OCCUPATIONAL SAFETY AND HEALTH LAW

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1 INTRODUCTION TO THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT

State laws addressing workplace safety and health can be traced back to the early nineteenth century, but federal laws addressing the prevention of job-related injuries and illnesses were only enacted in the mid-twentieth century. In 1936, the Congress passed the Walsh–Healey Public Contracts Act[1] as a part of President Roosevelt's New Deal legislation. The Walsh–Healey Act not only established overtime as work in excess of eight hours per day (i.e. what we now know as the "40-hour workweek") but also established the first federal government workplace safety and health standards. From 1952 to the late 1960s, a number of other federal laws were enacted to prevent worker injury and illness. Among these laws were the Federal Coal Mine Safety and Health Act of 1952,[2] the Longshore and Harbor Workers' Compensation Act of 1958,[3] the Contract Work Hours and Safety Standards Act of 1962,[4] the McNamara–O'Hara Service Contract Act of 1965,[5] and the Federal Coal Mine Safety and Health Act of 1969.[6]

It was not until latter third of the twentieth century that, for the first time in the American history, comprehensive federal legislation regulating workplace safety and health was considered by Congress. On 17 December 1970, the Congress passed the Occupational Safety and Health Act of 1970 ("OSH Act"),[7] which became effective on 28 April 1971. The OSH Act represents the first occupational safety and health legislation of national scope. As Congress stated in 1970, the purpose of the OSH Act was " … to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources … "[8]

The OSH Act has generated considerable administrative and federal judicial law since its enactment nearly 50 years ago. This chapter provides an overview of the major provisions of the OSH Act as they have been administratively enforced and interpreted judicially in the years since its enactment.

1.1 Entities Responsible for Implementing the OSH Act

The Secretary of the United States Department of Labor (Secretary) is responsible for implementing the OSH Act. When the OSH Act became effective, the Department of Labor (DOL) administratively created Occupational Safety and Health Administration (OSHA) to carry out the responsibilities of the Secretary under the OSH Act. OSHA is headed by the Assistant Secretary of Labor for Occupational Safety and Health. The Assistant Secretary is responsible for, among other things, adopting and enforcing occupational safety and health standards and regulations, assessing civil penalties, referring cases to the U.S. Department of Justice for possible criminal prosecution, and evaluating, approving, and monitoring state occupational safety and health enforcement plans and consultation grants.

Section 12(a) of the OSH Act establishes the Occupational Safety and Health Review Commission (Review Commission) as an independent agency to adjudicate OSHA enforcement actions brought by the Secretary.[9] The Review

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Commission is composed of three members appointed by the President for a term of six years. The Review Commission's chair is authorized to appoint such administrative law judges as the chair finds necessary to assist in the work of the Commission.

Sections 20 and 21 of the OSH Act give the Secretary of Health, Education and Welfare (HEW) (now named the United States Department of Health and Human Services or HHS) broad authority to conduct experimental research relating to occupational safety and health, to develop criteria for new safety and health standards, and to conduct educational and training programs.[10] Section 22 establishes the National Institute for Occupational Safety and Health (NIOSH) to perform the functions of the HHS Secretary under Sections 20 and 21.[11] The OSH Act specifically directs NIOSH to develop criteria documents that describe safe levels of exposure to toxic materials and harmful physical agents and to forward standards for such substances that NIOSH recommends to the Secretary.[12]

Section 7(a) of the OSH Act establishes a National Advisory Committee on Occupational Safety and Health (NACOSH), whose basic functions are to advise and make recommendations to the Secretary and the HHS Secretary on matters relating to the administration of the OSH Act.[13] NACOSH consists of 12 members who represent the perspectives of management, labor, the occupational safety and health professions, and the public. Eight members are appointed by the Secretary and four members are appointed by the HHS Secretary.

Section 27(b) of the OSH Act also established a National Commission on State Workmen's Compensation Laws (National Commission). The National Commission was directed to study and evaluate such laws to determine whether they provide an adequate, prompt, and equitable system of compensation for injury or death arising out of, or in the course of, employment.[14] The National Commission's tasks were completed in July 1972 and it was disbanded.[15]

1.2 Scope of OSH Act's Coverage

The OSH Act applies to every private employer engaged in a business affecting commerce, regardless of the number of employees the employer employs.[16] Section 19 of the OSH Act,[17] and Executive Order 12196,[18] directs the head of each federal agency to establish and maintain an effective and comprehensive occupational safety and health program that is consistent with the standards required of private employers.

