. v. City of Cibolo, Tex.*, 866 F.3d 339, 343 (5th Cir. 2017) ("[E]ach part or section of a statute should be construed in connection with every other part or section to produce a harmonious whole . . . ."), *cert. denied*, ___ U.S. ___, 2019 WL 113525 (Jan. 7, 2019). Thus, we determine the "plainness or ambiguity of [regulatory] language . . . by reference to the language itself, the specific context in which that language is used, and the broader context of the [standard] as a whole." *Robinson v. Shell Oil Co.*, 519 U.S. 337, 341 (1997) (internal citations omitted).

In this case, consideration of these interpretative principles leads me to conclude that examining this text was never meant to be complicated; there is commercial diving on one hand, to which the Commercial Diving Operations standard applies, and scientific diving on the other, to which the standard does not apply. In promulgating the guidelines in Appendix B to the Commercial Diving Operations standard, OSHA describes a scientific diver as an observer of natural phenomena or the responses of natural systems and a gatherer of data for scientific analysis, who performs task that are "light and short." 50 Fed. Reg. at 1,049. In contrast, OSHA describes a commercial diver as a construction worker, a builder, or a trouble shooter. *Id.* Thus, the simple question before us is whether Houston Aquarium's cleaning and feeding diving activities are commercial or scientific. In making this much more complicated, my colleagues' decision

illustrates a classic consequence of excessive regulation—they have produced a solution in search of a problem and in so doing, have made matters worse for the entire scientific diving community.

In concluding that the definition has not been met, my colleagues separate the words "sole purpose" and conclude that that the tasks performed do not meet their view of what qualifies as "science" or "scientific research." However, their reading renders the second sentence of the "scientific diving" definition superfluous, and thereby misses the intent of the exemption. The second sentence states: "Scientific diving does not include performing any tasks usually associated with commercial diving such as: Placing or removing heavy objects underwater; inspection of pipelines and similar objects; construction; demolition; cutting or welding; or the use of explosives." 29 C.F.R. § 1910.402. In referring to the divers' "sole purpose," OSHA's evident intent is not to hold an institution to strict adherence to the scientific method with accepted protocols of observation, measurement, and evaluation of results, but to contrast scientific diving with commercial diving, which involves "[p]lacing or removing heavy objects underwater; inspection of pipelines and similar objects; construction; demolition; cutting or welding; or the use of explosives." *Id.*; *see United States v. Morton*, 467 U.S 822, 828 (1984) ("We do not . . . construe statutory phrases in isolation; we read statutes as a whole. Thus, the words [in question] must be read in light of the immediately following phrase . . . .") (footnote omitted); *United States v. Williams*, 553 U.S. 285, 294 (2008) ("[A] word is given more precise content by the neighboring words with which it is associated."); *FTC v. Mendel Bros., Inc.*, 359 U.S. 385, 389 (1959) (We must, therefore "fit, if possible, all parts into a[] harmonious whole."); *see also*; *Corley v. United States*, 556 U.S. 303, 314 (2009) ("[O]ne of the most basic interpretive canons, [is] that [a] statute should be construed so that effect is given to all its provisions, so that no part will be inoperative or superfluous, void or insignificant . . . ."); *Williams v. Taylor*, 529 U.S. 362, 404 (2000) (A "cardinal principle" of interpretation is that courts "must give effect, if possible, to every clause and word . . . ."); *Mackey v. Lanier Collection Agency & Serv., Inc.*, 486 U.S. 825, 837 (1988) (Court is "hesitant to adopt an interpretation . . . which renders superfluous another portion of that same law."); *Nat'l R.R. Passenger Corp. v. Bos. and Marine Corp.*, 503 U.S. 407, 419 (1992) (holding that statute must be interpreted in a way that does not render an amendment superfluous and finding that strict reading of the term "required" would make amendment superfluous).

There is no dispute that Houston Aquarium's cleaning and feeding dives do not involve any of the tasks that the second sentence of the definition states are usually associated with

commercial diving. § 1910.402; *see also* 47 Fed. Reg. at 53,359 ("[T]he tasks performed by commercial divers are different than those performed by scientific divers. Commercial diving activities necessitate the use of heavy tools and include such tasks as placing or removing heavy objects underwater, inspection of pipelines and similar objects, construction, demolition, cutting or welding, or the use of explosives."). The preamble to the amendment to the standard supports finding that the definition was intended to contrast scientific diving to commercial diving: "For added clarity, the definition gives examples of tasks that would be considered to be commercial and not scientific diving . . . ." 47 Fed Reg. at 53,357. I would find that in comparison to commercial diving, Houston Aquarium's cleaning and feeding dives meet the definition for scientific diving.[7]

My colleagues' contrary reading of the definition excludes from its coverage more than OSHA obviously sought to exclude. The more logical interpretation—and one that accords with the regulatory history that recognized that the scientific diving community, with significant differences from commercial diving, has been successfully self-regulating for many years using the standards developed by Scripps and adhered to by all AAUS members, including Houston Aquarium—is that OSHA intended to exempt Houston Aquarium's cleaning and feeding dives from the Commercial Diving Operations standard because such dives do not, nor have they ever, constituted commercial diving.[8]

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[7] While my colleagues claim that I have "turn[ed] the inquiry on its head" by comparing commercial diving to scientific diving, this is exactly what the exemption requires and with what we are tasked—determining whether Houston Aquarium has met its burden to establish the "specified conditions." Appendix B, 50 Fed. Reg. at 1,046 ("OSHA established a narrow exemption from the requirements of Subpart T for scientific diving programs that meet specified conditions.").

[8] I would find that the cleaning and feeding dives unambiguously meet the standard's definition of "scientific diving." However, even if the definition were deemed ambiguous, the Secretary's interpretation is unreasonable given the lack of consistency with which his interpretation announced in this case has been applied, the lack of notice to the regulated parties that have operated for decades under the reasonable belief that they are exempted from the Commercial Diving Operations standard, and the lack of the Secretary's elaboration of pertinent policy considerations. *See Seward Ship's Drydock, Inc.*, 26 BNA OSHC 2303, 2306-08 (No. 09-1901, 2018), *appeal docketed*, No. 18-71216 (9th Cir. Apr. 27, 2018) (finding Secretary's interpretation contrary to the standard's plain meaning, but even if ambiguous, unreasonable and not entitled to deference). Such an interpretation, therefore, is not entitled to deference. *Id.*

2. The Diving Tasks Are Those of an Observer and Data Gatherer and for the Sole Purpose of Scientific Research

In failing to make this critical distinction, my colleagues then go on to reach the astounding conclusion that instead of engaging in science, Houston Aquarium's divers perform only routine tasks during cleaning and feeding dives such as "scrubbing the window and decorations or hand-feeding the fish to ensure they are fed," and cannot be engaged in scientific research because Houston Aquarium failed to "identify a single example of a study or research project it has performed." Such a conclusion is an affront to these scientists and disregards voluminous record evidence that these dives are indeed "scientific" and comprised solely of scientific research tasks.

Claiming that they are free to establish their own definition of the term "scientific research," without the assistance of the regulated scientific community and a field of scientists, my colleagues cobble together dictionary definitions of the two separate words, "scientific" and "research," then fail to apply that resulting definition to the facts of this case; instead, my colleagues ignore the divers' scientific research by diminishing it to "simply learning more about a subject . . . [which] all human activities have the potential to do." While it is true that the Commission's role is to interpret regulatory text, as my colleagues point out in seeking to justify their result, it is not our responsibility to invent a definition of science or scientific research. There is no dispute in this case that animal husbandry is a science. In addition, the cleaning and feeding activities meet the definition of "research," which is a broad concept: "*careful or diligent search*." WEBSTER'S NEW COLLEGIATE DICTIONARY 984 (1975). *See Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002) ("The ordinary meaning of a . . . term may be determined by reviewing a variety of sources, including . . . dictionaries and treatises . . . .") (internal citations omitted). My colleagues' claim that the divers performing these tasks are not engaging in research because they "[s]imply posses[ed] and [took] care of [the marine] animals" belittles the valuable and scientific work of the biologists working at the Downtown Aquarium. This belittling is further illustrated by their poor attempt at an analogy—that because dives that serve an entertainment purpose are not commercial diving, I would be forced to find that they too must meet the definition of scientific diving. It can hardly be said that divers engaged in animal husbandry are akin to, say, underwater circus performers.

At the end of this pretense, my colleagues state that their contrived definition of "scientific research" is so plain that resort to the standard's regulatory history is not warranted. *Cf. U.S. Postal Serv.*, 21 BNA OSHC 1767, 1770 (No. 04-0316, 2006) (when the meaning of the language

in a standard is ambiguous, the Commission looks for interpretative guidance in the standard's regulatory history); *Am. Sterilizer Co.*, 15 BNA OSHC 1476, 1478 (No. 86-1179, 1992) ("[T]he preamble is the best and most authoritative statement of the Secretary's legislative intent."). The preambles to the amendments exempting scientific diving and adding the Appendix B guidelines are replete with discussion comparing scientific diving to commercial diving but contain absolutely no fly-specking of the quality of scientists' research to conclude that it is not representative of "scientific research." My colleagues' conclusion seems akin to telling geologists that they are not engaged in science or scientific research because—rather than studying the origin of the Earth and the processes that have affected its rocks, minerals, land forms, and life forms—they are merely turning over rocks.

My analysis begins with the guidelines. OSHA expressly stated upon promulgating these guidelines that they "will be used *in conjunction with*" section 1910.401(a)(2)(iv), which contains the definition of scientific diving and the other criteria for the scientific diving exemption (i.e., diving safety manual requirements and diving control board requirements). 29 C.F.R. pt. 1910, subpt. T, app. B; *see also Am. Fed'n of Gov't Emps., Local 2782 v. Fed. Labor Relations Auth.*, 803 F.2d 737, 740 (D.C. Cir. 1986) ("[R]egulations are to be read as a whole, with 'each part or section . . . construed in connection with every other part or section.' ") (internal citation omitted). Under the plain meaning of this language, the guidelines *supplement*, rather than supplant, both the definition and the exemption's other criteria. While my colleagues and I agree on this interpretation of the guidelines, they seemingly conclude that these guidelines presume that the employer has already met the scientific diving definition and are setting *additional* exemption criteria. I find that the intent was to employ the guidelines as just that—principles applicable in close cases. Furthermore, whether read as an additional requirement once the definitional threshold is crossed or in conjunction in determining whether certain diving qualifies as "scientific diving," I find, unlike the judge and my colleagues, that the record contains ample evidence that aquarium cleaning and feeding dives meet all the Appendix B guidelines, including the third one; thus, the dives qualify for the scientific diving exemption.[9] *See Roberts v. Sea-Land Servs., Inc.*,

[9] In conducting a superficial examination of the third guideline, my colleagues again fail to recognize that the standard is comparing scientific diving with commercial diving: scientific diving involves "observer and data gatherer" tasks rather than "[c]onstruction and trouble-shooting tasks." 29 C.F.R. pt. 1910, subpt. T., app. B. Clearly, the dives at issue here do not involve the construction and trouble-shooting tasks traditionally associated with commercial diving.

566 U.S. 93, 101 (2012) ("Statutory language, however, 'cannot be construed in a vacuum. It is a fundamental canon of statutory construction that the words of a statute must be read in their context and with a view to their place in the overall statutory scheme.' ") (quoting *Davis v. Mich. Dep't of Treasury*, 489 U.S. 803, 809 (1989)).

What my colleagues fail to grasp is that the aquarium and cleaning diving operations further scientific knowledge of animal husbandry. As the judge acknowledged, "animal husbandry is a science and the employees' care of the animals in the Downtown Aquarium's exhibits requires scientific expertise." Indeed, the Association of Zoos & Aquariums (AZA) states in its amicus curiae brief:

> Animal husbandry practices ensure that the physiological, biological, psychological, and social needs of animals in human care are addressed. Providing for good animal welfare encompasses both ethical and scientific responsibilities. Daily activities of caring for animals, such as feeding and cleaning, necessarily involve making observations regarding their health, behaviors, psychological well-being, social interactions and environment. *These day-to-day observations lead to enhanced knowledge regarding animal care and management*.

(emphasis added). According to the AZA, its accreditation standards require an institution to have a recordkeeping system that "provides sufficient detail to enhance husbandry, breeding, conservation, and medical health advancements to move forward the critical knowledge of the species through permanent and retrievable documentation." Records, including husbandry information, must be kept current and data logged daily. AZA performed, as part of the accreditation process, a thorough review of whether Houston Aquarium is diving under AZA standards. Thus, my colleagues conveniently ignore that animal husbandry is a science in itself and that caring for animals and managing their environment, including during cleaning and feeding dives, involves being an "observer and data gatherer." Cleaning the tanks and feeding the animals living inside them are therefore scientific research tasks in the field of animal husbandry science. Since the record establishes that the divers do not engage in any additional non-scientific research tasks during the cleaning and feeding dives (such as construction-related tasks), performing these scientific research tasks is clearly the divers' "sole purpose" for diving.

Another way to describe this undertaking is as the AZA does—the large tanks at the Downtown Aquarium *are an ongoing laboratory experiment*. Every day these tanks are meticulously maintained by professional biologists to support and sustain the diverse life systems contained within them. The best way to care for marine life in captivity is to understand the

biology of the various species in their natural environments, including their physical adaptations, dietary needs, and social and space requirements. Everything involved—from the water's chemical content, temperature and filtration, to the microorganisms, algae, and the marine animals themselves—exists in a delicate balance that must be constantly monitored and maintained by trained biologists. The cleaning and feeding must be conducted in a way that will not disturb the marine animals or disrupt their environment. The scientific divers must ensure that the marine animals are given the appropriate type and amount of food, which requires knowledge of each species in the tanks.

The scientific divers must also understand the plant species present in the tanks, including knowing which are helpful and which are harmful and must be removed. As Houston Aquarium explained at the hearing, the goal is to make the exhibits look like they do in a natural environment; this might include allowing some types of algae to grow or it might mean removing other types of algae. As Houston Aquarium's expert stated, all the cleaning and feeding diving activities, which are essential to maintaining the exhibits and the marine animals' well-being, are scientific, including "being able to selectively remove algae and unused food particles and observe overall animal health and behaviors." These day-to-day observations lead to enhanced knowledge regarding marine life care and management—in other words, the advancement of science.

While my colleagues attempt to equate the scientists' activities with that of mere window washers, the health of the marine animals could not be maintained if the tanks they live in are not cleaned in a scientific manner—actually, the cleaning activities in the aquarium are essential to monitor and preserve water quality in the tanks. Chemicals may need to be added to the water to make sure the pH level is appropriate for the specific marine life contained in the tank. In addition, the scientific divers remove algae and waste, a function essential to maintaining the health of the water and in turn, the marine animals. The divers engage in scrubbing to remove algae and siphoning to remove food particles and feces. Houston Aquarium's Director of Animal Operations, Jim Prappas, testified that as an accredited member of AZA, Houston Aquarium must follow AZA's strict professional standards for maintaining animal health and welfare, including cleaning the tanks to maintain the health of the systems. Prappas explained:

> It's a closed system. We are doing what mother nature would do naturally. . . . [T]here would be algae blooms or bacteria blooms that could result in killing everything. That's not an option. . . . We clean the tank because it's the health of

> the system. . . . I mean, these animals are critical to our understanding of those particular animal's biology . . . .

Prappas also stated that a diver could not maintain the health of the marine animals and the system without doing the cleaning in a scientific manner.

Thus, caring for and maintaining the well-being of marine life is essential to providing an aquarium that protects the species and allows for their breeding so that the study of their biology may continue. Although § 1910.402 states that scientific diving is a "necessary part of a scientific, research, or educational activity," my colleagues fault Houston Aquarium for its concern that, as a scientific research and education center, visitors may not be able to see inside the tanks if the tanks become too dirty. But cleaning the tank windows is a necessary component of the science of *aquarium* animal husbandry, which inherently involves placing marine animals on display for the public, and thus is also a scientific research task in furtherance of it. As acknowledged by the standard, the fact that a diving task has an educational component does not make it any less scientific. Must the tanks be so filthy that the marine animals living there are in peril before cleaning becomes a "scientific" task? Obviously, "cleaning" is a relative concept (as any teenager will attest), and I cannot find that being meticulous in the care of the marine animals makes the diving being performed any less scientific; particularly, where Prappas testified that such care is necessary for the aquarium's scientific endeavors. The majority attempts to distinguish between tasks that merely "facilitate" scientific research and tasks that are themselves scientific research but never explains how one should draw this line. Is a scientist who begins an experiment by sterilizing her equipment not engaging in scientific research? In my view, this purported distinction is artificial.

As the record shows, scientists in the field of aquaria engage daily in noticing, questioning, investigating, and making sense of their animals' environment. In this inquiry-based research, these scientists draw upon previous knowledge and continuously integrate the results in an ongoing experiment.[10] For example, Houston Aquarium's expert witness, Smith, testified that the divers

[10] The majority's new test for what animal husbandry work qualifies as scientific research—that such work must involve a "systematic attempt to further knowledge regarding animal husbandry or the animals themselves"—and their conclusion that there is no evidence that these dives have advanced animal husbandry knowledge, fails to account for the long-term, gradual, and cumulative nature of the divers' research. Simply because Houston Aquarium has not yet made any groundbreaking animal husbandry discoveries does not mean that it is not genuinely engaged in

are constantly making observations about animal health and behavior. Smith testified that aquarium cleaning and feeding diving operations involve scientific observations regarding water quality, aquatic plant species, and the behavior, health, socialization and well-being of the fish. He explained that scientific aquarium divers observe the animals for signs of parasites, injuries, disease, discoloration, infections, or unusual behavior. Prappas testified that the knowledge and information regarding animal husbandry techniques developed at the Downtown Aquarium were shared with other scientists and institutions; thus, promoting the aquarium's mission "to educate, conserve, work with like-minded institutions and [promote] conservation of the world around us." Prappas also pointed out at the hearing that Houston Aquarium possesses a breeding pair of critically endangered microdon sawfish, and the information gained from monitoring and managing the sawfish has been shared with other scientists in other parts of the world.