The OSH Act applies "with respect to employment performed in a workplace in any of the 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam, the Trust Territory of the Pacific Islands, Wake Island, the Outer Continental Shelf Lands, Johnston Island, and the Canal Zone."[19] However, the OSH Act's definition of "employer" does not include states, political subdivisions of the states, or agencies of the US government.[20] Furthermore, the OSH Act does not apply to workers who are independent contractors. Independent contractors lack an "employment relationship" with a firm but have a business or entrepreneurial relationship.[21] The increasing number of workers who are considered independent contractors in the "on-demand" or "gig" economy narrows the coverage scope of the OSH Act (2).

2 OCCUPATIONAL SAFETY AND HEALTH STANDARDS DEVELOPMENT

The OSH Act established processes for promulgating three types of occupational safety and health standards: (i) consensus standards; (ii) emergency temporary standards; and (iii) permanent standards.

2.1 Types of Standards

2.1.1 Consensus Standards

Consensus standards are standards derived from established federal standards[22] or from national consensus standards[23] that were in existence when the OSH Act became effective. Section 6(a) of the OSH Act directed the Secretary to publish such standards in the *Federal Register* immediately after the OSH Act became effective or for a period of up to two years. These standards became effective as OSHA standards upon publication without regard to the notice, public comment, and hearing requirements of the U.S. Administrative Procedure Act (APA) of 1946.[24] The intent of the interim standards provisions was to give the Secretary a mechanism to promulgate standards with which industry was already familiar and to provide a nationwide floor of minimum health and safety standards.[25] The Secretary's two-year authority to promulgate interim standards expired on 29 April 1973. Most OSHA standards are 6(a) standards, and are based on scientific findings from the 1960s or earlier, and are widely viewed as obsolete.

2.1.2 Emergency Temporary Standards

Section 6(c)(1) of OSH Act authorizes the Secretary to issue an emergency temporary standard (ETS) if the Secretary determines that: (i) employees are exposed to grave danger from exposure to substances or agents determined to be toxic or physically harmful or from new hazards; and (ii) such emergency standard is necessary to protect employees from such danger.[26] An ETS may be issued without regard to the notice, public comment, and hearing requirements of the

APA. An ETS takes effect immediately upon publication in the *Federal Register*. The key to the issuance of an ETS is the necessity to protect employees from a grave danger.[27] After issuing an ETS, the Secretary must commence the procedures for promulgation of a permanent standard, which must issue within six months of the emergency standard's publication.

2.1.3 Permanent Standards

Pursuant to Section 6 of the OSH Act, the Secretary is authorized to adopt *permanent* occupational safety and health standards to serve the objectives of the OSH Act.[28] When setting a standard for toxic materials or harmful physical agents, Section 6(b)(5) specifically directs the Secretary to set a standard "which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life."[29]

2.2 Requirements for Standards Adoption

The promulgation of permanent occupational safety and health standards is accomplished by adherence to procedures similar to informal rulemaking under the APA.[30] Upon determination that a standard should be issued, the Secretary must first publish the proposed standard in the *Federal Register*. Publication is followed by a 30-day period during which interested persons may submit written data or comments or file written objections and requests for a public hearing on the proposed standard. If a hearing is requested, the Secretary must publish in the *Federal Register* a notice setting a time and place for the hearing. Within 60 days after the period for filing comments, or, if a hearing has been timely requested, within 60 days of the hearing, the Secretary must either issue a rule promulgating a standard or determine that no such rule should be issued. The APA creates a right of action by an aggrieved person to compel unlawfully withheld or unreasonably delayed agency action.[31] Delay in meeting the statutory timelines in Section 6 has been a pervasive feature of OSHA rulemaking.

In the case of the field sanitation standard, where rulemaking was initiated in response to a petition filed in 1972, the D.C. Circuit first held in 1977 that the statutory deadlines in Sections 6(b)(1) through 6(b)(4) are discretionary rather than mandatory, as long as the Secretary's exercise of discretion was honest and fair.[32] In 1986, the D.C. Circuit decided OSHA's delay in completing work on the field sanitation standard represented an unreasonable delay.[33] In 1993, petitioners Public Citizen Health Research Group and the Paper, Allied-Industrial, Chemical & Energy Workers International Union petitioned OSHA to update OSHA's exposure limit for hexavalent chromium (Cr(VI)). In 1997, Public Citizen petitioned the U.S. Court of Appeals for the Third Circuit to compel OSHA to complete rulemaking lowering the exposure limit to Cr(VI), but the court concluded in 1998 that there was no unreasonable delay and dismissed the lawsuit.[34] In 2002, Public Citizen again petitioned the court and the court granted Public Citizen's petition and ordered OSHA to proceed expeditiously with a Cr(VI) standard.[35]

2.2.1 Significant Risk

Before OSHA promulgates a permanent occupational safety and health standard, the agency must determine that an exposure to a particular hazard could lead to material impairment of health and that exposure to the hazard poses a *significant risk* of harm which the new standard will reduce or eliminate. Although not explicitly stated in the OSH Act, the significant risk requirement arose from the Supreme Court's 1980 review of OSHA's benzene standard.[36] The Court said that Congress intended for OSHA to eliminate only of significant risks of harm. In 1991, the Eleventh Circuit struck down OSHA's attempt to update nearly 400 exposure limits by adopting more recent values from the American Conference of Government Industrial Hygienists.[37] The court said OSHA had to demonstrate that each exposure limit addressed a significant risk and was feasible to implement.[38]

2.2.2 Economic and Technological Feasibility

In enacting the OSH Act, Congress did not intend to make employers strictly liable for unavoidable occupational hazards. Accordingly, the technological and economic feasibility of compliance with a standard is a factor the Secretary must consider. As the U.S. Supreme Court explained in *American Textile Mfrs. Inst., Inc. v. Donovan*,[39] OSHA's legislative history makes clear that any standard that is not economically or technologically feasible would not be "reasonably necessary or appropriate" as directed by Section 3(8) of the Act.[40] Thus, "Congress does not appear to have intended to protect employees by putting their employers out of business."[41]

*Economic Feasibility***.** In analyzing economic feasibility, the Secretary has tried to determine whether a proposed standard threatens the competitive stability of an affected industry.[42] The Supreme Court has yet to decide whether a standard that actually does threaten the long-term profitability and competitiveness of an industry would be "feasible."[43] In *American Textile Manufacturers*, the Supreme Court has expressly decided, however, that in promulgating a toxic material and harmful physical agent standard under Section 6(b)(5), the Secretary is not required to determine that the costs of the standard bear a reasonable

relationship to its benefits. Rather, Section 6(b)(5) directs the Secretary to issue the standard that "most adequately assures that no employee will suffer material impairment of health," limited only by the extent to which this is economically and technologically feasible, or, in other words, capable of being done.[44]

The Supreme Court left open the possibility, however, that cost-benefit analysis might be required with respect to standards promulgated under provisions other than Section 6(b)(5) of the OSH Act.[45] The Court also left open the question of whether cost-benefit balancing by the Secretary might be appropriate for deciding between issuance of several standards regulating different varieties of health and safety hazards.[46] In 1993, OSHA provided the D.C. Circuit a Supplementary Statement of Reasons[47] as a part of the court's consideration of the role of cost-benefit analysis for safety standards in UAW v. OSHA.[48] In the Supplementary Statement, OSHA rejected cost-benefit analysis for safety standard development.

Technological Feasibility. An OSHA standard must be technologically feasible for an employer to implement. The U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) has made it clear that OSHA is permitted to impose a standard that only the most technologically advanced plants have been able to meet in only some of their operations only some of the time,[49] and to require industry to implement an emerging technology, i.e. one that is "looming on today's horizon."[50] In *United Steelworkers v. Marshall*, the D.C. Circuit stated:

> "OSHA must prove a reasonable possibility that the typical firm will be able to develop and install engineering and work practice controls that can meet the PEL in most of its operations. OSHA can do so by pointing to technology that is either already in use or has been conceived and is reasonably capable of experimental refinement and distribution within the standard's deadlines … Insufficient proof of technological feasibility for a few isolated operations within an industry, or even OSHA's concession that respirators will be necessary in a few such operations will not undermine this general presumption in favor of feasibility."[51]

2.2.3 Rulemaking Analysis Requirements

The provisions of the OSH Act related to rulemaking procedures represent only one of a large number of mandatory requirements put in place since 1970 by the courts, by Congress, and by the White House Office of Management and Budget (OMB). In addition to the requirements of the OSH Act, OSHA must follow these additional requirements in promulgating any new occupational safety and health standard.