William Boyes, the Dive Safety Officer in charge of day-to-day operations for Houston Aquarium, testified that scientific divers must remain constantly aware and always be observing the animals' behavior to ensure no damage is done to the animals. Biologist Johanna Guio testified that "every time I dive, I'm always looking out for my animal's behaviors." Guio also explained that the divers must observe animal behavior to avoid disrupting or destroying animal nests during cleaning. She noted that the piranha eggs are miniscule, often found underneath gravel at the bottom of the tank, and the only way to detect the eggs is to observe the behavior of the female guarding the nest. Guio testified that understanding the species' specific reproductive physiology is crucial to providing quality animal care and contributes to species conservation, especially those species that are threatened or endangered. As she stated, each time the divers enter the tanks, they are trained to observe the marine life for illness, injury, or abnormal behavior.

While this evidence shows that the cleaning and feeding dives have the sole purpose of performing scientific research tasks, my colleagues incorrectly conclude that Houston Aquarium failed to conquer another hurdle found nowhere in the standard—that data gathering must include written records. Data, however, can be gathered simply by observation. *See* WEBSTER'S NEW COLLEGIATE DICTIONARY 288 (1975) (defining "data" as "factual information (as measurements

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scientific research. Scientific research seldom produces instantaneous, headline-catching breakthroughs, and whether or not Houston Aquarium's work ever does, the daily maintenance of its animals and their environment over the course of years will inherently add to animal husbandry science knowledge.

or statistics) used as basis for reasoning, discussion, or calculation"); www.oxforddictionaries.com (defining "data" as "facts and statistics collected together for reference or analysis"); www.dictionary.com (same); *see also* 50 Fed. Reg. at 1,049 ("OSHA's intent in promulgating the [scientific diving] amendment was to restrict the exemption to scientific research dives that result in non-proprietary information, data, *knowledge, or other work product.*") (emphasis added). As discussed above, observations are made daily at the aquarium about the behavior, health, and well-being of the animals. These observations are then used to care for the animals and are shared with the scientific community. Through organizations such as the AZA, members and scientists collaborate through conferences, summits, committee meetings, and other communications that seek to expand the scientific community's collective knowledge of the field of animal husbandry.

In addition, Smith testified that as an AZA-accredited institution, Houston Aquarium is required to keep extensive records on the animals' care, the amount of food the animals are given, and the amount of cleaning that is done inside the exhibits; and that "data are shared between the community and are non-proprietary and work toward animal health and animal care." Indeed, the record evidence shows that Houston Aquarium's divers keep daily written dive logs that record the date of the dive, the tank in which the dive took place, the diver's bottom time, the air supply method used, and the purpose of the dive.[11] There is also testimony that the divers keep records of what the fish are eating. Thus, my colleagues are simply mistaken that the cleaning and feeding dives do not involve gathering data or making scientific observations.

In sum, the record is replete with examples of how animal care and aquarium science knowledge is acquired through the cleaning and feeding dives, and how these activities not only become part of the science of properly caring for the animals in Houston Aquarium's tanks but adds information that is shared amongst other aquarium programs about how to better take care of

[11] Despite this record, my colleagues contradict themselves by falsely claiming that I admit Houston Aquarium has produced no written documents and then by also referring to a written document—a record entitled, "Downtown Aquarium 2012 Statistics." I agree, however, that this document is not instructive on the issue of whether the cleaning and feeding dives qualify for the scientific diving exemption. Boyes testified that Houston Aquarium had just started using the computer system that generated this report, so they were still learning how to input information into the system and a lot of mistakes were made. He also testified that, for any dive listed as "animal care" on the report, it was also a "scientific dive" (stating "make no mistake, animal care is scientific" in reference to the 21,832 animal care dives).

exhibits.[12] It is clear that the divers' tasks in cleaning the tanks and feeding the animals involve scientific observation and data collection essential to the care and management of the animals and the use of only small tools typical to aquarium science; these tasks do not entail construction or the use of any tools associated with commercial diving. Thus, I find that Houston Aquarium has met its burden to establish that its cleaning and feeding dives are "scientific diving performed solely as a necessary part of a scientific, research, or educational activity by employees whole sole purpose for diving is to perform scientific research tasks."

Imposing the Commercial Diving Operations standard on an aquarium that performs cleaning and feeding dives is not only contrary to the standard—which OSHA determined should not apply to institutions such as Houston Aquarium because of the scientific diving community's impeccable record of safety through self-regulation—it may have an unnecessary impact or harm upon aquatic animals, without increasing diver safety.[13] *See Indus. Union Dep't., AFL-CIO v. Am. Petroleum Inst.*, 448 U.S. 607, 664 (1980) (Burger, J., concurring) ("When the administrative record reveals only scant or minimal risk of material health impairment, responsible administration calls for avoidance of extravagant, comprehensive regulation."). My colleagues' decision today, reached as a result of their diminishing the world of science, is unfortunate for the entire scientific diving community, as it unravels layers of careful work that was reached through notice-and-comment rulemaking and included the participation of various stakeholders—including the scientific diving community, who will find that work was for naught. Accordingly, I would find that Houston Aquarium's cleaning and feeding dives qualify for the scientific diving exemption and are therefore not subject to the Commercial Diving Operations standard.

/s/
Heather L. MacDougall
Chairman

Dated: February 15, 2019

[12] The preamble to Appendix B proves that a determination of whether the diving at issue employs the scientific method was never intended; it merely involves making a comparison to commercial diving. In discussing one of the comments it received, OSHA noted: "The construction of the kelp bed used in the project is not scientific diving since construction activities are commercial diving tasks. The consequent studies made of the kelp would be scientific diving tasks." 50 Fed. Reg. at 1,049.

[13] For example, the additional equipment required by the cited standard is not only unnecessary, but its bulkiness may result in bumping into and potentially injuring or aggravating the marine life.

United States of America
OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION
1924 Building – Room 2R90, 100 Alabama Street SW
Atlanta, Georgia 30303-3104

Secretary of Labor, Complainant, v. Houston Aquarium, Inc., Respondent.	OSHRC Docket No. **12-1617**

Appearances:

Jennifer Johnson Esquire, U. S. Department of Labor, Office of the Solicitor, Dallas, Texas
For the Complainant

R. Edwards Perkins, Esquire, Sheehy Ware & Pappas, PC., Houston, Texas
For the Respondent

Before: Administrative Law Judge Sharon D. Calhoun

DECISION AND ORDER

Houston Aquarium, Inc., operates an entertainment complex in Houston, Texas, known as the Downtown Aquarium. In response to an employee complaint, a compliance safety and health officer (CSHO) from the Occupational Safety and Health Administration (OSHA) opened an inspection of the Downtown Aquarium on January 10, 2012. On July 10, 2012, the Secretary issued to Houston Aquarium a Citation and Notification of Penalty alleging serious violations of six subsections of Subpart T, the Commercial Diving Operations standard, 29 C.F.R. §§ 1910.401--.440. Houston Aquarium timely contested the Citation and Notification of Penalty.

Houston Aquarium stipulates the Commission has jurisdiction over this proceeding under § 10(c) of the Occupational Safety and Health Act of 1970, 29 U.S.C. §§ 651--678 (2014) (Act), and that Houston Aquarium is a covered business under § 3(5) of the Act (Agreed Prehearing Statement, ¶¶ E.1, E.2; Tr. 21-22). The Court held a three-day hearing in this matter on August 27, 28, and 29, 2013, in Houston, Texas. The parties filed simultaneous post-hearing briefs on February 21, 2014. At the Court's request, the Secretary filed a reply brief on April 14, 2014.

Item 1 of the Citation alleges a serious violation of 29 C.F.R. § 1910.422(c)(1)(i), for failing to ensure that each surface-supplied air or mixed-gas diver and dive team member at the dive location had a two-way voice communication system. The Secretary cites seven instances ((a) through (g)) of alleged violations of this subsection. The Secretary proposes a penalty of $5,500.00 for Item 1. In the parties' Agreed Prehearing Statement, filed August 23, 2013, the Secretary withdrew Item 2, which alleged a serious violation of 29 C.F.R. § 1910.422(d), and for which the Secretary proposed a penalty of $5,500.00 (Agreed Prehearing Statement, ¶ B.1; Tr. 9).

Item 3 of the Citation alleges a serious violation of 29 C.F.R. § 1910.424(c)(4), for failing to provide each diver with a reserve breathing gas supply consisting of a manual reserve (J valve) or an independent reserve cylinder. The Secretary cited five instances ((a) through (e)) of alleged violations of this subsection, but withdrew Instances (a), (b), and (e) at the hearing (Tr. 10). The Secretary proposes a penalty of $5,500.00 for Item 3.

Item 4 of the Citation alleges a serious violation of 29 C.F.R. § 1910.430(g)(1), for failing to ensure each diver used a gauge indicating diver depth which can be read at the dive location. The Secretary cited five instances (a through e) of alleged violations of this subsection, but withdrew Instances b through e in the Agreed Prehearing Statement (Agreed Prehearing Statement, ¶ B.1.b.4; Tr. 10). The Secretary proposes a penalty of $3,300.00 for Item 4.

Item 5a of the Citation alleges a serious violation of 29 C.F.R. § 1910.430(j)(2)(i), for failing to ensure each diver wore a safety harness with a positive buckling device. Item 5b of the Citation alleges a serious violation of 29 C.F.R. § 1910.430(j)(2)(ii), for failing to ensure that each diver wore a safety harness with an attachment point for the umbilical to prevent strain on the mask or the helmet. The Secretary proposes a grouped penalty of $5,500.00 for Items 5a and 5b.

Houston Aquarium denies it violated the terms of each of the cited standards. Its primary defense, however, is that the Commercial Diving Operations standard does not apply to its workplace. For the reasons that follow, the Court determines the Commercial Diving Operations standard applies to the cited conditions at the Downtown Aquarium. The Court affirms items 1, 3, 5a, and 5b of the Citation and vacates Item 4. The Court assesses a penalty of $1,500.00 each for Items 1 and 3, and a grouped penalty of $1,500.00 for Items 5a and 5b.

[1]

BACKGROUND

The Downtown Aquarium Complex

The Downtown Aquarium, operated by Houston Aquarium, is a large entertainment and dining complex.[2] Located on the north side of downtown Houston, the Downtown Aquarium complex covers several acres and offers a variety of attractions and amusements.[3] Fairground-type games and rides are located outside the main building along a midway, including a Ferris wheel, a carrousel, and the Shark Voyage ride. The Shark Voyage ride "is a small train, which guests get on and the train then takes them to the shark tunnel, which is across the property, which houses [the] quarter-of–a-million-gallon" Shark Tank Exhibit, located in a building separate from the main building (Tr. 144).

The main building on the premises is four stories high. The first floor consists mainly of the Downtown Aquarium's "exhibit chain," where the majority of the facility's freshwater and saltwater tanks are located.[4] The Downtown Aquarium's exhibit tanks on the first floor include the Entry Tank, the Gulf of Mexico Tank, the Grouper Tank, the Demi Tank, the Tower Tank, and the Lionfish Tank (the Shark Tank is located in a separate building) (Exh. C-7). The exhibit chain also includes exhibits showcasing reptiles, birds, a white tiger, and a touch-tank. In addition, the facility's retail gift shop is on the first floor (Tr. 143, 306).

The second floor of the facility consists predominantly of a restaurant, whose main seating area forms a balcony around the Dining Room Exhibit, a large (90,000 gallons) saltwater tank. The restaurant's kitchen and service stations are also on the second floor (Tr. 143-144). The third

[2] The Secretary originally issued the instant Citation and Notification of Penalty to "Landry's Inc. Dba Houston Aquarium Inc." In its Answer, Respondent stated, "Houston Aquarium, Inc., is a wholly owned subsidiary of Landry's, Inc., which is improperly alleged to be doing business as the Houston Aquarium, Inc. Houston Aquarium, Inc., not Landry's, Inc., operates the business at the location where the inspections in issue took place and is the proper employer to whom the citation should have been addressed." (Answer, ¶43). On October 12, 2012, the Secretary filed an Unopposed Motion to Amend Citation and Complaint to name Respondent as "Houston Aquarium, Inc." The ALJ to whom this case was originally assigned granted the Secretary's motion on June 10, 2013, two days before the case was reassigned to this Judge. In this Decision and Order, the Court refers to Respondent as "Houston Aquarium" and to the physical facility located at 410 Bagby Street in Houston, Texas, as "the Downtown Aquarium."

[3] At the close of the Secretary's case, counsel for Houston Aquarium suggested it would be helpful to tour the Downtown Aquarium, which is located two blocks from the courthouse where the hearing was held. The Secretary's counsel had no objection. Accordingly, the parties' counsel, the court reporter, and the undersigned took a field trip to the Downtown Aquarium on August 28, 2013. Jim Prappas, Houston Aquarium's director of animal operations, conducted the tour (Tr. 353-357).

[4] The Downtown Aquarium prides itself on having the "only potential[ly] breeding pair of *Microdon* Sawfish," an endangered freshwater sawfish, in North America (Tr. 385).

floor houses a large kitchen that is used to service the banquet hall. Customers rent the banquet hall for "bar mitzvahs and weddings, quinceañeras, and things like that." (Tr. 144).

The fourth floor is a "support floor," where the main offices, the staff break room, and the biology area are located. The biology area contains quarantine exhibits and a holding space for birds and reptiles not on exhibition (Tr. 144). The fourth floor is also where the diver entry to the Tower Tank Exhibit is located. The Tower Tank, which is 40 feet deep and holds 12,000 gallons of water, is the deepest tank in the Downtown Aquarium (Exh. C-7; Tr. 308).

Houston Aquarium employs a number of part-time and full-time employees as divers. Diving occurs on a daily basis at the Downtown Aquarium for purposes of feeding the animals, cleaning the tank windows, siphoning the gravel, and other required activities. Divers also perform "event dives," during which they may engage in activities such as dressing in costumes and holding up signs for the purpose of entertaining the customers.

OSHA's January 2012 Inspection

In late December of 2011, a Houston Aquarium employee filed a complaint with OSHA's Houston South Office. The complaint alleged that divers at the Downtown Aquarium "weren't doing anything scientific whatsoever" when performing their dives and thus should be complying with the Commercial Diving Operations (CDO) standard, §§ 1910.401---.440 (Tr. 192). Since its inception, Houston Aquarium has conducted its operations based on the understanding it is exempt from compliance with the CDO standard under the standard's scientific diving exception. Section 1910.401(a)(2)(iv) provides the CDO standard does not apply to any diving operation "[d]efined as scientific diving and which is under the direction and control of a diving program[.]"

OSHA's Houston South Office assigned a CSHO to investigate the complaint. The CSHO first arrived at the Downtown Aquarium on January 10, 2012, and met with Jim Prappas, Houston Aquarium's director of animal operations, and William Boyes, Houston Aquarium's dive master (Tr. 192, 195, 357). The CSHO informed Prappas and Boyes of the employee complaint. They provided the CSHO with information and documents supporting Houston Aquarium's position that the diving performed at the Downtown Aquarium qualifies as scientific diving within the meaning of the CDO standard (Tr. 193).

After reviewing the information, the CSHO met with his OSHA supervisors and recommended that no citation be issued to Houston Aquarium. He testified, "I explained that to my supervisors, telling them that, you know, they say they're doing scientific diving and then they

provided me the information of the elements that are required. And based on that, I closed the case out and no citations were issued at that time." (Tr. 195).

OSHA informed the complaining Houston Aquarium employee of the CSHO's recommendation that no citation be issued. The complaining employee elected to elevate the complaint to OSHA's regional administration and to OSHA's national office. After review, OSHA's national office instructed the area director for the Houston South Office to pursue the employee complaint. The area director instructed the CSHO to reopen the investigation at the Downtown Aquarium based on a new allegation by the complaining employee (Tr. 607-608). The complaining employee alleged the information provided by Houston Aquarium during the January inspection (upon which the CSHO relied in making his recommendation) was outdated. The complaining employee claimed the information Houston Aquarium provided applied to dives Houston Aquarium divers had performed some time previously, but not to dives performed immediately prior to the December 2011 complaint. The CSHO testified he was informed that Houston Aquarium was not "currently doing scientific studies at the time, and so I needed to go back and reinvestigate that." (Tr. 196).

OSHA's February and June 2012 Inspections

On February 13, 2012, the CSHO returned to the Downtown Aquarium and held another opening conference and conducted interviews with Houston Aquarium personnel (Tr. 196-197). The CSHO returned on June 14 and 20, 2012, to observe dives at several of the tank exhibits (Tr. 273). Based on these inspections, the Secretary issued the instant Citation and Notification of Penalty on July10, 2012.

Witnesses

Nine witnesses testified during the course of this proceeding. Eight witnesses appeared at the hearing in Houston in August 2013. The testimony of the ninth witness, Houston Aquarium's proffered expert Derek Smith, was taken during a discovery deposition on May 23, 2013, in Portland, Oregon (Exhs. R-195a (deposition transcript) and R-195b (deposition video)). The Court reserved ruling on the qualification of Smith as an expert until this Decision (Tr. 573, 591).