2.2.3.1 National Environmental Policy Act The National Environmental Policy Act (NEPA) of 1969[52] requires all federal agencies, including OSHA, to prepare a detailed environmental impact statement in connection with major federal actions significantly affecting the quality of the human environment. The Secretary has identified the promulgation, modification, or revocation of standards that will significantly affect air, water or soil quality, plant or animal life, and the use of land or other aspects of the human environment as always constituting such major action requiring the preparation of an environmental impact statement.[53] However, promulgation, modification, or revocation of any safety standard, such as machine guarding requirements, safety lines, or warning signals would normally qualify for categorical exclusion from NEPA requirements. The exclusion for such standards is because "[s]afety standards promote injury avoidance by means of mechanical applications of work practices, the effects of which do not impact on air, water or soil quality, plant or animal life, the use of land or other aspects of the human environment."[54]

2.2.3.2 Regulatory Flexibility Act and the Small Business Regulatory Enforcement and Fairness Act The Regulatory Flexibility Act of 1980 requires OSHA to conduct a regulatory flexibility analysis when it proposes a rule that would have significant economic impact on a large number of small businesses, organizations, or state or local governments.[55] In 1996, Congress amended the Regulatory Flexibility Act by means of the Small Business Regulatory Enforcement and Fairness Act (SBREFA).[56] SBREFA requires OSHA to appoint a special panel of small business representatives to review all proposed rules,[57] allows courts to order OSHA to comply with any rulemaking procedure with which they fail to comply,[58] and requires that the regulatory flexibility analysis be a part a rulemaking.[59]

2.2.3.3 Paperwork Reduction Act The Paperwork Reduction Act (PRA) of 1980[60] (substantially amended in 1995[61]) was designed to reduce the total amount of paperwork burden the Federal Government imposes on private businesses and citizens and to maximize the practical utility of the information collected. For OSHA, the PRA mandates that OSHA engage in notice and comment rulemaking before the agency can require any entity to report information to it, or when it requires information to be reported to employees, for example, labeling requirements under the Hazard Communication Standard.[62] OSHA has to show that any request for information (RFI) is not duplicative of an existing requirement, takes account of the difficulties that entities will have in collecting or reporting the information, and makes provision for the use of current information technology to reduce the paperwork burden on the entity who has to report, for example, by providing for electronic

reporting. The Obama Administration initiated an effort to improve implementation of the PRA.[63]

2.2.3.4 Executive Orders Beginning in 1981, a number of presidential executive orders have placed additional rulemaking responsibilities on federal agencies like OSHA. President Reagan required that all draft rules from federal agencies be reviewed by the Office of Information and Regulatory Affairs (OIRA).[64] In September 1993, President Clinton issued Executive Order 12866,[65] which states that federal agencies must assess the costs and benefits of various regulatory approaches and should choose the approach that maximizes the net benefits to society.[66] Specifically, Executive Order 12866 requires OSHA to assess the costs and benefits of all proposed and final rules that are "economically significant." In January 1996, OMB issued guidelines expanding Executive Order 12866, instructing agencies to consider alternative strategies for regulation and advising them to determine whether regulations should require different results for different segments of the regulated population.

On 18 January 2007, President George W. Bush issued Executive Order 13422[67] to strengthen President Clinton's Executive Order 12866. Executive Order 13422 requires OMB to review significant agency guidance documents, just as it already reviews significant agency regulations. Executive Order 13422 requires agencies: (i) to give OMB advance notice of their upcoming significant guidance documents; and (ii) to provide OMB with a draft of the guidance document, an explanation of the need for the guidance, and how it would meet that need. OMB can notify the agency when additional consultation is required.[68] Unlike Executive Order 12866, Executive Order 13422 specifies that Executive Branch Regulatory Policy Officers in each cabinet level department be political appointees.

On 21 January 2011, President Obama issued Executive Order 13563,[69] reaffirming the principles of Executive Order 12866, and encouraging agencies to engage the public before issuing a notice of proposed rulemaking. Executive Order 13563 also required agencies to review its existing significant regulations periodically to determine if any should be modified or repealed in order to make an agency's regulatory program more effective or less burdensome.

On 30 January 2017, President Trump issued Executive Order 13771 in an effort to reduce regulatory burdens and to control regulatory costs.[70] Executive Order 13771 requires that any incremental costs associated with new regulations be offset by the elimination of existing costs associated with at least two existing regulations.