Both parties in their post-hearing briefs argue the testimony of certain witnesses should be excluded or given no weight. Houston Aquarium argues the testimony of the hearing's first witness, a former Houston Aquarium employee, lacks credibility and should be discounted. Houston Aquarium also contends the testimony of the CSHO should be given no weight because

it "failed to satisfy [Fed. R. Evid.] 702 because his opinion is not based on sufficient facts or data, reliable principles and methods, or a reliable application of those principles and methods to the facts of the case." (Houston Aquarium's brief, p. 24). The Secretary contends Derek Smith's testimony should be stricken from the record because it fails to meet the requirements for the admissibility of expert testimony set out by the Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

For the reasons that follow, the Court agrees with Houston Aquarium that the testimony of its former employee should be accorded no weight. With regard to the testimony of the CSHO, the Court concludes it is admissible and credible. Upon consideration of the relevant *Daubert* criteria, the Court determines Derek Smith is qualified as an expert witness and denies the Secretary's motion to exclude his testimony.

Former Employee

The first witness who testified at the hearing had formerly worked for Houston Aquarium as a diver. At the time of the hearing, he was employed as a veterinary practice manager at a pet hospital (Tr. 34).[5] The former employee had trouble recalling the specific beginning and ending dates of his employment with Houston Aquarium, stating, "I have a terrible time with dates." (Tr. 35). He initially testified he was working at the Downtown Aquarium during the first quarter and "the first part of" the second quarter of 2012 (Tr. 36). He testified he dived on an almost daily basis during that time to perform maintenance tasks in the various exhibit tanks (Tr. 39).

Subsequently, Houston Aquarium established through its dive records that the former employee had dived only once in 2012, on January 5. The 30-minute dive was supervised by dive master William Boyes, who was retraining the former employee on the procedure for an emergency assist (Exh. R-194; Tr. 84-88, 627-628).

Upon redirect examination, the former employee asserted that, although he did not perform dives himself during the first two quarters of 2012, he had observed numerous dives during that time period when he had acted as a dive tender (Tr. 89). He was asked repeatedly about dives he had observed as a dive tender "between January 10, 2012, and June 20, 2012," the time period at issue in the Citation. The former employee testified he had observed numerous dives during those

[5] Houston Aquarium assumes (although the record does not establish it as fact) that the former employee filed the employee complaint with OSHA in December 2011 that gave rise to the instant case (Tr. 288-289; Houston Aquarium's brief, pp. 21-22, 34).

months during which Houston Aquarium failed to comply with the cited subsections of the CDO standard (Tr. 89-105). When asked upon recross examination, however, if it was true that he had left Houston Aquarium's employment in April of 2012, the former employee replied, "It sounds about right," and he conceded he had no personal knowledge of dives that occurred at the Downtown Aquarium in May and June of 2012 (Tr. 106).

Houston Aquarium argues the former employee's testimony "is unreliable and should not have been admitted over objection" and that [the former employee] "lied during his direct examination." (Houston Aquarium's brief, p. 21). The Court disagrees with this characterization of the former employee's veracity. The former employee stated almost immediately upon taking the stand that he is "terrible" with dates. The former employee continually qualified his responses, saying, "I believe so," when asked about certain dates, never categorically stating he remembered a specific dive occurring on a specific date (Tr. 34, 61, 63, 74, 78, 84).

The Court agrees, however, that the former employee's testimony is unreliable. The alleged violation description (AVD) of each of the cited items begins with the words "[b]etween January 10, 2012, and June 20, 2012." It is the Secretary's burden to prove Houston Aquarium failed to comply with the CDO standard during the time period specified. The record establishes the former employee made his last dive on January 5, 2012, before the time period at issue. Therefore, he performed no dives during the pertinent time period. Any testimony regarding observations that the former employee made while diving at the Downtown Aquarium will not be considered.

It also is questionable whether all or some of the former employee's observations made while acting as a dive tender occurred during the time period cited in the Citation. The record establishes he left Houston Aquarium at some point in April of 2012.[6] No record documenting the former employee's schedule as a dive tender was adduced at the hearing. The former employee never referred to a specific date when he testified regarding his observations, but always responded affirmatively when asked if he observed a given dive "between January 10, 2012, and June 20, 2012." His admitted difficulty in matching up his observations with specific dates creates a gap

[6] The former employee initially stated he left Houston Aquarium in 2011 (Tr. 34). When asked how long he had worked at the temporary job he had between working at Houston Aquarium and his current job, he replied, "I left there in February of this year, I believe, and I began employment very shortly after leaving the Aquarium. I believe it was July of 2000—no, I guess it would be 2012, June—no, I'm sorry. I have a terrible time with dates." (Tr. 35).

in the evidence. The former employee's inaccuracy in recalling when events occurred compromises the probative value of his testimony.[7]

For these reasons, the Court accords no weight to the former employee's testimony His observations will not be considered in deciding the issues of this case.

The CSHO

Much of the CSHO's testimony consists of explanations of his reasons for recommending that the Secretary cite Houston Aquarium for the alleged violations. Houston Aquarium argues the Secretary failed to establish the opinions of the CSHO are admissible pursuant to Fed. R. Evid. 702, which addresses testimony by experts:

> Here, the Secretary did not offer any opinion from [the CSHO] on whether the diving conducted at the Houston Aquarium was scientific or commercial in nature. The failure to do so is not surprising because [the CSHO] had no experience to determine if a dive is scientific or commercial. This failure to adduce such evidence is fatal to the Secretary's case. [The CSHO] did offer testimony regarding the alleged commercial diving violations over objections by Respondent. However, [the CSHO] is not qualified to offer this testimony. [The CSHO] is only a recreational diver with no scientific training. He also has no experience with either scientific or commercial diving.

(Houston Aquarium's brief, p. 22-23) (footnotes omitted). Houston Aquarium concludes that the CSHO failed to satisfy Rule 702 because "his opinion is not based on sufficient facts or data, reliable principles and methods, or a reliable application of those principles and methods to the facts of the case." (Houston Aquarium's brief, p. 24).

The Secretary did not proffer the CSHO as an expert witness, a fact Houston Aquarium's counsel acknowledged at the hearing during an objection (Tr. 211). Houston Aquarium's argument appears to be that, because the CSHO was not qualified as an expert in scientific or commercial diving, it was impermissible for him to state that, in his opinion, Houston Aquarium committed violations of the cited subsections of the CDO standard.

Opinion testimony must meet the requirements of Fed. R. Evid. 701, which provides:

> If a witness is not testifying as an expert, testimony in the form of an opinion is limited to one that is:
> (a) rationally based on the witness's perception;

[7] The former employee failed to remember correctly the approximate date of his dives by a fairly large margin. His last dive occurred in the Tower Tank on January 5, 2012. Yet when asked if he dived in the Shark Tank Exhibit "during the first two quarters of 2012," Kelley replied, "I believe so." (Tr. 74).

(b) helpful to clearly understanding the witness's testimony or to determining a fact in issue; and

(c) not based on scientific, technical, or other specialized knowledge within the scope of Rule 702.

In *Kaspar Electroplating Corporation,* 16 BNA OSHC 1517 (No. 90-2866, 1993), the Commission addressed at length the admissibility of opinion testimony by OSHA compliance officers. In that case, the ALJ relied on testimony given by the compliance officer in finding violations of the cited standards. The respondent argued that because the compliance officer was not qualified as an expert, the ALJ should not have allowed him to give opinion testimony. The Commission rejected the respondent's argument, stating:

> Under Commission precedent, opinion testimony by an OSHA compliance officer may be admissible as non-expert testimony if it is "helpful to the resolution of a material issue and is based on his personal knowledge." *Harrington Constr. Corp.*, 4 BNA OSHC 1471, 1472, 1976-77 CCH OSHD ¶ 20,913 p. 25,109 (No. 9809, 1976).
>
> . . .
>
> Kaspar argues that an OSHA compliance officer's testimony that is based on experience as a compliance officer or on-the-job training prior to becoming a compliance officer necessarily constitutes expert testimony. This is incorrect. Of course, [the compliance officer's] experience and training might have qualified him to give expert testimony on certain subjects. However, to say that such a person *may* testify as an expert is not to say that the person *may only* testify as an expert. As discussed above, under Fed. R. Evid. 701, a witness also may give a non-expert opinion in court, where it is rationally based on the witness's perceptions. Kaspar has failed to show that [the compliance officer's] opinion testimony on the items we affirm here was expert testimony. Although it claims unfair surprise, it could have anticipated from Commission precedent and the Federal Rules of Evidence that the judge would receive non-expert opinion testimony from [the compliance officer] on the nature of the alleged hazards.

Id. at 1520.

The Court finds that the CSHO's testimony is helpful to the resolution of whether Houston Aquarium committed violations of the cited subsections of the CDO standard and his testimony is rationally based on his perception. The CSHO's testimony is admissible in accordance with Commission precedent and with Fed. R. Evid. 701.

Derek Smith

Derek Smith is the diving safety officer for the Albanian Center for Marine Research. (Exh. R-195a, attachment 2). Houston Aquarium proffered Smith as "a SCUBA diving expert to testify regarding applicable safety requirements for the premises in issue and more specifically the aquarium exhibits that were cited by OSHA." (Tr. 579).

Due to Smith's unavailability at the time of the hearing, Houston Aquarium sought to introduce Smith's deposition testimony into the record (Tr. 562, 570-571). The Secretary had no objection to the introduction of Smith's testimony in the form of his deposition, but disputed Smith's qualification as an expert witness (Tr. 568, 593).[8] The Court declined Houston Aquarium's offer to present the video recording of the deposition at the hearing, but admitted the video recording and transcript of the deposition into the record contingent upon finding Smith to be qualified as an expert (Tr. 573). Having reviewed the video recording and the transcript of the deposition, the attached exhibits, and the arguments advanced by the parties in their post-hearing briefs, the Court determines Derek Smith is qualified as an expert and finds his testimony admissible.

Fed. R. Evid. 702 governs testimony by experts. It states:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education, may testify in the form of an opinion or otherwise, if:
>
> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
>
> (b) the testimony is based upon sufficient facts or data;
>
> (c) the testimony is the product of reliable principles and methods;
>
> (d) the expert has reliably applied the principles and methods to the facts of the case.

Smith has a BA in Marine Biology from the University of California, Santa Cruz, and an MS in Zoology from the University of Hawaii. He was working on his PhD in Biology from the University of Washington at the time of his deposition. Smith has worked as a dive safety officer at the University of Southern California (Los Angeles), at the Caribbean Marine Research Center at the Perry Institute for Marine Science (Lee Stocking Island, Great Exuma District, in the

[8] In its post-hearing brief, Houston Aquarium anticipates a procedural argument from the Secretary and states that it complied with disclosure requirements regarding expert witnesses and expert reports under Fed. R. Civ. P. 26 (a)(2)(A) and (B). (Houston Aquarium's brief, p. 26). Since the Secretary does not object to Smith's deposition on procedural grounds, the point is moot. The Court points out to Houston Aquarium, however, that Commission Rule 52(a)(1)(iii) states, "In the absence of a specific provision, procedure shall be in accordance with the Federal Rules of Civil Procedure, except that the provisions of Rule 26(a) of the Federal Rules of Civil Procedure do not apply to Commission proceedings."

Bahamas), and at the Aquarium of the Pacific (Long Beach, California). (Exh. R-195a, pp. 197, 210-211). He is past president of the Association of Dive Program Administrators. During his tenure there, Smith worked on "trying to create a community standard amongst the aquarium industry for diving operations." (*Id.* at 216). From 2002 to 2007, Smith was a member of standards committee for the American Academy of Underwater Sciences (AAUS) (*Id.* at 218). At the time of his deposition, Smith had logged over 3,000 lifetime dives and approximately 1,500 hours underwater (*Id.* at 207).

The Secretary "does not object to Mr. Smith being designated as an expert with respect to SCUBA diving and does not contest his general knowledge concerning aquarium science and/or animal husbandry." (Secretary's brief, p. 59). The Court determines Smith is well qualified by knowledge, skill, experience, training, and education as an expert in SCUBA diving and aquarium science.

While the Secretary concedes Smith's expertise in SCUBA diving and aquarium science, he argues Smith's testimony should be excluded because it is unreliable. The Supreme Court has established gatekeeping principles designed to keep out unreliable expert testimony[9]:

> In *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), the Court set forth a two-pronged analysis for determining the admissibility of expert testimony under Rule 702. Under the first prong, the judge must consider whether the expert's proffered testimony is sufficiently reliable to warrant admission. *Id.* at 590. In making this inquiry, the judge may consider factors including, but not limited to: (1) whether the theory or technique can be tested; (2) whether it has been subject to peer review and published; (3) the known or potential error rate; and (4) the degree of acceptance within the relevant scientific community. *Id.* at 593-94. Under the second prong, the judge must determine whether the proffered testimony is relevant, *i.e.*, whether it "logically advances a material aspect" of the case. *Id.* at 591. *See also Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149 (1999) (*Daubert* also applies to technical and other specialized knowledge, including that proffered by engineers).

Southern Pan Services Co., 21 BNA OSHC 1274, 1277 (No. 99-0933, 2005).

The Secretary contends Smith's testimony is unreliable because he bases some of opinions on his relationship with Todd Hall, Houston Aquarium's corporate dive safety officer. Specifically, Smith stated, "I've known Todd Hall for a number of years now, and I've had both professional and personal interactions with him, and I feel that he runs a very safe and exemplary

[9] The Court of Appeals for the Fifth Circuit has suggested the gatekeeping standards are less stringent where, as here, no jury is present. "Most of the safeguards provided for in *Daubert* are not as essential in a case such as this where a district judge sits as trier of fact in place of a jury." *Gibbs v. Gibbs*, 210 F.3d 491, 500 (5th Cir. 2000).

diving program without any injuries and with no problems in the past." (Exh. R-195a, pp. 57-58). Smith also assumes, despite having no personal knowledge of the matter, that Houston Aquarium is in compliance with AAUS standards because it is a member of the AAUS (*Id.* at 238).

The Supreme Court has recognized the reliability test set out in *Daubert* is necessarily a flexible one. *Kumho Tire*, 526 U.S at 150. Reliability cannot always be predicated on testability, peer review, or error rates. "But whether *Daubert's* suggested indicia of reliability apply to any given testimony depends on the nature of the issue at hand, the witness's particular expertise, and the subject of the testimony. . . . It is a fact-specific inquiry." *Seatrax, Inc. v. Sonbeck Intern., Inc.*, 200 F.3d 358, 372 (5th Cir. 2000) (citations omitted). The issue at hand is whether the cited dives performed at the Downtown Aquarium were "scientific" within the meaning of the CDO standard definition. This is not an issue that lends itself to verifiable testing. It may be clarified, however, by testimony from an experienced diver with multiple certifications who has worked to standardize diving operations in public aquariums.

Houston Aquarium is not required to demonstrate that Smith's testimony is infallible, only that it is rationally derived using empirical methods. "The proponent [of the expert testimony] need not prove to the judge that the expert's testimony is correct, but she must prove by a preponderance of the evidence that the testimony is reliable." *Moore v. Ashland Chemical, Inc.*, 151 F.3d 269, 276 (5th Cir. 1998) (brackets in original). Smith's testimony and his curriculum vitae establish that he has worked as a diving safety officer for at least twelve years and he has two postsecondary degrees in science and is working on his doctorate in Biology. He has done extensive field work. Smith was seated as a member on several boards and committees dedicated to diving safety and marine conservation. (Exh. R-195a, attachment 2).

It is determined that Smith's specialized knowledge, based both on his formal education and his significant diving experience, will help the Court to resolve the issue of whether Houston Aquarium's divers were engaged in scientific diving. Thus it "logically advances a material aspect" of the case. *Daubert* at 591. The Court qualifies Smith as an expert in SCUBA diving and aquarium science. It is determined Smith's deposition testimony is admissible. The Court will determine the weight to give Smith's testimony on a statement by statement basis. [10]

[10] The Secretary also objects to Smith's testimony "because it is a bald attempt to present a legal opinion through expert testimony." (Secretary's brief, p. 64). At the hearing, the Secretary objected to the admissibility of Smith's testimony "pursuant to [Rule] 704, which concerns testifying to the ultimate conclusion." (Tr. 567). On this point,

Opinion Testimony of Jim Prappas, William Boyes, and Todd Hall

In the parties' Agreed Prehearing Statement, under "Respondent's Witnesses," Houston Aquarium listed (in addition to Derek Smith) the names of Jim Prappas, William Boyes, and Todd Hall. Houston Aquarium states that each of the witnesses "will give opinion testimony" relating to specified issues. (Agreed Prehearing Statement, ¶ 2). In Houston Aquarium's Supplemental Objections and Answers to Complainant's First Set of Interrogatories, filed May 8, 2013, Houston Aquarium responded to an interrogatory asking it to identify every person who it may call as an expert witness by stating:

> Defendant also identifies [,in addition to Derek Smith,] several Non-Retained Expert Witnesses, including but not limited to:
>
> - William Boyes, Dive Board Member
> - Todd Hall, Corporate Dive Program Manager
>
> . . .
>
> - Jim Prappas, Director of Biology

(Answer to Interrogatory No. 17, p. 13).

Although Houston Aquarium identified Prappas, Hall, and Boyes as potential expert witnesses, they were never qualified as such at the hearing. Counsel for Houston Aquarium did not move for their qualification as experts and the Secretary had no opportunity to object to their designation as experts. The Court did not conduct a *Daubert* analysis of the admissibility of the witnesses' proffered expert testimony, nor reserve the analysis until this Decision.

It is therefore surprising that in its post-hearing brief, Houston Aquarium states, "The Houston Aquarium presented expert opinion testimony from Jim Prappas, William Boyes, Todd Hall and its retained expert, Derek Smith (all of whom are scientists as well as superbly experienced scientific divers and aquarists). The Secretary objected only to the testimony of the Houston Aquarium's retained expert, Derek Smith." (Houston Aquarium's brief, p. 24). The

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the Secretary is incorrect. Fed. R. Evid. 704 states, "An opinion is not objectionable just because it embraces an ultimate issue." At times, Smith testified regarding the applicability of the CDO standard to the dives performed by Houston Aquarium employees, an ultimate issue in this case (his statements were often in response to questions posed by the Secretary's counsel). The Secretary seeks to exclude these statements, concerned that Smith "will intrude on this Court's role as the legal expert." (Secretary's brief, p. 66). The Secretary has no cause for concern. The Court agrees with the Secretary that "the Court is fully capable of determining and interpreting the applicable law," and has no intention of allowing a witness to usurp that authority (*Id.*). It is unnecessary, however, to exclude the statements in question. Rather, the Court will accord them little or no weight, depending on the circumstances. The Court also finds no merit in the Secretary's contentions that Smith's testimony is irrelevant, duplicative, and extraneous.

Secretary objected only to the testimony of Derek Smith because he was the only witness proposed as an expert.

To be clear, Jim Prappas, William Boyes, and Todd Hall were not qualified as expert witnesses at the hearing. Their testimony is regarded as opinion testimony by lay witnesses, in accordance with Fed. R. Evid. 701.

CITATION NO. 1

The Secretary has the burden of establishing the employer violated the cited standard.

> To prove a violation of an OSHA standard, the Secretary must show by a preponderance of the evidence that (1) the cited standard applies; (2) the employer failed to comply with the terms of the cited standard; (3) employees had access to the violative condition; and (4) the cited employer either knew or could have known with the exercise of reasonable diligence of the violative condition.

JPC Group Inc., 22 BNA OSHC 1859, 1861 (No. 05-1907, 2009).

Applicability of the CDO Standard to the Downtown Aquarium

Prior to and during the hearing, Houston Aquarium's primary defense was that the CDO standard does not apply to the Downtown Aquarium because its dives meet the requirements of the scientific diving exception provided for in § 1910.401(a)(2)(iv). Under the "Disputed Facts" section of the parties' Agreed Prehearing Statement, Houston Aquarium listed: "Whether Respondent is liable for any of the items cited in the Citation because it was performing scientific and education diving activities and, therefore, was in compliance with OSHA regulations." (Agreed Prehearing Statement, ¶ B.2.c). The parties debated this issue at length during the hearing. Houston Aquarium continues to argue this position vigorously in its post-hearing brief, but it also raises another issue involving the applicability of the CDO standard to the Downtown Aquarium.

In its post-hearing brief Houston Aquarium asserts, for the first time, that the CDO standard does not apply to dives performed at the Downtown Aquarium because § 1910.401(a)(1) states that Subpart T "applies to every place of employment within the waters of the United States[.]" (Houston Aquarium's brief, p. 4). Houston Aquarium contends the Downtown Aquarium is not "within the waters of the United States" and thus is outside the scope of the CDO standard.

The question of whether the CDO standard applies to the Downtown Aquarium is one of subject-matter jurisdiction.[11] Subject-matter jurisdiction "can be raised at any time before or after

[11]The Secretary did not address the issue of whether the Downtown Aquarium is "within the waters of the United States" within the meaning of § 1910.401(a)(1) in his post-hearing brief. Because the issue was not raised prior to

a matter has been adjudicated. It is always a question considered to be properly before any adjudicative body." *Stevens Equipment Company*, 1 BNA OSHC 1227, 1230 (No. 1060, 1973). "If the court determines at any time that it lacks subject-matter jurisdiction, the court must dismiss the action." Fed. R. Civ. P. 12(h)(3).

Accordingly, the Court will address the issue of whether the CDO standard applies to the dives performed at the Downtown Aquarium based on (1) the scope and application subsection of § 1910.401(a)(1) and (2) the scientific diving exception of § 1910.401(a)(2)(iv).

(1) Scope and Application of the CDO Standard: Is the Downtown Aquarium Covered under § 1910.401(a)(1)?

Both the Secretary and Houston Aquarium selectively quote from § 1910.401, the "Scope and application" subsection of the CDO standard, in their post-hearing briefs. The Secretary states that the CDO standard applies to "every place of employment . . . within any State . . ., where diving and related support operations are performed." (Secretary's brief, p. 22). Houston Aquarium frames the scope of the CDO standard as: "This subpart (standard) applies to every place of employment *within the waters of the United States, or within any State . . . where diving and related support operations are performed."* (Houston Aquarium's brief, p. 4) (emphasis added by Houston Aquarium).

The complete text of § 1910.401(a)(1) is:

> This subpart (standard) applies to every place of employment within the waters of the United States, or within any State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, Guam, the Trust Territory of the Pacific Islands, Wake Island, Johnston Island, the Canal Zone, or within the Outer Continental Shelf lands as defined in the Outer Continental Shelf Lands Act (67 Stat. 462, 43 U.S.C. 1331), where diving and related support operations are performed.

Houston Aquarium asserts that "the Secretary must show that the cited activity was occurring within the 'the waters' of the United States or of a State," and since the Secretary adduced no evidence on the definition of "the waters" of the United States or of a State, his case must fail (Houston Aquarium's brief, p. 4).

Section 1910.401(a)(1) lists three separate geographical areas to which the CDO standard applies if "diving and related support operations are performed" there. The three geographical

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or during the hearing by Houston Aquarium, the Court afforded the Secretary the opportunity, by Order dated March 21, 2014, to file a reply brief addressing only that narrow issue. The Secretary filed his reply brief on April 14, 2014.

areas are separated by a comma and the word "or" in the subsection. When set apart for the purpose of clarity, the three areas to which the CDO standard applies are:

(1) Every place of employment within the waters of the United States where diving and related support operations are performed, or

(2) Every place of employment within any State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, Guam, the Trust Territory of the Pacific Islands, Wake Island, Johnston Island, and the Canal Zone, where diving and related support operations are performed, or

(3) Every place of employment within the Outer Continental Shelf lands as defined in the Outer Continental Shelf Lands Act (67 Stat. 462, 43 U.S.C. 1331) where diving and related support operations are performed.

Neither party argues that the third area (every place of employment within the Outer Continental Shelf lands) is at issue here. Houston Aquarium contends the first area, "within the waters of the United States," is controlling and precludes application of the CDO standard to the dives performed at the Downtown Aquarium. The Secretary argues the second area, "within any State," is the one at issue and that, because Texas is a state, he has established the CDO standard applies to the dives performed at the Downtown Aquarium, located in Houston, Texas.

"Within the Waters of the United States"

In support of its argument, Houston Aquarium cites *Rapanos v. United States*, 547 U. S. 715 (2006). In *Rapanos,* the issue before the Supreme Court was whether the term "waters of the United States," as used in the Clean Water Act, 33 U.S.C. §§ 1251--1387 (2014), is limited to interstate waters that are navigable, or if the term could be expanded to include wetlands adjacent to navigable waters. The Supreme Court opted for a narrow reading of the term, defining "waters of the United States" as "relatively permanent, standing or continuously flowing bodies of water 'forming geographic features' that are described in ordinary parlance as 'streams[,] . . . oceans, rivers [and] lakes.' *See Webster's Second* 2882." *Id. at* 739 (ellipsis and brackets in original).

Houston Aquarium argues the Supreme Court's definition of "waters of the United States" excludes isolated water that is not navigable, including exhibit tanks in public aquariums. "Here, an aquarium is an isolated tank, a closed system in a building that does not form geographical features, does not connect to any naturally occurring body of water, is clearly not navigable, and has no significant nexus to navigable water." (Houston Aquarium's brief, p. 6).

In his reply brief, the Secretary does not challenge Houston Aquarium's position that the Downtown Aquarium is not located "within the waters of the United States." (Secretary's reply brief, p. 5, n. 2) ("Such an argument may be relevant if the Secretary sought to establish coverage via the first or third modifying clauses of Section 1910.401(a)'s applicability provision.") Rather, the Secretary contends Houston Aquarium's position is inapposite to the issue of applicability because the Secretary is proceeding under the theory that the Downtown Aquarium is located "within any State," specifically Texas, where diving and related support operations are performed.

"Within Any State"

The Secretary argues that the second geographical area, "within any State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, Guam, the Trust Territory of the Pacific Islands, Wake Island, Johnston Island, [and] the Canal Zone," is the geographical area relevant to this proceeding.

In its post-hearing brief, Houston Aquarium consistently misquotes § 1910.401(a)(1), rewriting it as "within 'the waters' of the United States or of a State'" (p. 4); "the waters of the United States or within any State" (pp. 4-5); "waters of the United States or within any State" (p. 6; two separate references); and again, "the waters of the United States or within any State" (p. 8). In each instance, Houston Aquarium omits a crucial punctuation mark (and, on page 4, omits two words and inserts "of a"), distorting the meaning of the subsection. Section 1910.401(a)(1) states that the CDO standard applies to dives performed at places of employment "within the waters of the United States, or within any State." The comma separating "within the waters of the United States" from "or within any State" limits the modifying phrase "within the waters of" to the United States. The subsection cannot be read (as Houston Aquarium would have it) as "within the waters of any State," which, under the *Rapanos* holding, might be interpreted as including only "relatively permanent, standing or flowing bodies of water 'forming geographic features' that are described in ordinary parlance as 'streams[,] . . . oceans, rivers [and] lakes.'" *Id.* at 739.

The three clauses are separated by the word "or," a disjunctive conjunction used to indicate mutually exclusive alternatives. Reading the second clause of § 1910.401(a)(1) separately from the first and third clauses, it becomes evident application of the CDO standard is not determined solely by whether the employees are diving in "waters of the United States" (that is, in navigable waters or in bodies of water forming geographic features) as defined by the Supreme Court. The pertinent phrase of the second clause requires only that the dives be located "in any State." The

second clause places no limitations on the dive location regarding the depth, breadth, or volume of the water in which the employees are diving, or whether the body of water is natural or artificial.

The Secretary's intention to create a broad scope for § 1910.401(a)(1) is reflected in the preamble to the final rule of the CDO standard. "[T]he preamble to a standard is the most authoritative evidence of the meaning of the standard." *Superior Rigging & Erecting Co.*, 18 BNA OSHC 2089, 2091 (No. 96-0126, 2000). The first sentence in the preamble summarizing the CDO standard states, "The standard applies to all diving operations conducted in connection with all types of work and employment within OSHA's jurisdiction unless specifically exempted." Commercial Diving Operations, 42 Fed. Reg. 37,650, 37,652 (July 22, 1977).

When directly addressing § 1910.401, the preamble is even more explicit regarding the expansiveness of the CDO standard:

> The standard applies wherever OSHA has statutory jurisdiction. Consequently, unless specifically excluded from the standard, diving in any natural or artificial inland body of water, as well as diving along the coasts of the United States and possessions listed in Section 4(a) of the Act, 29 U.S. 655, or within the Outer Continental Shelf surrounding them is covered.

Id. at 37,654.

The preamble reiterates the broad sweep of the CDO standard and emphasizes its application across the general industry, construction, and longshoring standards, as well as the standards specifically related to ship work:

> The standard applies to diving and related support operations conducted in connection with all types of work and employments over which OSHA has jurisdiction, except in cases where exclusion from the standard has been explicitly provided for. For this reason, and to avoid any possible ambiguity, the standard is not only adopted as a subpart of Part 1910 of 29 CFR (general industry), but is also incorporated into Parts 1915 (ship repairing), 1916 (shipbuilding), 1917 (shipbreaking), 1918 (longshoring), and 1926 (construction).

Id.

Given the expansive application of the CDO standard, Houston Aquarium's focus on the geographic location and artificial nature of aquarium tanks is misplaced. The CDO standard does not concern itself with the size and location of the body of water in which employees dive. Application of the standard is not conditional based on the depth or volume of water involved. If, at any location where OSHA has statutory authority, an employee is required to dive in a body of water, whether natural or artificial, the CDO standard applies, regardless of the dimensions of the body of water.

This interpretation is supported by the definition of "diver" found in § 1910.402: "An employee working in water using underwater apparatus which supplies compressed breathing gas at the ambient pressure." The definition does not in any way specify or limit the bodies of water to which the CDO standard applies. It is the fact that an employee is working in water using supplied breathing gas, not the characteristics of the body of water in which the employee is working, that triggers the application of the CDO standard. Nothing in the CDO standard or the preamble supports Houston Aquarium's contention that the standard was intended to apply only to "waters that are expansive and deep, may be murky and flowing, and may be used for shipping." (Houston Aquarium's brief, p. 7).

The defining characteristic of dives covered by the CDO standard is a diver's use of "underwater apparatus which supplies compressed breathing gas at the ambient pressure." In discussing the hazards associated with diving, the preamble cites the dangers posed by using compressed breathing gas:

> Among the potential dangers, those associated with oxygen present the greatest hazard in diving. If the partial pressure of oxygen in the breathing mixture is too low, oxygen deficiency (hypoxia) will result; this condition can produce unconsciousness without warning, and can be fatal if not corrected. Excessive oxygen in the inspired breathing gas can cause convulsions resembling those of epilepsy; prolonged exposure to somewhat lower levels of oxygen may cause lung irritation which increases if exposure continues. In addition, excessive nitrogen in the inspired breathing gas can produce narcotic or anesthetic effects which impair the diver's cognitive function.
>
> The possible presence of contaminants in the breathing gas is another hazard associated with diving. Several potentially harmful contaminants have been found in air supplied to divers from engine-driven air compressors. These contaminants can be picked up by a compressor intake or be produced by the compressor itself. The most significant one is carbon monoxide, which combines with the blood's hemoglobin and interferes with oxygen transport to the tissues. This can result in reduced cognitive function; if the level of carbon monoxide is high enough, death can result. Carbon dioxide, while a normal metabolite and not toxic at low levels, can cause unconsciousness and convulsion if it accumulates in a breathing system, especially during exertion. Oil mist causes coughing and nausea, and if it reaches a lung, can damage its sensitive lining and lead to the development of lung edema.

Id. at 37,652.

The hazards associated with the use of compressed breathing gas exist whether the diver is in an ocean, a river, a reservoir, or an aquarium tank. The diver must rely on a supply of compressed breathing gas to safely perform the required task. The depth, volume, clarity, and

current of a body of water may affect the level of risk involved during a dive, but it does not determine whether the CDO standard applies to a dive.

Conclusion

The Court determines the CDO standard applies to dives performed by Houston Aquarium's employees in the exhibit tanks located in the Downtown Aquarium. The second clause of § 1910.401(a) states the standard applies to every place of employment within any State where diving and related support operations are performed. The Downtown Aquarium is a place of employment where diving is performed and it is located in Texas, a State of the United States. The CDO standard applies to the cited conditions.

(2) Scientific Diving Exception: Are the Dives Performed at the Downtown Aquarium "Performed Solely as a Necessary Part of a Scientific, Research, or Educational Activity"?

Houston Aquarium claims that, even if the CDO standard does apply to its workplace, dives performed there are exempt under the scientific diving exception provided for in § 1910.401(a)(2)((iv) ("[T]his standard does not apply to any diving operation . . . [d]efined as scientific diving and which is under the direction and control of a diving program[.]").[12] The Secretary contends Houston Aquarium has failed to establish the cited dives meet the requirements of the scientific diving exception.

Burden of Proof

Houston Aquarium claims it is the Secretary's burden to prove the company is not exempt under the scientific diving exception (Houston Aquarium's brief, p. 9). Houston Aquarium is incorrect. As the party seeking the benefit of the exception, it is Houston Aquarium's burden to show that its employees were engaged in scientific diving, as defined by § 1910.401(a)(2)(iv). "A party seeking the benefit of an exception to a legal requirement has the burden of proof to show that it qualifies for that exception." *C.J. Hughes Construction, Inc.,* 17 BNA OSHC 1753, 1756 (No. 93-3177, 1996).

[12] At times Houston Aquarium needs to make structural changes or repairs in exhibits at the Downtown Aquarium. Houston Aquarium designates these dives as nonscientific and requires the divers performing the structural work to comply with the CDO standard. Diver #2 stated, "If there is a dive that requires any type of maintenance or any type of construction or anything that is not scientific, we will dive under OSHA regulations for that dive in repairing what needs to be repaired." (Tr. 151). Prappas, Houston Aquarium's director of animal operations, testified that he would hire an outside company to do repair work and the outside company would be required to comply with the CDO standard (Tr. 381). These nonscientific dives are not at issue in the instant case.

Legislative History of the Scientific Diving Exception

On July 22, 1977, OSHA published its Final Standard for commercial diving operations, codified as §§ 1910.401--441, Subpart T of 29 C.F.R. Part 1910. The original CDO standard did not exempt diving operations performed for scientific research and education purposes.

Upon publication of the Final Standard, OSHA began receiving requests to reconsider the CDO standard's coverage of scientific and educational diving. The petitioners argued the CDO standard was not well-suited to regulate scientific and educational diving, which differ markedly from commercial diving. The scientific and educational diving community noted it had an excellent safety record due to the effectiveness of its self-regulation in accordance with well-established consensual standards of safe practice. These consensual standards are referred to as the "Scripps Standards." From the beginning, advocates for the scientific diving exception emphasized the importance of gathering data during dives.