2.2.3.5 Information Quality Act A two-sentence rider included in a 2001 appropriations bill gave birth to what has become known as the Information Quality Act (also called the Data Quality Act).[71] The Information Quality Act directs the OMB to issue government-wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by federal agencies." Following enactment of the Information Quality Act, OMB issued "Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies."[72]

Even though the text of the Information Quality Act does not explicitly provide legal rights for any third parties, the Salt Institute and the U.S. Chamber of Commerce asserted that they had the right to seek judicial review. Objecting to guidance issued by the National Institutes of Health that reducing sodium consumption would result in lower blood pressure, the Salt Institute and the Chamber sued the Federal Government. After a federal district court rejected their claim, they appealed. The U.S. Court of Appeals for the Fourth Circuit found that the Information Quality Act "does not grant the rights that appellants claim were invaded."[73] No further appeal was taken.

3 EMPLOYER DUTIES UNDER THE OSH ACT

A private employer's primary duties under the OSH Act are found in Section 5(a). Each covered employer is required to: (i) furnish to each employee employment and a place of employment that are free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees; and (ii) comply with occupational safety and health standards promulgated under the OSH Act.[74]

3.1 The General Duty Clause

The general duty clause of the OSH Act – the requirement that an employer has a duty of care even when there is no specific standard addressing the hazard in question – has four elements. In *National Realty & Construction Co. v. OSHRC*,[75] the D.C. Circuit required that OSHA prove that the workplace condition must present a hazard to an employee; that the condition is recognized as a hazard; that the hazard causes, or is likely to cause, death or serious physical injury to the employee; and that a feasible means exists to eliminate or materially reduce the hazard.

3.1.1 Condition or Activity Must Be a "Recognized" Hazard

The general duty clause does not apply to all hazards, but only to the hazards that are "recognized" by the employer or in the employer's industry.[76] In *American Smelting and*

Refining Company v. OSHRC,[77] the U.S. Court of Appeals for the Eighth Circuit held that the general duty clause not only is limited to recognized hazards of types detectable only by the human senses but also encompasses hazards that can be detected by instrumentation only.

3.1.2 Hazard Must Be Causing or Likely to Cause Death or Serious Physical Injury

It is not necessary that there be actual injury or death to trigger a violation of the general duty clause. The purpose of the OSH Act is to prevent accidents and injuries. Thus, violation of the general duty clause arises from the existence of a statutory hazard, not from an injury-in-fact.[78] Proof that a hazard is "causing or likely to cause death or serious physical harm" does not require a mathematical showing of probability. Rather, if evidence is presented that a practice *could* result in serious physical harm from other than a freakish or utterly implausible circumstances, the Review Commission's determination of likelihood will be accorded considerable deference by the courts.[79] Even though the term "serious violation" is defined in the OSH Act,[80] the term "serious physical harm" is defined neither in the OSH Act nor in the Secretary's regulations, but rather in OSHA Field Operations Manual (FOM).[81] Very few health cases have been brought under the General Duty Clause because the OSHRC has ruled that OSHA must show that a significant risk exists as a result of the hazard. In *Kastalon, Inc*.[82], a case involving exposure to a carcinogen, the OSHRC vacated a general duty clause citation because OSHA had not quantified a threshold level of hazardous exposure as required by the Supreme Court's "Benzene" decision.[83]

3.1.3 Feasible Abatement Method

Congress did not intend to make employers strictly liable for the presence of unsafe or unhealthful conditions on the job; therefore, the employer's general duty must be an achievable one. The term "free" has been interpreted by the courts, and the Review Commission, to mean something less than the complete absence of hazards. Instead, the courts and the Review Commission have held that the employer has a duty to render the workplace free only of hazards that are preventable.[84] When technology does not exist to prevent a hazard, OSHA does not require prevention by shutting down the employer's operation. Rather, the Secretary must be able to show that "demonstrably feasible" measures would have materially reduced the hazard.

3.2 Employer Duties Arising from Single-Substance Health Standards

Section 5(a)(2) of the OSH Act[85] imposes on employers a duty to comply with the occupational safety and health standards promulgated by the Secretary. Specific safety or health standards take precedence over the general duty clause but only with respect to hazards expressly covered by the standard in question.[86] Occupational health and safety standards[87] promulgated by the Secretary pursuant to the OSH Act are often lengthy, encompassing hundreds of pages in the Code of Federal Regulations (C.F.R.). A comprehensive analysis of these standards, many of which were adopted in 1971 as interim standards under Section 6(b),[88] is beyond the scope of this chapter.[89]

Previously established federal standards were used to set workplace exposure limits for approximately 400 chemical and hazardous substances. These were referred to as threshold limit values (TLVs) and were expressed in terms of milligrams of substance per cubic meter of air and/or parts of vapor or gas per million parts of air. TLVs were defined as representing conditions under which it was believed nearly all workers could be repeatedly exposed day after day for their working life without experiencing any adverse health effects.[90]

Amid ongoing criticism that the exposure limits set in OSHA's original start-up standards were out-of-date scientifically, OSHA proposed on 7 June 1988 to amend and expand the permissible exposure limits (PELs) for air contaminants covered in the 29 CFR 1910.1000 Z-Tables.[91] The rule revised PELs for many of the approximately 400 contaminants that were the subject of the original standard. In addition, the air contaminants standard established PELs for substances not previously regulated by OSHA.[92]

Immediately following promulgation, the revised air contaminants standard was challenged in court by various labor and industry groups. In 1992, the U.S. Court of Appeals for the Eleventh Circuit vacated the standard.[93] The Eleventh Circuit ruled that OSHA had failed to establish that *each* proposed PEL reduced a significant risk to worker health and that *each* exposure limit was technologically and economically feasible for the affected industries. OSHA decided not to appeal the decision to the U.S. Supreme Court, and returned to its original 1971 limits.[94] The Eleventh Circuit's decision was a major blow to OSHA's multiple-substance rulemaking approach, the proponents of which contended that OSHA could not feasibly undertake rulemaking for each regulated contaminant to the depth that the court required.

OSHA has promulgated single-substance health standards pursuant to Section 6(b). Each permanent standard adopted under Section 6(b) can be viewed as a "complete" standard since each provides not only a specific value for the level of exposure to the toxic substance but also the specifications as to monitoring, engineering controls, personal protective equipment (PPE), recordkeeping, medical surveillance, and training. What follows is a short summary of the major occupational health standards and regulations promulgated by OSHA since 1970. The reader is cautioned to consult the exact language of any particular standard in the C.F.R.

to determine the precise compliance duties set forth in the particular standard of interest.

3.2.1 Acrylonitrile

Acrylonitrile is used principally as a monomer in the manufacture of synthetic polymers, especially polyacrylonitrile that comprises acrylic fibers. Acrylonitrile is highly flammable and toxic and undergoes explosive polymerization. In September 1978, OSHA issued a permanent standard governing workplace exposure to acrylonitrile.[95] The standard sets a PEL of 2 ppm of air over an eight-hour period. The standard also sets a ceiling limit of 10 ppm for any 15-minute period and an action level (AL) of 1 ppm. Exposure above the AL triggers periodic monitoring requirements, medical surveillance, protective clothing and equipment requirements, employee information and training, and housekeeping. Skin or eye contact with the substance is prohibited.

3.2.2 Asbestos

In 1971, OSHA's first asbestos standard – derived from a national consensus standard – established an eight hour time-weighted average (TWA) PEL of 12 fiber/cc (fibers per cubic centimeter). In 1972, OSHA issued an ETS and limited the eight-hour TWA of airborne concentration of asbestos to five fibers greater than 5 μm in length per milliliter of air (the "5-fiber standard"),[96] and then provided that the PEL would decrease to 2 fiber/cc effective from 1 July 1976.[97] The D.C. Circuit upheld OSHA's new asbestos standard although the court noted that some of the questions involved in OSHA standard setting lie "on the frontiers of scientific knowledge" and that some of OSHA's "policy choices" are not "susceptible to the same type of verification or refutation by reference to the record" as adjudicatory decision-making.[98]

In 1975, OSHA initiated new rulemaking proceeding and issued a proposed revised asbestos standard, but this proposal was never promulgated. Then, in 1983, OSHA issued another ETS for asbestos, this time reducing the PEL to 0.5 fiber/cc.[99] However, OSHA failed to convince the Fifth Circuit that workers faced a grave danger during the six-month lifespan of an ETS.[100] In 1986, OSHA issued a revised asbestos rule.[101] The revised rule consisted of two simultaneously issued asbestos standards, one for general industry and the other for construction.[102] The new rules covered asbestos and nonasbestiform tremolite, actinolite, and anthophyllite[103] and reduced the eight-hour TWA from 2 fiber/cc of air to 0.2 fiber/cc of air.