> The first set of consensual standards was developed by the Scripps Institution of Oceanography of the University of California (Scripps) in the early 1950s. In 1973, diving safety boards and committees from ten major educational institutions involved in scientific diving met and accepted the University of California Guide for Diving Safety as a minimum standard for their individual programs. . . . Therefore, it was contended that most educational institutions that had diving programs were complying with this consensus standard with limited modifications for regional and operational variations in diving before the publication of the OSHA final standard. These educational institutions pointed to their excellent safety record prior to OSHA, attributing it to the effectiveness of their self-regulation.
>
> Additionally, they noted that significant differences exist between commercial diving and educational/scientific diving. For example, the educational/scientific diver is an observer and data gatherer who chooses the work area and diving conditions which will minimize environmental stresses and maximize the safety and efficiency of gathering data.
>
> They noted, in contrast, the commercial diver is an underwater construction worker, builder and trouble shooter whose work area and diving conditions are determined by the location and needs of the project.

Education/Scientific Diving, 47 Fed. Reg. 53,357, 53,357 (November 26, 1982).

On March 26, 1982, OSHA published a notice of proposed rulemaking to exempt from Subpart T, diving "performed solely for marine scientific research and development purposes by educational institutions." *Id.* at 53,358. Following a comment period and an informal public hearing, OSHA agreed to omit the word "marine" from the exemption, "since it may be misconstrued as referring only to ocean-related diving." *Id.* OSHA also determined that the

exception should apply to all scientific diving, "not solely scientific diving performed by educational institutions." *Id.* at 53,359.

The Carpenters Union, among others, "expressed the concern that it may be difficult to clearly distinguish commercial diving operations from scientific diving operations" and wanted to ensure that OSHA would not "draft an exemption that would be so broad that it would deny protection under a standard that we worked many years to develop, to many of our members who are working in the commercial diving community." *Id.* OSHA responded that it "believes that its definition of 'scientific diving' addresses the concerns expressed by the Carpenters Union and others as to limiting the scope of the exemption, and virtually eliminates the potential for overlap and confusion between scientific diving and commercial diving." *Id.* at 53,359-53,360.

Despite the concerns of the Carpenters Union that the work performed by some of its members "blur[s] any distinction between the segments within the diving community," OSHA determined the exception language of the Final Standard recognizes "that the tasks performed by commercial divers are different than those performed by scientific divers." Id. at 53,359. OSHA distinguished the two types of diving:

> Commercial diving activities necessitate the use of heavy tools and include such tasks as placing or removing heavy objects underwater, inspection of pipelines and similar objects, construction, demolition, cutting or welding, or the use of explosives.
>
> In contrast, the sole purpose of scientific diving is to perform scientific research which includes such tasks as scientific observation of natural phenomena or responses of natural systems, and gathering data for scientific analysis. The tasks performed by scientific divers are usually light, short in duration, and if any handtools are used, they are usually no more than simple non-powered handtools such as screwdrivers and pliers.
>
> Because of the differences in tasks performed, OSHA believes that clear distinctions can be made between scientific diving and commercial diving and has incorporated these distinctions in the definition of "scientific diving" in the final rule.

Id.

In deciding on the language to use to define "scientific diving," OSHA rejected the recommendation of several commenters to adopt the language used by California/OSHA (CAL/OSHA) to define the term. CAL/OSHA focuses on who is performing the dive, rather than the tasks being performed, in its definition of scientific diving.[13] OSHA determined, however, that

[13] CAL/OSH defines scientific diving as "all diving performed by employees necessary to, and part of scientific research or educational activity; in conjunction with a project or study under the jurisdiction of any public or research or educational institution or similarly recognized organizations, departments, or groups." 47 Fed. Reg. at 53,362.

the proper focus of the definition should be "primarily on the types of tasks performed and the objectives to be maintained. The record reflects that it is the actual work being performed that forms the basis for distinguishing scientific from commercial diving." *Id.*

OSHA further clarified that the scientific diving exemption applies to both public and private entities:

> OSHA's definition of scientific diving, by focusing on tasks performed, makes no distinction between scientific diving performed for profit or non-profit. The scientific diving community consists of various types of entities such as educational institutions, governmental organizations and private concerns, all of which have contributed to the scientific diving community's safety record. Commenters . . . and witnesses at the hearing . . . noted that those who perform legitimate scientific diving, whether it is for profit or non-profit purposes, and follow consensual guidelines, should be covered by the exemption. OSHA agrees that if the sole purpose for diving is to perform scientific research tasks, then further distinctions are not justified.

Id. at 53,363.

The Final Rule incorporating the scientific diving exception into the CDO standard became effective on November 26, 1982. *Id.* at 53,357.

Section 1910.401(a)(2)(iv): The Scientific Diving Exception

Section 1910.401(a)(2)(iv) provides:

> This standard applies to diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring. However, this standard does not apply to any diving operation:
> . . .
> (iv) Defined as scientific diving and which is under the direction and control of a diving program containing at least the following elements:
>
> (A) Diving safety manual which includes at a minimum: Procedures covering all diving operations specific to the program; procedures for emergency care; including recompression and evacuation; and criteria for diver training and certification.
>
> (B) Diving control (safety) board, with the majority of its members being active divers, which shall at a minimum have the authority to: Approve and monitor diving projects; review and revise the diving safety manual; certify the depths to which a diver has been trained; take disciplinary action for unsafe practices; and, assure adherence to the buddy system (a diver is accompanied by and is in continuous contact with another diver in the water) for SCUBA diving.

In the Agreed Prehearing Statement, the parties stipulate that Houston Aquarium has a diving safety manual and a diving control (safety) board in compliance with § 1910.401(a)(2)(iv)(A) and (B) (Agreed Prehearing Statement, ¶¶ E.5 and E.6).

Definition of Scientific Diving

Section 1910.402, the definition section of the CDO standard, defines "scientific diving":

> *Scientific diving* means diving performed solely as a necessary part of a scientific, research, or educational activity by employees whose sole purpose for diving is to perform scientific research tasks. Scientific diving does not include performing any tasks usually associated with commercial diving such as: Placing or removing heavy objects underwater; inspection of pipelines and similar objects; construction; demolition; cutting or welding; or the use of explosives.

Appendix B Guidelines

Following publication of the Final Rule exempting scientific diving, the United Brotherhood of Carpenters and Joiners (UBCJ) filed a petition challenging the exemption, under § 6(f) of the Act, for judicial review with the Court of Appeals for the D.C. Circuit. On April 4, 1984, the court ordered the Secretary to "authoritatively state guidelines that would indicate how the 'scientific' and 'commercial' classifications will be applied to arguably ambiguous cases." Educational/Scientific Diving Guidelines, 50 Fed. Reg. 1046, 1046 (January 9, 1985).

After a comment period, OSHA issued four guidelines designed to "clearly distinguish between the scientific diving community which should be exempt because of its effective system of self-regulation and all other diving and diving programs." *Id.* at 1047. OSHA explicitly stated the guidelines are mandatory and not merely recommendations: "OSHA wants to emphasize that a failure of a program to meet any part of the exemption criteria, including the guidelines, will prevent the program from availing itself of the exemption. . . . Programs must meet all of the criteria in the Final Rule as interpreted by the final guidelines to avail themselves of the exemption." *Id.*

Appendix B to Subpart T to Part 1910 (Guidelines for Scientific Diving) provides:

> This appendix contains guidelines that will be used in conjunction with 1910.401(a)(2)(iv) to determine those scientific diving programs which are exempt from the requirements for commercial diving. The guidelines are as follows:
>
> 1. The Diving Control Board consists of a majority of active scientific divers and has autonomous and absolute authority over the scientific diving program's operations.
>
> 2. The purpose of the project using scientific diving is the advancement of science; therefore, information and data resulting from the project are non-proprietary.
>
> 3. The tasks of a scientific diver are those of an observer and data gatherer. Construction and trouble-shooting tasks traditionally associated with commercial diving are not included within scientific diving.

4. Scientific divers, based on the nature of their activities, must use scientific expertise in studying the underwater environment and, therefore, are scientists or scientists in training.

Houston Aquarium Has Met the Requirements of Guideline Nos. 1, 2, and 4

Houston Aquarium contends it has met each of the four enumerated guidelines found in Appendix B. The Secretary concedes Houston Aquarium has met the first guideline (the Diving Control Board consists of a majority of active scientific divers and has autonomous and absolute authority over the scientific diving program's operations), but argues it has failed to meet the requirements of the remaining guidelines. The record establishes there is no real dispute concerning the second guideline—the information and data resulting from the cited dives performed by Houston Aquarium's employees at the Downtown Aquarium were non-proprietary.

With regard to the fourth guideline, the Secretary argues Houston Aquarium's divers were not engaged in studying the underwater environment and, thus, could not have been using scientific expertise. The determination of whether the divers were engaged in studying the underwater environment during their dives is contingent upon whether they were making observations and gathering data, as required by the third guideline. The Court credits, however, Derek Smith's assessment that Houston Aquarium's divers did use scientific expertise when diving in the exhibit tanks:

> The animal care staff at the Houston Aquarium are scientists or scientists in training and therefore use scientific expertise in the –in conducting the animal care in these exhibits. So that means that they have the background that's required to be able to enter the water with animal care and animal health being one of the primary concerns.
>
> So in order to do that they have to have both the schooling background in animal husbandry, animal care, and then also exhibitory. So they have to have –they have to use expertise, scientific expertise in order to be able to decide what it is, what divers and operations can go on inside the exhibit that doesn't endanger the animal health.

(Exh. R-195, p. 77).

Did Houston Aquarium Meet the Requirements of Guideline No. 3?

It is the third guideline that raises the crucial issue here: "The tasks of a scientific diver are those of an observer and data gatherer. Construction and trouble-shooting tasks traditionally associated with commercial diving are not included within scientific diving."

OSHA identifies a scientific diver as "an observer of natural phenomena or responses of natural systems, and a gatherer of data for scientific analysis." 50 Fed. Reg. at 1049. The issue is whether Houston Aquarium's divers made observations and gathered data during the cited dive period consistent with the role of a scientific diver performing scientific research tasks. In order

to make this determination, the Court must examine the specific tasks performed by Houston Aquarium's divers.

Dive Plan and Facility Dive Log

At the beginning of each day, divers look at the dive plan created for that day by the diving safety officer (DSO). (Tr. 116). Houston Aquarium Diver #1 explained that divers consulted the dive plans to see "how much time was allotted for anything that we were required to do and then we would see what needed to be done, who was going, and set up our equipment and see if everything was in place." (*Id.*).

After every dive, Houston Aquarium's divers logged their dive information on their copy of the Facility Dive Log. The Facility Dive Log requires the divers to fill in information for five items: Date, Display (the name of the exhibit tank), Bottom Time (length of time underwater), Method (surface supplied air or SCUBA), and Purpose (such as feed, clean, mortality, or event) (Exh. C-6). No other information is recorded on the Facility Dive Log.

Feeding and Cleaning Dives

The great majority of the dives performed at the Downtown Aquarium are for the purpose of feeding the animals and for "the regular maintenance routine of cleaning [the] exhibits." (Tr. 114). Cleaning generally includes scrubbing the exhibit windows free of algae and siphoning the gravel (Tr. 117). Diver #1 testified that siphoning is done to remove feces and food particles, using "clear tubings with hoses. It creates a suction of gravity. That way, it pulls the water and feces and other things that are lighter towards the top but leaving the gravel at the bottom." (Tr. 118). All of the material siphoned out of the exhibit tank is immediately discarded "right outside where there's a Dumpster area with a hose." (*Id.*). When asked if the divers keep a record of the material siphoned out of the exhibit tank, Diver #1 responded, "No, because it's usually the same. We know what we're disposing is going to feces and food particles." (Tr. 118-119).

Houston Aquarium Diver #2 testified regarding the schedule for cleaning the Dining Room Exhibit:

> It would be Mondays through Thursdays—on Mondays, Tuesdays, and Thursdays, we clean the exhibit. Wednesdays, we siphon the gravel. And then Fridays are primarily just feeding. So each day, Monday through Friday, there is a feeding. In the morning that's the first thing that we do.
>
> After the feeding, then we will prepare for any duties in the tank, like, cleaning the windows, if there's any—if there's any type of circumstance in which an animal would

need to be captured or observed more closely, we would do it at that time. And then, of course, we would exit the water.

. . .

For cleaning the windows—well, first of all, before any of the duties are done, they're talked about in very good detail about exactly how the windows need to be cleaned and exactly what needs to be cleaned and what to avoid while performing the window cleaning because there's several things that you have to be extremely careful of when you're cleaning the windows so that, number one, you don't make the problem worse; and number two, that the job gets done in the allotted time.

. . .

[E]ach person would have a certain window that they would clean. And you, basically, start at the top, work from left to right and you go down in a very methodical grid pattern to ensure that nothing is missed for—that nothing gets through.

Since the windows—they do get dirty quite quickly, so we have to make sure that the passes that are made are good and that once they're done, then we can move on to the rest of the exhibit.

(Tr. 147-149).

The Houston Aquarium divers take special care in removing aiptasia, a genus of sea anemone, which reproduces both sexually and asexually. Because of its ability to reproduce asexually, "if you were to scrub, say, the aiptasia off of the surface, any small part that comes off of that aiptasia, if it lands somewhere else, it could potentially grow into another aiptasia. That would create an explosion of that animal." (Tr. 174). Aiptasia is a particularly persistent genus that requires constant attention from the divers. "[T]here's really no way to get rid of one hundred percent of aiptasia because they are so invasive and they are so--they have the potential to just kind of overrun exhibits. So we have to be very careful when we're working around them but there's really no writing down of anything about aiptasia. It's just kind of an ongoing battle." (Tr. 179).

Mortality Dives

At times Houston Aquarium requires its divers to perform "mortality dives" to remove dead fish from an exhibit tank. Diver #2 testified, "If the fish is small enough, we can use small plastic bags. If they're large, we use rubber nets to get them out. But if they're larger, then we would even have to use something like a stretcher for, like, really large fish and sharks." (Tr. 180). After the dead fish is removed from the exhibit tank, it is taken to the fourth floor laboratory for examination. Diver #2 stated:

The dead fish are then taken to our laboratory where they are looked at by our assistant curator or our curator to determine if there is any disease. We use microscopes. We take samples of the gills and the scales and then we determine if there were parasites or bacterial

infections of any kind. And then, if it's deemed appropriate, the curator or assistant curator could provide necropsy, which basically would be like a dissection of the animal to see if there was any internal damage or anything that can be determined through that.

(Tr. 181-182).

Event Dives

Diver #3 worked as a diver for Houston Aquarium from October 2008 until February or March 2012 (Tr. 296). He explained "event dives" at the Downtown Aquarium:

> They could be several different things. Sometimes we would dive in the Dining Room Tank with a sign for people getting engaged. And then we would go in the tank for maybe about 15 minutes with a sign and go over to the table that the couple was sitting at and turn the sign around. And then we'd also do—sometimes we'd do event dives in the Tower Tank, which we would hold up the sign. We'd enter and go to about the third floor and we would stay at that point and we would hold the sign for—we'd usually stay in there for around an hour and we would just hold the sign.
>
> The other event dives I did—there were several for holidays. You know, we'd dress up in, like Santa or an elf. I was always the elf. We'd hold a sign that said Merry Fishmas or something like that.

(Tr. 300-301).

Diver #3 testified Houston Aquarium had signs printed up that "looked just like posterboard." (Tr. 349). Using yellow waterproof tape, divers could change the names on the sign to "different people, to whoever was getting engaged. They did have quite a few signs for different occasions," including "printed logos from companies" and "a kid asking a girl to Homecoming." (Tr. 350).

Diver #3 stated that Houston Aquarium's divers did not record data from the event dives. "We didn't collect any data during the dive. I'd say—we would just—you know, the only thing we did was do the login, the same as the other dives we did. So we'd just keep track of how long we were in the tanks." (Tr. 301).

Testimony of Derek Smith

Derek Smith, Houston Aquarium's expert in SCUBA diving and aquarium science, testified that the dives performed by Houston Aquarium's divers constituted scientific diving. He was asked why he believes Houston Aquarium was in compliance with the third guideline for scientific diving ("The tasks of a scientific diver are those of an observer and date gatherer.") at the time of the cited dives. He responded:

> [A]ll divers that enter these exhibits are required to make observations of animal health, animal behaviors, the type of food that they're eating, the type of algae that grows on the

windows, the condition of the exhibitory, that is the collection of data, and these people are observers.

That is their job is to go down there and ensure that animal care is appropriate, and so it certainly seems to me that's a pretty clear—that's pretty clear. Like these divers are—I know for a fact that these divers are required to write down what they do in these exhibits, and do that is exactly what they do is observing and collecting data.

(Exh. R-195a, p. 91).

When asked how he knows "for a fact" that the divers collect data during the dives, Smith answered with a circular argument—Houston Aquarium is a member of the Association of Zoos and Aquariums (AZA), which requires the collection of data, and so Houston Aquarium must be collecting data during the dives, since it is a member of the AZA[14]:

How do I know for a fact? Well, they're currently—well actually they're currently accredited by [AZA], and that's an [AZA] requirement to be accredited. So, along the same lines as I can't tell you whether every one of their board members are active scientific divers at this exact moment, I can't tell you that they are—that they are actively collecting these data, but it is a requirement of the [AZA] accreditation, and that is traditionally the job of divers that are going into animal care—or exhibits for animal care is to collect data and observe the animal health.

(*Id.* at 91-92).

Smith made a similar leap with regard to Houston Aquarium's diving safety manual. Smith testified that the AAUS must approve the diving safety manual of any of its member aquariums. "It's worth noting that that's one of the tasks of the standard committee members of the American Academy of Underwater Sciences is to review organization dive manuals and ensure that they do meet the minimum standards." (*Id.* at 222). Smith indicated that the approval of the AAUS establishes the aquarium is in compliance with the scientific diving standards recognized by OSHA (*Id.* at 221).

For an administrative review, we go through [the diving safety manual] line by line and ensure that all of the standards that are in the AAUS manual are in the applicant's manual, and of course they can exceed those standards as well for items that are specific for the context that they're working in or the environment that they're working. But yes, your manual has to be reviewed and approved by that committee and then by the board of directors at AAUS in order to be accepted as members.

(*Id.* at 223).

[14] In the transcript of Smith's deposition, "AZA" is consistently transcribed as "ADA." No one at the hearing referred to an organization with the initialism "ADA." In context, the initialism for the Association for Zoos and Aquariums is more logical. Review of the video recording of the deposition establishes Smith was saying "AZA" during his testimony (Exh. R-195b).

Smith extrapolated from the fact that he was unaware of any unsafe diving practices at the Downtown Aquarium the conclusion that Houston Aquarium's divers were in compliance with the AAUS standards.

> I think it kind of works in the same way like OSHA does, where they get a call from somebody in a facility where AAUS is the standard setting body. . . . If those organizations are not following those standards, unless somebody gets injured oftentimes you wouldn't necessarily hear about it. But at the same time, the community is very small, and if there were some unsafe practices going on between the AAUS and the ADPA [Association of Dive Program Administrators], I'm sure we would have heard about it.

(*Id.* at 232).

Smith relied on Houston Aquarium's status as an AAUS member in concluding that divers at the Downtown Aquarium were following the scientific diving standards. "They are current members of the AAUS, so by proxy they had to have their manual reviewed and accepted and approved by the Standards Committee and the board of directors of the AAUS." (*Id.* at 238).

Smith's reliance on both Houston Aquarium's membership with the AAUS and the diving safety manual provided by Houston Aquarium is misplaced however. The diving safety manual Houston Aquarium provided to Smith was not the diving safety manual that was in effect at the time of the OSHA inspection. Houston Aquarium revised its diving safety manual following the first OSHA inspection in an effort to gain admission to the AAUS (Exhs. C-21 and R-1; Tr. 603-605). At the time of the OSHA inspection, Houston Aquarium was not a member of the AAUS. Houston Aquarium did not apply to become a member of the AAUS until January of 2012, after the initial OSHA inspection. The AAUS did not certify Houston Aquarium as a member until September 2012, after the Secretary issued the Citation that gave rise to this case (Tr. 535).

Smith is an experienced diver and is highly knowledgeable about diving safety and aquarium science, as well as the applicable standards for scientific diving. His testimony regarding the collection of data by Houston Aquariums divers is, however, grounded on incomplete information. Smith did not visit the Downtown Aquarium in preparation for his deposition.[15] His only preparation was to review documents provided to him by Houston Aquarium (*Id.* at 9-10). Smith relied on his personal relationship with Todd Hall, Houston Aquarium's corporate dive program manager, to infer that Hall "runs a very safe and exemplary diving program." (*Id.* at 57-58). Hall is not usually onsite at the Downtown Aquarium—he is based in Denver, Colorado (*Id.*

[15] Smith testified he had visited the Downtown Aquarium "twice in the last eight years" as "just a visitor." (Exh. R-95a, p. 184).

at 183-184; Tr. 500). Smith did not speak with William Boyes, Houston Aquarium's onsite dive master, in preparation of his deposition (Exh. R-195a, p. 179). Smith had never met or spoken with any of Houston Aquarium's divers who were working at the Downtown Aquarium during the period at issue (*Id.* at 181-183). Smith had no personal knowledge of Houston Aquarium's requirements for its divers regarding observation and gathering of data during dives.

The Court determines Smith's testimony regarding the gathering of data by Houston Aquarium's divers is entitled to less weight than the testimony of the divers themselves, who had personal knowledge of the dives and who corroborated each other's testimony. The testimony of Divers #1, #2, and #3 establishes that Houston Aquarium's divers do not gather data for the purposes of scientific research during their dives at the Downtown Aquarium.

Houston Aquarium's Divers Do Not Gather Data from Dives

Diver #1 stated that no data is gathered regarding the siphoned material (Tr. 118-119). The only information logged for a dive is written on the Facility Dive Log (Tr. 120). That information, however, is not data gathered about the underwater environment or the animals. It is merely information confirming the diver has completed the dive assigned him or her in the daily dive plan (Exh. C-6). Diver #1 testified that if she observed something unusual, such as a discoloration on a fish indicating an injury, that information "gets sent to the biologist who is in charge of the exhibit at that time, and then it gets sent over to our managers." (Tr. 134).

Diver #2 also stated that no data is gathered during cleaning dives relating to the siphoned material (Tr. 150). He stated he would only record information about a cleaning dive if he observed "scratches that were really bad, . . . I'll report them to my supervisors in case, in the future, there needs to be an OSHA regulated dive in order to be able to fix the scratch. So it is reported, but I do not record it if I see a scratch or anything like that.' (Tr. 151). Diver #2 testified he would notify his supervisor if he saw an injured animal or an animal exhibiting unusual behavior (Tr. 175). He stated he did not log the amount of aiptasia he cleaned after a dive because "there's really no way to measure how many there are or were. That would be way too labor intensive." (Tr. 179). When asked if he documented "at all" when cleaning aiptasia, Diver #2 replied, "[W]e have to be very careful when we're working around them but there's really no writing down of anything about the aiptasia." (Tr. 179).

Diver #3 testified divers did not collect data during event dives. Instead, divers would just login, "the same as the other dives we did. So we'd just keep track of how long we were in the

tanks." (Tr. 301). Diver #3 was asked if the divers collected data during cleaning dives. He responded,

> No, we didn't. I don't think so. I don't think we really collected any data or anything. I mean, really the tank that—we would report things. I mean, besides just logging the dives in that tank, in an tank we'd dive—we dove in, we'd log the time and how long we were down there and what we did. But in terms of data, I don't think we did collect anything in that tank really.

(Tr. 315).

Jim Prappas testified that Houston Aquarium's divers "know how to collect the data and make the observations." (Tr. 386). When asked what he meant by collecting data and making observations, Prappas replied, "Well, the observations, animal observations. Every day, you know, those animals are growing and they're interacting. So, you know, whether there's a raised scale or cloudy eye or a ripped fin or if there's some kind of parasite that would be seen on the body, all of those are observations that have to be made close up." (*Id.*). No evidence was adduced showing Houston Aquarium's divers gathered data during their dives or documented data for later study.

Analysis

The third guideline set out in Appendix B to Subpart T to Part 1910 states:

> The tasks of a scientific diver are those of an observer and data gatherer. Construction and trouble-shooting tasks traditionally associated with commercial diving are not included within scientific diving.[16]

Scientific Research

Derek Smith spoke passionately about the importance of the aquarium industry in educating the public and adding to scientific knowledge:

> The entire aquarium industry shares information about animal care, exhibit maintenance, aquarium diving operations, all kinds of things that is a community standard that we all share—that they all share information like this. I mean, that is the advancement of science, is taking scientific knowledge and sharing it amongst the others so that we can move forward. Animal husbandry is a science, and the care of animals in the exhibit is a science and requires scientific expertise.

(Exh. R-195a, p. 89).

[16] The second sentence of this guideline may be dispensed with here. The record establishes Houston Aquarium's divers were not engaged in construction or trouble-shooting during the cited dives. When underwater construction was required, Houston Aquarium either contracted that work to an outside company whose divers complied with the CDO standard, or required its own divers to comply with the CDO standard.

The Court credits Smith's opinion that animal husbandry is a science and the employees' care of the animals in the Downtown Aquarium's exhibits requires scientific expertise. Had OSHA elected to use the definition of "scientific diving" followed by CAL/OSHA ("all diving performed by employees necessary to, and part of scientific research or educational activity; in conjunction with a project or study under the jurisdiction of any public or research or educational institution or similarly recognized organizations, departments, or groups." 47 Fed. Reg. at 53,362), Houston Aquarium perhaps could establish its employees were engaged in scientific diving during the cited period. OSHA opted, however, to impose more stringent standards for scientific diving, including the requirements that scientific divers dive for the sole purpose of scientific research and that their tasks "are those of an observer and data gatherer."

"Data" is defined as "[i]nformation, esp. information organized for analysis or used as the basis for a decision." *American Heritage Dictionary* (1982). The definition of "scientific" is "[o]f, relating to, or employing the methodology of science," and "science" is "[t]he observation, identification, description, experimental investigation, and theoretical explanation of natural phenomena." *Id.*

In the Education/Scientific Diving preamble, the Secretary emphasizes the requirement that scientific diving be performed by employees "whose sole purpose for diving is to perform scientific research." 47 Fed. Reg. at 53,359. Scientific research is an ongoing process designed to advance the body of accumulated knowledge involving a specific branch of science. The Supreme Court defined "scientific" in terms of the scientific method in *Daubert:*

> The adjective "scientific" implies a grounding in the methods and procedures of science. Similarly, the word "knowledge" connotes more than subjective belief or unsupported speculation. The term "applies to any body of known facts or to any body of ideas inferred from such facts or accepted as truths on good grounds." *Webster's Third New International Dictionary* 1252 (1986). . . . Brief for American Association for the Advancement of Science et al. as *Amici Curiae* 7–8 ("Science is not an encyclopedic body of knowledge about the universe. Instead, it represents a *process* for proposing and refining theoretical explanations about the world that are subject to further testing and refinement" (emphasis in original)). But, in order to qualify as "scientific knowledge," an inference or assertion must be derived by the scientific method.

509 U.S. at 590.

The scientific diving exception distinguishes between diving that is performed by scientists who are engaged in routine maintenance tasks (nonscientific diving regulated by the CDO standard) and diving that is performed by scientists who are observing and gathering data for

research (scientific diving exempt from the CDO standard). The scientific method requires systematic observation and collection of data for analysis. It is an ongoing investigation designed to test theories formulated from current knowledge.

The third guideline requires the scientific diver to engage in tasks consistent with those of "an observer *and* data gatherer." Observing phenomena and gathering data about it are two separate procedures. The obligation imposed on a scientific diver to be a "gatherer of data" requires the diver to actually document the data gathered. Otherwise gathering data is indistinguishable from observation. Diver #3 appeared puzzled when questioned about observations he made during cleaning dives, volunteering that he made "personal observations," but not scientific ones:

> Q. What observations did you—did you make any observations while you were cleaning the Gulf of Mexico Tank?
>
> Diver #3: I made personal observations. I don't know—is that your question?
>
> Q. What type of personal observations would you make?
>
> Diver #3: Just the behavior of the fish and, you know, which areas possibly needed to be cleaned and things like that.

(Tr. 315).

Dive master Boyes conflated the two different procedures of observing and gathering data in his testimony:

> Scientific divers, whenever they enter the water, are collecting data and making observations. They have to because the fish cannot get away from you like in the ocean. You're stuck there, sometimes with these very large animals, what some would consider potentially very dangerous animals, sharks and eels. So they have to be aware of the animal so no damage is done to the animals.

(Tr. 618-619).

The observations addressed by Diver #3 and Boyes are not the scientific observations contemplated by the scientific diving exception. Any diver, scientific or not, diving in waters inhabited by sharks or eels (or the venomous Lionfish) has to be aware of potentially dangerous animals. Houston Aquarium contracts underwater construction work to outside companies who are required to comply with the CDO standard. If they are required to dive in exhibit tanks containing dangerous animals, they must be aware of the animals in order to dive safely, but their awareness does not equal scientific observation.

Conclusion

(1) Mortality Dives Marginally Qualify as Scientific Diving

Of the dives performed by Houston Aquarium employees, only the mortality dives conceivably meet the requirement that scientific divers must gather data. Although the primary task of the diver in a mortality dive appears to be removing the dead animal and delivering it to the laboratory, the laboratory personnel investigate the cause of death and sometimes perform a necropsy. Houston Aquarium likely derives some data from the laboratory that can be attributed to the mortality dive, although the record is devoid of such evidence.

(2) Event Dives Do Not Qualify as Scientific Diving

The event dives performed by Houston Aquarium's employees clearly do not meet the requirements of scientific diving.[17] Dive master Boyes attempted to shoehorn the tasks of observation and gathering of data into event dives, but the results are farfetched:

> Whenever a scientific diver enters the water in an aquarium setting, they have to be data collectors and observers. So if it's an event dive—let's say it's a sign dive, the diver, when he gets in the water with a sign, he has to consider the kind of data he would collect, it would be like what's the sign made out of, is there anything that's going to come off the sign that the fish can ingest.
>
> Is the sign going to sink him to the bottom, is it mutually buoyant, is it going to float him to the surface. He has to collect data on that sort of thing so we know we have the right kind of signs.
>
> He has to pay attention to the fish, how are the fish reacting to the sign, what's going on with the animals as he's carrying the sign over to the window, and at the window then he'll display the sign.

(Tr. 621).

The scientific diving exception requires that the dive in question be performed *solely* for scientific research tasks. Holding up a sign featuring a corporate logo or a marriage proposal is not a task consistent with scientific research. It is a task undertaken for the entertainment (or potential marital bliss) of the Downtown Aquarium's visitors. The diver's hypothetical concern about the sign's buoyancy and floating letters relates to the presentation of the event, not to scientific research.

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[17] Boyes claimed that the CSHO told him that event dives were "off the table" and OSHA was citing Houston Aquarium only for cleaning dives (Tr. 608, 651). The AVDs of the Citation items do not reflect the exclusion of event dives from the alleged violations. Houston Aquarium cross-examined the CSHO and did not inquire about this claimed limitation. Houston Aquarium adduced no documentary evidence supporting Boyes's claim. It is determined that cited items apply to event dives as well as cleaning dives during the cited time period.

Houston Aquarium also contends the Secretary failed to establish that any event dives occurred during the cited period. One of the pages of the Facility Dive Log, however, records a "proposal dive" for May 18, 2012, in the Dining Room Tank (Exh. C-6, p. 2).

(3) Feeding and Cleaning Dives Do Not Qualify as Scientific Diving

Finally, the dives performed by Houston Aquarium's employees for the purposes of feeding the animals and cleaning the exhibit tanks fall short of meeting the requirements for scientific diving. Scientific diving must be solely for the purpose of performing scientific research tasks. Scientific research requires the systematic collection and analysis of data. Other than recording the minimal information listed on the Facility Dive Log (which shows only that an assignment has been completed), the diver gathers no data about the animals or their environment during a feeding or cleaning dive. The cited dives are for the purposes of caretaking and routine maintenance. The dives foster the health and wellbeing of the animals in the care of Houston Aquarium, but they are not part of "a *process* for proposing and refining theoretical explanations about the world that are subject to further testing and refinement." *Daubert,* 509 U.S. at 590. Derek Smith conceded Houston Aquarium was not engaged in a research project: "It wasn't as if they were performing a scientific project in conjunction with a university. They were just maintaining exhibits[.]" (Exh. R-195a, p. 90).

Houston Aquarium's management personnel broadly asserted that the divers make observations and gather data every time they dive, by virtue of their scientific background and training. The testimony of the divers themselves, however, is unequivocal: Houston Aquarium's divers gathered no data whatsoever during the routine feeding and cleaning dives they performed on a daily basis. Diver #3 stated, "[I]n terms of data, I don't think we did collect anything in that tank really." (Tr. 315). If the divers observed an injured or sick animal, they would report it to their supervisors so medical treatment could be administered. If they noted a scratch or other damage to the exhibit, they would report it to their supervisors so it could be repaired.

No scientific information was recorded for the multiple dives made on a daily basis in Houston Aquarium's exhibit tanks. The divers performed feeding and custodial maintenance assignments during their dives as part of the ongoing care of the animals (and the aesthetic appearance of the exhibits). Rather than observing "natural phenomena or responses of natural systems" and gathering "data for scientific analysis," Houston Aquarium's divers were performing routine, repetitive (albeit highly skilled) manual labor during their dives. It is telling that Houston Aquarium adduced no evidence documenting observations made or data gathered about the animals during feeding or cleaning dives.

The Court determines the feeding and cleaning dives performed by Houston Aquarium's employees on a daily basis between January 10, 2012, and June 20, 2012, do not constitute scientific diving within the meaning of § 1910.402. Therefore, Houston Aquarium has failed to meet its burden of proving it is exempt from complying with the CDO standard under § 1910.401(a)(2)(iv). The CDO standard applies to the dives cited in the Citation.

Item 1: Alleged Serious Violation of § 1910.422(c)(1)(i)

Alleged Violation Description

Item 1 of the Citation alleges:

> Between January 10, 2012, and June 20, 2012,[18] the employer did not ensure that divers had two-way communications with the surface while diving, using surface supplied air, exposing employees to lack of communication and delaying reaction time of personnel on the surface at:
>
> a) Gulf of Mexico Tank (GOM)
>
> b) Grouper Tank
>
> c) Demi Tank
>
> d) Tower Tank
>
> e) Dining Room Tank
>
> f) Lionfish Tank
>
> g) Entry Tank

Cited Standard

Section 1910.422(c)(1)(i) provides in pertinent part:

> An operational two-way voice communication system shall be used between:
>
> (i) Each surface-supplied air or mixed gas diver and a dive team member at the dive location [.]