The revised standards were challenged by the Asbestos Information Association of North America (AIA) and by the Building and Construction Trades Department (BCTD) of the AFL-CIO. The unions challenged OSHA's refusal to set a lower eight-hour TWA of 0.1 fiber/cc of air. OSHA claimed it promulgated the higher limit because the lower limit was not feasible in the entire industry, and OSHA had discretion to decide what industries should be grouped together for regulatory purposes. The D.C. Circuit disagreed and held that if OSHA was concerned with the administrative problems involved in desegregating industrial sectors for purposes of the TWA, it must make specific findings on the issue. Therefore, the D.C. Circuit remanded to OSHA on this issue, as well as on whether a short-term exposure limit (STEL) should be established.[104] In 1988, OSHA established an asbestos STEL of 1 fiber/cc of air over a 30 minute sampling period.[105] OSHA decided that the eight-hour TWA issue would require additional rulemaking, and the D.C. Circuit approved the OSHA decision.

In August 1994, OSHA published a final rule lowering the PEL for all three forms of asbestos – tremolite, anthophyllite, and actinolite – fibers to 0.1 fiber/cc of air.[106] The standard also required building owners to disclose the presence of asbestos in their buildings and enacted a new protective scheme requiring stricter controls for operations deemed to be more hazardous including provisions requiring building owners to inform employers of workers who may be exposed to materials within their facility presumed to contain asbestos. In addition, negative-pressure enclosures were required for workers removing "high-risk" asbestos-containing materials. The new rule affected general industry, the construction industry, and the shipyard industry.[107]

Eighteen different legal challenges to the 1994 standard, and to revisions to the standard that were published in 1995 and 1996, were filed by various industry and labor groups, and the cases were consolidated in the Fifth Circuit. OSHA then set about settling these challenges with the various parties. In January 1995, OSHA settled with the National Brake Care Coalition, allowing the use of chemical solvent sprays to clean asbestos-lined brake and clutch assemblies. In March 1995, several roofing contractors and the Safe Buildings Alliance settled their challenges when OSHA agreed to amend the rule to allow employers to rely on information submitted by the roofers' association concerning negative exposure assessment and to allow alternative methods of compliance for installation, removal, repair and maintenance of certain roofing materials.

In settling with the AFL-CIO, OSHA agreed (among other things) to make certain modifications to the training programs prescribed for construction and shipyard workers. OSHA also agreed to require construction and shipyard employers to notify employees who are required to wear respirators under the rule that they may require their employer to provide a powered, air-purifying respirator instead of a negative-pressure one and to require that warnings about exposure be communicated to workers in an effective manner.[108] OSHA settled with the American Iron and Steel Institute by allowing (among other items) a "competent person" simply being "available," not

necessarily at the worksite itself, for consultation while Class II, III, or IV work is being performed under 29 C.F.R. § 1926.1101. OSHA also allowed negative exposure assessments may be made by a competent person based on "professional judgment." All the other challenges to the final asbestos rule were withdrawn, except for one.

In July 1997, in response to a challenge by the AIA, the Fifth Circuit vacated the construction and shipyard standards on asbestos-containing asphalt roof coatings and sealants, stating that the standards were not supported by substantial evidence.[109] Specifically, the court held that OSHA had not made a critical distinction between built-up roofing, which the court said "poses real risks of exposure," and roofing sealants, which the Secretary had not seriously argued posed a significant risk of asbestos exposure. OSHA published revisions to the rule to conform to the Fifth Circuit decision[110] and the litigation over the asbestos standard was concluded.

3.2.3 Benzene

In 1971, OSHA adopted an eight-hour PEL for benzene of 10 ppm based on a consensus standard adopted by the American National Standards Institute (ANSI) for nonmalignant health effects. In 1978, OSHA issued a new standard based on accumulating epidemiologic evidence that benzene caused leukemia, and set the PEL to the lowest feasible level industry could achieve, that is, 1 ppm.[111] The 1 ppm standard was first invalidated by the Fifth Circuit. On appeal, the U.S. Supreme Court affirmed, finding that OSHA had failed to show that exposure above the 1 ppm limit presented a "significant risk of material health impairment" to workers.[112] The court said that a standard, to be "reasonably necessary and appropriate" within the meaning of Section 3(8) of the OSH Act, had to materially reduce a "significant" risk to workers and that required OSHA to make a determination that risk at the current levels would be eliminated at the level in the new standard.[113]