Definitions

Section 1910.402 provides these relevant definitions:

> *Surface-supplied air diving:* A diving mode in which the diver in the water is supplied from the dive location with compressed air for breathing.

[18] The alleged violation description for each of the cited items originally read, "On February 13, 2012, and at times prior thereto;" followed by the specific allegations for that item. On August 22, 2013, the Secretary filed an Unopposed Motion to Amend Citation and Complaint to change the beginning of each of the alleged violation descriptions to read, "Between January 10, 2012, and June 20, 2012." On August 26, 2013, the Court granted the Secretary's motion, amending "the alleged violation descriptions in Citation No. 1, Item Nos. 1, 3, 4, 5a, and 5b" to substitute the January 10 through June 20 time period for the original date.

Mixed-gas diving: A diving mode in which the diver is supplied in the water with a breathing gas other than air.

Dive team: Divers and support employees involved in a diving operation, including the designated person-in-charge.

Dive location: A surface or vessel from which a diving operation is conducted.

Compliance with the Terms of the Standard

Divers diving in the cited exhibit tanks (the Gulf of Mexico, Grouper, Demi, Tower, Dining Room, Lionfish, and Entry Tanks) used surface-supplied air (Tr. 257, 316-317, 322, 329, 331).[19] The divers were not equipped with a two-way voice communication system to use with the dive tender observing the dive (Tr. 222). Instead, the diver and the dive tender relied on hand signals, flashlights, rattles, and dive slates to communicate with each other (Tr. 152-153, 504-505).

The only exhibit tank in which a diver could vocally communicate while diving was the Gulf of Mexico Tank. As part of "Dive Com" shows for aquarium visitors, a diver in the Gulf of Mexico Tank wore a full face mask (known as an AGA mask) equipped with a radio hookup and ear phones so he or she could communicate with the tender, who had a microphone. (Tr. 310). Diver #3 testified that for a Dive Com show, "one of the tenders or one of the biologists would talk and ask us questions about the fish and then they would let the public ask us questions." (Tr. 311-312).

The two-way voice communication system was only used in the Gulf of Mexico Tank during Dive Com shows. Divers performing cleaning dives in the Gulf of Mexico Tank did not wear the AGA mask. For regular cleaning dives, Diver #3 testified:

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[19] Houston Aquarium uses a type of delivery system for compressed air during dives called a Hookah system. A Hookah system uses an air compressor to supply air through a hose directly to the second-stage of a SCUBA regulator. Houston Aquarium's dive safety manual in effect at the time of the OSHA inspection defined "Hookah Diving" as "[a] type of shallow water surface-supplied diving where there is no voice communication with the surface." (Exh. C-21, p. 31). Despite this definition, Todd Hall and William Boyes stated that the dives performed by Houston Aquarium's employees using the Hookah system were not surface-supplied air dives and that Houston Aquarium does not perform any surface-supplied air dives (Tr. 545, 656). Hall conceded at the hearing that he made his statement based on how he was defining surface-supplied air "at this time," and he acknowledged his definition differed from OSHA's definition (Tr. 545). Hall also substituted his own definition of "dive location" in lieu of the one mandated by OSHA (Tr. 542). Houston Aquarium prepared a record of dive logs in compliance with the AAUS's requirements. Although it distinguishes Hookah dives from surface-supplied air dives, Houston Aquarium documented 25 surface-supplied air dives in 2012 (Exh. C-22). Boyes asserted that the classification of the 25 dives as surface-supplied air dives reflected "a mistake the divers were making." (Tr. 657).
The redefining and reclassifying of dives appear to be part of a strategy at the hearing to shield the dives performed by Houston Aquarium's employees from the application of § 1910.422(c)(1)(i), which applies to surface-supplied air. Houston Aquarium does not pursue this theory in its post-hearing brief and does not argue that § 1910.422(c)(1)(i) is not applicable to the cited dives. The Court finds the cited dives performed by Houston Aquarium's employees using the Hookah system were surface-supplied air dives.

> [The diver and dive tender relied on] the same sort of things as with all the tanks. The tenders would carry a small flashlight and if they needed to get our attention, they could shine the light, you know, shine it around where we were cleaning so we would look over at them. They could give us hand signals, like, to surface, you know, and different things like that or sometimes pointing at a nurse shark telling us to get out of the way. . . . Just communicating with us about the location of the larger fish in the tank.

(Tr. 314-315).

Houston Aquarium does not dispute it failed to provide a two-way voice communication system for its divers using surface-supplied air. Instead, it argues that a two-way voice communication system is not needed at the Downtown Aquarium.

> Diving within an aquarium is a unique situation where divers are able to stay in constant visual contact with someone on the outside, which is not the case with commercial divers who do not have constant visual contact. This visual contact, which does not exist in diving situations in natural bodies of water, gives the benefit of instant reactions to any possible emergency scenario.

(Houston Aquarium's brief, p. 17) (footnotes omitted).

Houston Aquarium's belief that the use of a two-way voice communication system between its divers and dive tenders is unnecessary does not excuse compliance with the cited subsection. Having determined the CDO standard applies to the dives performed at the Downtown Aquarium, the Court cannot now ignore that application based on Houston Aquarium's assurance that it exceeds the requirements of § 1910. 422(c)(1)(i).

> [T]he standard's adoption was mandated by Congress, and the Commission may not entertain any challenge to the wisdom of the standard. *E.g.*, *Loomis Cabinet Co.*, 15 BNA OSHC 1635, 1640, 1991-93 CCH OSHD ¶ 29,689, p. 40,258 (No. 88-2012, 1992) (holding that Commission "lacks the power" to question the wisdom of an OSHA standard).

Manganas Painting Co., Inc., 21 BNA OSHC 1964, 1971 (No. 94-0588, 2007).

Houston Aquarium argues the methods of communication used by its divers are approved by the scientific diving community. "The American Academy of Underwater Sciences (AAUS) standards permit all of the forms of communication used." (Houston Aquarium's brief, p. 17). The Court is not free to set aside the requirements of the CDO standard in favor of the standards Houston Aquarium prefers.

> [A]lterations to OSHA's safety standards cannot, however, be obtained in adjudicatory proceedings before the Commission, which only concerns itself with the employer's alleged violation of an existing standard. In these proceedings, employers cannot question a standard's wisdom. See *Austin Engg. Co.*, 12 BNA OSHC 1187, 1188, 1984–85 CCH OSHD ¶ 27,189, p. 35,099 (No. 81–168, 1985), citing *Van Raalte Co*. 4 BNA OSHC 1151, 1152, 1975–76 CCH OSHD ¶ 20,633, p. 24,698 (No. 5007, 1976) (the Commission lacks

power to question the wisdom of a standard). See also *Secretary of Labor v. OSHRC (CF & I Steel Corp.),* 941 F.2d 1051, 1059 n. 10 (10th Cir.1991) ("[a]n employer may not simply substitute its judgment for that of OSHA ... despite its subjective belief that an agency interpretation is invalid"); *Phoenix Roofing, Inc. v. Secretary of Labor,* 874 F.2d 1027, 1031 (5th Cir.1989) ("[i]t would also be improvident for us to ... send employers the message that they [can] ignore the obvious mandates of the safety regulations and independently determine what, if any, measures should be undertaken in a given situation").

Carabetta Enterprises Inc., 15 BNA OSHC 1429, 1432 (No. 89-2007, 1991).

It is undisputed Houston Aquarium permitted its divers to perform dives in the cited exhibit tanks without the use of two-way voice communication systems. The Secretary has established Houston Aquarium failed to comply with the terms of § 1910.422(c)(1)(i).

Employee Access to the Violative Condition

The record establishes Houston Aquarium's employees dived in each exhibit tank on a daily basis without the use of two-way communication systems. The CSHO described the hazard to which the divers were exposed:

The hazard is if the tender sees something, he can't communicate it to them verbally, which is your fastest way of communication, versus tapping or flashlight signals to make them aware of the hazard that may be in the water or if the divers have a problem and need assistance immediately. It's a lot easier to say "help" than to start tapping or reaching or anything of that nature.

(Tr. 225-226).

The Secretary has established Houston Aquarium's employees were exposed to the violative condition.

Employer Knowledge

Houston Aquarium does not dispute it had knowledge of the violative condition. The decision to use nonverbal methods of communication between divers and dive tenders was a policy decision made by Houston Aquarium's diving control safety board. Dive master Boyes, a supervisor for Houston Aquarium, testified he inspected the diving equipment daily at the Downtown Aquarium. He stated, "I take a look at the divers when they're suited up because I oversee the divers. We have a meeting each morning at 7:15 in front of the dive locker." (Tr. 615). "[W]hen a supervisory employer has actual or constructive knowledge of the violative conditions, that knowledge is imputed to the employer, and the Secretary satisfies his burden of proof without

having to demonstrate any inadequacy or defect in the employer's safety program." *Dover Elevator Co.*, 16 BNA OSHC 1281, 1286 (No. 91-862, 1993).[20]

Houston Aquarium had actual knowledge of its failure to comply with the terms of § 1910.422(c)(1)(i). The Secretary has established Houston Aquarium violated the cited subsection. Item 1 of the Citation is affirmed.

Serious Classification

The Secretary classified this item as serious. Under § 17(k) of the Act, a violation is serious "if there is a substantial probability that death or serious physical harm could result from" the violative condition. "[A] serious violation is established if an accident is possible and there is a substantial probability that death or serious physical harm could result from the accident." *Consol. Freightways Corp.*, 15 BNA OSHC 1317, 1324 (No. 86-0351, 1991).

The CSHO testified the lack of a two-way voice communication system could result in a diver's death by drowning if he or she were unable to hear sudden warnings or communicate distress (Tr. 226). Item 1 is properly classified as serious.

Item 3: Alleged Serious Violation of § 1910.424(c)(4)

Alleged Violation Description

Item 3 of Citation No. 1 alleges:

> Between January 10, 2012, and June 20, 2012, the employer did not ensure that divers carried a reserve breathing gas supply while conducting dives on scuba exposing divers to a drowning situation at:
>
> c) Shark Tank
>
> d) Dining Room Tank

Cited Standard

Section 1910.424 addresses SCUBA diving. Section 1910.424(c)(4) provides:

> A diver-carried reserve breathing gas supply shall be provided for each diver, consisting of:
>
> (i) A manual reserve (J valve); or

[20] The Court of Appeals for the Fifth Circuit holds that "a supervisor's knowledge of his own malfeasance is *not* imputable to the employer where the employer's safety policy, training, and discipline are sufficient to make the supervisor's conduct in violation of the policy unforeseeable." *W.G. Yates & Sons Const. Co. Inc. v. Occupational Safety & Health Review Comm'n*, 459 F.3d 604, 608-09 (5th Cir. 2006) (emphasis in original). The instant case does not present a *Yates* situation; the foreseeability of Boyes's own misconduct is not at issue.

(ii) An independent reserve cylinder with a separate regulator or connected to the underwater breathing apparatus.

Definitions

Section 1910.402 defines "SCUBA diving" as "[a] diving mode independent of surface supply in which the diver uses open circuit self-contained underwater breathing apparatus." "Diver-carried reserve breathing gas" is "[a] diver-carried supply of air or mixed gas (as appropriate) sufficient under standard operating conditions to allow the diver to reach the surface, or another source of breathing gas, or to be reached by a standby diver." A "J valve" is "a backup breathing supply that's built into the actual tank." (Tr. 259). A "pony tank" is a small independent reserve cylinder (Tr. 345).

Compliance with the Terms of the Standard

Diver #1 testified that, between January 10, 2012, and June 20, 2012, she SCUBA dived in the Shark Tank "doing the regular maintenance routine of cleaning our exhibits." (Tr. 114). She dived in the Shark Tank on Tuesdays and Thursdays (Tr. 116). She did not carry a reserve breathing gas supply during these dives (Tr. 114-116).

The CSHO observed four SCUBA divers working in the Shark Tank (Tr. 265). He stated, "The divers in the tank were not carrying the auxiliary tanks or the tanks that they had in their possession did not consist of having J valves installed on it." (Tr. 259). The CSHO also observed a SCUBA diver in the Dining Room Tank who was not carrying a reserve breathing gas supply (Tr. 267).

Diver #3 testified he SCUBA dived in the Dining Room Tank. He was asked if he carried a pony tank with him. He replied, "I personally never did when I used SCUBA and I don't remember anyone ever bringing one with them (Tr. 345).

Houston Aquarium had reserve tanks available at the Downtown Aquarium. (Tr. 266). It contends, "[S]hould divers choose to carry a reserve air supply, the equipment is available and ready for their use." (Houston Aquarium's brief, p. 18). Houston Aquarium did not require its SCUBA divers to use a reserve tank during their dives (Tr. 511). Section 1910.424(c)(4) requires that a reserve air supply "shall be provided for each diver." A standard that requires an employer to provide a safety device to each employee also requires the employer to ensure that each employee uses the safety device. *Clarence M. Jones*, 11 BNA OSHC 1529 (No. 77-3676, 1983).

Houston Aquarium contends that "carrying a reserve breathing gas supply is not safer than an alternative method of air supply. When the risk of decompression sickness is minimal, or non-

existent as in this case, direct ascent to the surface is the preferred method of air supply in an 'out of air' emergency." (Houston Aquarium's brief, p. 18). Houston Aquarium is again questioning the wisdom of the standard. The Court cannot approve the company's use of an alternative method of air supply that is not found in the applicable standard.

Furthermore, Houston Aquarium's preference for direct ascent to the surface in an "out of air" emergency ignores scenarios where ascent to the surface is difficult or impossible. Divers at the Downtown Aquarium are exposed to, in Boyes's words, "very large animals, what some would consider potentially very dangerous animals." (Tr. 619). If a diver were injured or entangled or prevented from reaching the surface by an aggressive animal, access to a reserve air supply could be vital. The Secretary has established Houston Aquarium violated the terms of the cited subsection.

Employee Access to the Violative Condition

The CSHO testified the hazard to which the divers were exposed was "[t]he possibility of running out of air and not having a backup or reserve and drowning." (Tr. 266). Divers #1 and #3 testified they made weekly SCUBA dives in the Shark Tank and the Dining Room Tank. It is established that they had access to the violative condition.

Employer Knowledge

Houston Aquarium had actual knowledge of the violative activity. Dive master Boyes met with the divers every morning and inspected their equipment. He was aware the SCUBA divers were not carrying a reserve breathing gas supply.

The Secretary has established Houston Aquarium violated § 1910.424(c)(4). Item 3 is affirmed.

Serious Classification

The Secretary classified this item as serious. Houston Aquarium's failure to ensure its SCUBA divers carried a reserve breathing gas supply exposed the divers to the potential risk of death due to oxygen deprivation or drowning . Item 3 is properly classified as serious.

Item 4: Alleged Serious Violation of § 1910.430(g)(1)

Alleged Violation Description

Item 4 of Citation No. 1 alleges:
Between January 10, 2012, and June 20, 2012, the employer did not ensure that divers had gauges that indicate the diver depth at their location, exposing divers to situations that cause the bends or decompression sickness at:

a) Tower Tank

Cited Standard

Section 1910.430(g)(1) provides:

Gauges indicating diver depth which can be read at the dive location shall be used for all dives except SCUBA.

Compliance with the Terms of the Standard

Divers in the Tower Tank did not use gauges indicating diver depth which could be read at the dive location (Tr. 268-270). The Secretary has established Houston Aquarium failed to comply with the terms of § 1910.430(g)(1).

Employee Access to the Violative Condition

The CSHO testified that divers in the Tower Tank who were not using depth gauges were exposed to a delay in medical treatment for decompression sickness. He stated, "[T]he divers don't know what their depth is or if that information can't be relayed to the tender and they come down with decompression sickness, or the bends, the information can't be relayed to a doctor for proper treatment." (Tr. 271).

Derek Smith has done extensive research in decompression sickness and has worked with diving physiology experts for over 15 years (Exh. R-195, p. 241). He stated that the "definition of decompression sickness is bubble formation and growth." (*Id.).* During a dive, nitrogen gas dissolves in the diver's bloodstream as a liquid. When the diver surfaces, he or she goes from a higher state of compression or pressure to a lower pressure. "The gas that's in your bloodstream wants to come out of that. Like your bloodstream can't hold in the amount of gas that you've got absorbed there." (*Id*. at 242*).* During decompression, bubbles from the nitrogen in the diver's bloodstream form. Occasionally, "those bubbles get larger and larger and can get stuck in places around your body, various blood capillaries, your arteries, your veins, places like that. And when these bubbles form, grow, and then cause symptoms, that's what we refer to as decompression sickness." (*Id.* at 243).

Smith stated that "it is generally accepted amongst . . . the community of diving physiology doctors and the scientific community that dives that are shallower than 20 feet deep . . . do not potentially expose a diver to decompression risk." (Exh. R-195a, p. 49). The only exhibit tank deeper than 20 feet at the Downtown Aquarium is the Tower Tank, which is 40 feet deep. (Exh. C-7).

Smith testified that for dives in aquariums, "the depth of the exhibit is known and the maximum depth of that dive is used for decompression planning." (*Id.* at 59). Todd Hall, the corporate dive master for Houston Aquarium and the Denver Aquarium, agreed: "[A]ll aquariums are a fixed depth so if you're not using a depth gauge, you have to plan your dives to the maximum depth that that exhibit will allow you to go. And you plan your decompression prevention . . . on that." (Tr. 520). Hall stated that the only additional information medical personnel need to know to treat decompression sickness is the length of time the diver has been underwater. That information is always available to the dive team (Tr. 521).

The Secretary has failed to show Houston Aquarium's divers were exposed to a hazard. The CSHO stated that the hazard was "the divers don't know what their depth is." Houston Aquarium uses the maximum depth of 40 feet as the baseline for planning decompression treatment. Divers suffering from decompression sickness would experience no delay in medical treatment. Medical personnel assume the depth of the diver's dive to be 40 feet and treat the diver based on the amount of time the diver spent underwater, information that is always available to the dive tender or other dive team member.

The Secretary has failed to establish a violation of § 1910.430(g)(1). Item 4 is vacated.

Items 5a and 5b: Alleged Serious Violations of §§ 1910.430(j)(2)(i) and (ii)

Alleged Violation Descriptions

Item 5a of Citation No. 1 alleges:

> Between January 10, 2012, and June 20, 2012, the employer did not ensure that divers wore safety harnesses with a positive buckling device, exposing divers to delayed recovery in the case of a debilitating accident.

Item 5b of Citation No. 1 alleges:

> Between January 10, 2012, and June 20, 2012, the employer did not ensure that divers had attachment points for the umbilical cord to prevent strain on masks, or Hookah devices while the divers are in the water, exposing employees to damaging mask and not being able to breathe.

Cited Standard

Sections 1910.430(j)(2)(i) and (ii) provide:

> Except when heavy gear is worn or in SCUBA diving, each diver shall wear a safety harness with:
>
> (i) A positive buckling device; [and]
>
> (ii) An attachment point for the umbilical to prevent strain on the mask or helmet[.]

Compliance with the Terms of the Standard

When the CSHO first inspected the Downtown Aquarium, Houston Aquarium's divers using surface-supplied air did not wear safety harnesses (and therefore no diver wore a safety harness with a positive buckling device or an attachment point for the umbilical). Instead, Houston Aquarium had devised a method for rescuing divers "using a backboard much like EMS personnel would use, by putting that in the water and strapping the individual to it. And then they had attached chains with a hoisting mechanism to the ceiling to retrieve divers from the water." (Tr. 275).

Following the CSHO's initial visit, Houston Aquarium purchased safety harnesses for its divers, making them available for use sometime in February or March 2012 (Tr. 613-614). Even then, however, Houston Aquarium did not require its employees to wear safety harnesses during their dives. Diver #3 testified he never wore a safety harness when performing cleaning dives (Tr. 349).

Houston Aquarium contends its divers wore weight belts around their waists and that the weight belts "served the same function as a safety harness." (Houston Aquarium's brief, p. 20). Houston Aquarium instructed its divers to attach their air hoses to their weight belts. Todd Hall stated that Houston Aquarium's "policy has always been to have your airline clipped into your weight belt. It's as simple as that." (Tr. 522). The CSHO took a photo of a diver performing a cleaning dive (Exh. C-8). The diver did not clip his air hose to his weight belt. Instead, the diver "had taken the hose and bent it in half and stuck it into [the] weight belt in lieu of having that positive buckling device." (Tr. 279).[21]

The record establishes Houston Aquarium did not provide safety harnesses for its divers until February or March of 2012, and that it did not require its employees to wear the safety harnesses once they were purchased. The Secretary has proven Houston Aquarium failed to comply with the terms of § 1910.430(j)(2).

Employee Access to the Violative Condition

[21] Houston Aquarium argues the photographed employee was not following its policy of clipping the air hose to the weight belt. This, Houston Aquarium asserts, is a case of unpreventable employee misconduct. The first element the employer must prove in order to establish the affirmative defense of unpreventable employee misconduct is that the employer had "established work rules designed to prevent the violative conditions from occurring[.]" *Manganas Painting Co.*, 21 BNA OSHC 1964, 1997 (No. 94-0588, 2007). Here, the violative condition is the failure to ensure the diver is wearing a safety harness with a positive buckling device and an attachment point for the umbilical. Houston Aquarium's rule requiring divers to clip the air hose to the weight belt is irrelevant to the cited subsection. Houston Aquarium's unpreventable employee misconduct defense is rejected.

The CSHO observed several divers who were not wearing the required safety harnesses (Tr. 276). Diver #3 testified he never wore a safety harness during cleaning dives (Tr. 349). The hazard of a diver failing to wear a safety harness with a positive buckling device is "delayed removal from the water if [the diver] become unconscious." (Tr. 275). The hazard of failing to wear a safety harness with attachment points for the umbilical to prevent strain on the mask is that the air hose inadvertently could be pulled from the diver's mouth, depriving the diver of oxygen (Tr. 277). The Secretary has established the divers had access to the violative condition.

Employer Knowledge

Houston Aquarium had actual knowledge of the violative activity. Dive master Boyes met with the divers every morning and inspected their equipment. He was aware of when the divers were not wearing safety harnesses. The Secretary has established that Houston Aquarium committed a violation of § 1910.430(j)(2).

Serious Classification

The Secretary classified this item as serious. Houston Aquarium's failure to ensure its divers were wearing the required safety harness with a positive buckling device and an attachment point exposed divers to a possible delay in the event of an emergency rescue and drowning. Items 5a and 5b are properly classified as serious.

AFFIRMATIVE DEFENSES

Houston Aquarium asserted a laundry list of defenses in its Answer, some of which are recognized by the Commission (Answer, ¶¶ 9 through 42). By the time Houston Aquarium filed its post-hearing brief, it had narrowed its primary affirmative defenses to infeasibility, greater hazard, and vindictive prosecution. It is the employer's burden to prove each of these affirmative defenses. Houston Aquarium has failed to meet its burden of proof with regard to each defense.

Infeasibility

In its post-hearing brief, Houston Aquarium conjoins infeasibility and greater hazard, which are two separate defenses. Where Houston Aquarium alleges that compliance with the cited subsections is infeasible, its supporting argument actually asserts compliance would result in a greater hazard.

To prove infeasibility, Houston Aquarium must show by a preponderance of the evidence that "(1) literal compliance with the terms of the cited standard was infeasible under the existing circumstances and (2) an alternative protective measure was used or there was no feasible

alternative measure." *Westvaco Corp.*, 16 BNA OSHC 1374, 1380 (No. 90-1341, 1993). Houston Aquarium fails to meet the first element of the defense. It concedes that on occasion it needs to perform underwater construction work. When those occasions arise, Houston Aquarium either hires an outside company to perform the dives or uses its own employees to perform the construction work. In either case, the divers comply with the CDO standard. No evidence was adduced demonstrating divers engaged in construction work were unable to literally comply with the terms of the cited subsections of the CDO standard. Houston Aquarium cannot, therefore, establish that literal compliance with the terms of the cited standard subsections was infeasible under the existing circumstances.

Greater Hazard

Houston Aquarium's real argument is that compliance with the cited subsections of the CDO creates a greater hazard "to both the animals in the tanks and the divers." (Houston Aquarium's brief, p. 31). It alleges three situations in which compliance with the cited subsections will result in greater hazards:

> (1) wearing more equipment does not necessarily make divers safer—requiring scientific aquarium divers to use unfamiliar equipment . . . would present a safety hazard for both animals and divers;
>
> (2) most aquarium tanks are not very deep and there is not much room to move around. Additional equipment would be more cumbersome and would cause a potential entanglement hazard and interfere with egress from an aquarium tank; and
>
> (3) aquarium animals are attracted to electrical impulses in a nonpositivte way. Divers using electrical communications when diving in close proximity with these animals would pose a risk because predatory and schooling behavior is based on electrical impulses that would cause divers to become potential targets. Divers would be particularly at risk while diving with sharks or groupers and would potentially risk death if required to wear electrical equipment in tanks with these animals. Wearing electrical equipment such as two-way voice communication in all tanks at the Houston Aquarium, as suggested by the Secretary, is infeasible.

(Houston Aquarium's brief, pp. 31-32) (footnotes omitted).

Houston Aquarium is being disingenuous with its third point. The testimony regarding the attraction of the aquarium animals to electrical impulses related specifically to sharks (Tr. 407, 507). Jim Prappas testified it was not advisable to use a two-way voice communication system in the Shark Tank because "it's an electrical device and the animals are attracted to electrical things and when you're wearing an electrical device on your head, that could possibly make you a target."

(Tr. 507). For that reason, Prappas asserted, divers in the Shark Tank use SCUBA equipment when diving (*Id.).*

Section 1910.422(c)(1)(i), the subsection of the CDO standard that requires the use of a two-way voice communication system, applies to divers using surface-supplied air or mixed-gas. The Secretary did not cite Houston Aquarium under § 1910.422(c)(1)(i) for dives performed in the Shark Tank based on its understanding that only SCUBA diving was performed in that tank (Secretary's brief, p. 84, n. 13). Abatement of Item 1 does not require Houston Aquarium to implement a two-way voice communication system in the Shark Tank if it continues to permit only SCUBA diving in that exhibit.

Houston Aquarium's other two points amount to the same complaint—wearing the additional equipment required by the cited subsections of the CDO standard creates a greater hazard than not wearing it.

> To establish a defense of greater hazard, an employer must prove that: (1) the hazards created by complying with the standard are greater than those of noncompliance, (2) other methods of protecting employees from the hazards are not available, and (3) a variance is not available or application for a variance is inappropriate. See *Spancrete Northeast, Inc.,* 15 BNA OSHC 1020, 1022–23, 1991 CCH OSHD ¶ 29,313, pp. 39,356–39,357 (No. 86–521, 1991). These three elements are now well-established in court precedent. *Id.* at n. 3 (listing cases). An employer's proof of the unavailability or inappropriateness of a variance is particularly important. *E.g., PBR, Inc. v. Secretary of Labor*, 643 F.2d 890, 895 (1st Cir.1981).

Seibel Modern Mfg. & Welding Corp., 15 BNA OSHC 1218, 1225 (No. 88-821, 1991).

Here, Houston Aquarium's defense is fatally deficient because it failed to file a variance or adduce any evidence that application for a variance is inappropriate.[22] Houston Aquarium does

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[22] During the comment period for the proposed scientific diving exception, the Carpenters Union suggested that variances were a more appropriate means for determining whether the CDO should apply in specific circumstances. The scientific diving community rejected this approach.

> One of the issues addressed in this rulemaking concerns the appropriateness of the scientific diving community seeking an exemption, rather than a variance, from Subpart T. The Carpenters Union remarked that an exemption from the OSHA standards would be unprecedented by making a broad incursion into a safety standard without considering the variance alternative.
>
> . . .
>
> Members of the scientific diving community expressed concern that the time involved in obtaining a variance, the resultant delays in carrying out research activities, as well as the costs involved in obtaining a variance or in requesting modifications of variances might curtail or eliminate important research projects and thus be detrimental to their scientific research programs.

47 Fed. Reg. at 53,362, 53,363.

not refer to the elements of the greater hazard defense in its post-hearing brief and it does not attempt to argue it established the "particularly important" third element of the defense. Houston Aquarium is not excused from compliance with the CDO standard merely because it disagrees with its wisdom.

> An employer who disagrees with a standard, on the basis that its particular requirements are arbitrary or inappropriate, has two options. The employer may apply for a variance. See *Walker Towing Corp.,* 14 BNA OSHC [2072, 2079 n. 11 (No. 87-1359, 1991] (discussion of the variance option); *Stone Container Corp*., 14 BNA OSHC 1757, 1760, 1987–90 CCH OSHD ¶ 29,064, p. 38,817 (No. 88–310, 1990) (other than a judicially-created defense or a settlement agreement that excuses strict compliance, the only legal excuse for noncompliance is a variance). The employer may also seek to have the Secretary alter her standard through rule-making proceedings. See 29 U.S.C. § 665(b)(1) ("The Secretary may ... modify ... any occupational safety or health standard ... [w]henever the Secretary, upon the basis of information submitted ... by an interested person, [or] a representative of any organization of employers[,] ... determines that a rule should be promulgated ...").

Carabetta, 15 BNA OSHC at 1432.

Houston Aquarium did not apply for a variance from the cited subsections of the CDO standard. Therefore, its affirmative defense of greater hazard must fail.

Vindictive Prosecution

Houston Aquarium contends it "is apparently the subject of vindictive prosecution, harassment, and selective enforcement. Following the complaint of . . . a disgruntled employee, the Secretary decided to arbitrarily apply Commercial Diving Regulations to the Houston Aquarium notwithstanding 30 years of OSHA policy to the contrary that has permitted the aquarium diving community to self-regulate under scientific diving standards." (Houston Aquarium's brief, pp. 33-34).

"Vindictive prosecution is a prosecution to deter or punish the exercise of a protected statutory or constitutional right. *United States v. Goodwin,* 457 U.S. 368, 372 (1982). Although there is no uniform test for proving that a prosecution was vindictive, a threshold showing common to all tests is evidence that the government action was taken in response to an exercise of a protected right." *National Engineering & Contracting Co.,* 18 BNA OSHC 1075, 1077 (No. 94-2787, 1997).

Houston Aquarium has not identified any protected right it exercised that caused the Secretary to initiate this inspection or prosecution. OSHA conducted the January 2012 inspection

pursuant to a formal employee complaint. Houston Aquarium has failed to make a threshold showing of vindictive prosecution. Its defense is without merit.

PENALTY DETERMINATION

Under § 17(j) of the Act, the Commission must give "due consideration to the appropriateness of the penalty with respect to the size of the business of the employer being charged, the gravity of the violation, the good faith of the employer, and the history of previous violations." The principal factor in a penalty determination is gravity, which "is based on the number of employees exposed, duration of exposure, likelihood of injuries, and precautions against injuries." *Siemens Energy and Automation, Inc.*, 20 BNA OSHC 2196, 2201 (No. 00-1052, 2005).

Houston Aquarium employs approximately 285 employees (Tr. 285). OSHA had inspected the Downtown Aquarium and cited it for serious violations within the previous five years (Tr. 238). The CSHO testified that Houston Aquarium cooperated fully with his inspections and responded quickly to his recommendations: "Every time I brought something to their attention, Mr. Boyes, he was actively making adjustments or purchasing equipment in good faith to make the dives safer for the divers." (Tr. 289). Houston Aquarium has demonstrated good faith throughout this proceeding.

The Court recognizes that OSHA's application of the CDO standard to the Downtown Aquarium represents an abrupt departure from OSHA's previous treatment of public aquariums.[23] The Court of Appeals for the Eighth Circuit has suggested that a reduction in penalty may be appropriate when an employer is caught in the vanguard of OSHA's change in policy. "A steep fine for behavior consistent with an arguably longstanding interpretation from the Secretary may well be untenable." *Perez v. Loren Cook Co*., 750 F.3d 1006, 1013 (8th Cir. 2014).

The gravity of the violations cited in Items 1, 3, 5a, and 5b is low. The exhibit tanks at the Downtown Aquarium are controlled environments not subject to the variables of weather and unknown inhabitants. Houston Aquarium controls the temperature, lighting, current, and configuration of the tanks. Unlike divers in virtually every other underwater environment, aquarium divers are wholly visible to observers outside of the water for the duration of their dives. Houston Aquarium's divers dive with other dive team members and are always watched from

[23] Houston Aquarium did not assert as a defense that it lacked fair notice of the application of the CDO standard to the dives performed at the Downtown Aquarium (Answer, ¶¶ 9-42), nor did it present a fair notice argument in its post-hearing brief.

outside the water by a dive tender. Houston Aquarium's divers are highly trained. The dive master meets with the divers every morning and checks their equipment.

Although Houston Aquarium was not in compliance with the cited subsections of the CDO standard, it had implemented alternative safety measures, including the use of the nonverbal communication system, "buddy breathing" rescue training, and an emergency retrieval procedure. The Secretary adduced no evidence of accidents or injuries occurring during dives performed at the Downtown Aquarium. "The absence of a history of accidents . . . , while irrelevant to whether a violation exists, may be considered in determining gravity. *Brennan v. Smoke-Craft, Inc.,* 532 F.2d 843 (9th Cir.1976). *Accord Allis-Chalmers Corp. v. OSHRC*, 542 F.2d 27 (7th Cir.1976) (while not determinative, an employer's accident-free record may be considered)." *Monitor Constr. Co.,* 16 BNA OSHC 1589, n.8 (No. 91-1807, 1994).

Upon due consideration of the statutory factors under § 17(j) of the Act, as well as the Downtown Aquarium's status as the first public aquarium cited under the CDO standard, the Court determines that the appropriate penalty for Item 1, Item 3, and grouped Items 5a and 5b is $1,500.00 each.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

The foregoing decision constitutes the findings of fact and conclusions of law in accordance with Fed. R. Civ. P. 52(a).

ORDER

Based upon the foregoing decision, it is hereby ORDERED:

1. Item 1 of the Citation, alleging a serious violation of § 1910.422(c)(1)(i), is AFFIRMED and a penalty of $1,500.00 is assessed;

2. Item 2 of the Citation, alleging a serious violation of § 1910.422(d), was withdrawn by the Secretary prior to the hearing. Item 2 is VACATED and no penalty is assessed;

3. Item 3 of the Citation, alleging a serious violation of § 1910.424(c)(4)(i), is AFFIRMED and a penalty of $1,500.00 is assessed;

4. Item 4 of the Citation, alleging a serious violation of § 1910.430(g)(1), is VACATED and no penalty is assessed; and

5. Items 5a and 5b of the Citation, alleging serious violations of §§ 1910.430(j)(2)(i) and (ii), are AFFIRMED and a grouped penalty of $1,500.00 is assessed.

/s/

Date: August 18, 2014 Judge Sharon D. Calhoun