In 1985, OSHA again proposed to reduce the PEL from 10 to 1 ppm.[114] In 1987, OSHA issued a revised benzene standard.[115] The revised standard sets the eight-hour TWA for benzene at 1 ppm, and the STEL at 5 ppm for a 15 minute sampling period.[116] Under the revised standards, the employer must provide a medical surveillance program to monitor the health of employees exposed to benzene in amounts over the AL of 0.5 ppm for more than 30 days per year. In addition, OSHA requires a medical removal plan for temporary and permanent removal of employees showing adverse health effects from benzene exposure. The employer is required to provide six months of medical removal protection benefits to a removed employee, unless the employee has been transferred to a comparable job with benzene exposure below the AL.[117] Union and industry petitions for judicial review of the new standard were withdrawn from the Third and D.C. Circuit Courts of Appeal in November 1987, shortly before the effective date of the new benzene standard.

3.2.4 Beryllium

The Atomic Energy Commission (AEC) was the first federal agency to develop an exposure limit for beryllium. In 1949, the AEC adopted an exposure limit of 2 $\mu g\, m^{-3}$ for all workplaces under its jurisdiction. In 1971, OSHA adopted 425 PELs for air contaminants, including a beryllium exposure limit of 2 $\mu g\, m^{-3}$.[118] In 1975, OSHA proposed a beryllium standard for all industries based on studies showing that beryllium caused cancer in animals,[119] but the rulemaking was never completed.

In 1999 and 2001, the Paper Allied-Industrial, Chemical, and Energy Workers Union, Public Citizen Health Research Group and others petitioned OSHA to issue an ETS on beryllium. OSHA denied the petitions for an ETS. In 2002, OSHA published a request for information (RFI).[120] The RFI solicited information pertinent to occupational exposure to beryllium including (i) current exposures to beryllium; (ii) the relationship between exposure to beryllium and the development of adverse health effects; (iii) exposure assessment and monitoring methods; exposure control methods; and (iv) medical surveillance.

In 2015, OSHA published a notice of proposed rulemaking.[121] In 2017, OSHA published its final rule, *Occupational Exposure to Beryllium and Beryllium Compounds*.[122] OSHA concluded that the new PEL of 0.2 $\mu g\, m^{-3}$ reduced the significant risk that beryllium posed to health to the maximum extent that is technologically and economically feasible.[123] On 21 March 2017, OSHA published a delay of the effective data for the final beryllium rule to 20 May 2017[124] to be in conformance to the 20 January 2017 Presidential directive for agencies to consider further delaying the effective date for regulations across all federal agencies beyond the initial 60-day period.[125]

In the final rule, OSHA issued three separate standards – for general industry, for shipyards, and for construction. Concerns were raised by the construction and shipyard sectors about ancillary procedures such as housekeeping and PPE that were required in the final rule relating to abrasive blasting. OSHA proposed to revoke the ancillary provisions applicable to construction and shipyards, but retain the new lower PEL of 0.2 $\mu g\, m^{-3}$ and the STEL of 2.0 $\mu g\, m^{-3}$ for these sectors.[126]

3.2.5 1,3-Butadiene

Butadiene is a flammable and carcinogenic chemical used in the production of synthetic rubber. In October 1985, the Environmental Protection Agency (EPA), under the Toxic Substances Control Act (TSCA),[127] referred 1,3-butadiene to OSHA for regulatory action. In 1986, OSHA issued an

advanced notice of proposed rulemaking[128] and a proposed standard in 1990.[129] In November 1996, after a negotiated rulemaking process[130] involving OSHA, the United Steelworkers of America, the International Chemical Workers Union, the Institute of Synthetic Rubber Products, and the Olefins Panel of the Chemical Manufacturers Association, a final rule for exposure to 1,3-butadiene was published.[131] The standard called for reduction in the PEL from 1000 to 1 ppm over an eight-hour period and for a STEL of 5 ppm. If exposures reach 0.5 ppm, additional engineering controls are to be implemented. The rule also covers medical surveillance, exposure monitoring, and other issues.

3.2.6 Cadmium

Cadmium is a heavy metal that has been linked to lung cancer and kidney disease. However, when OSHA first adopted a 100 $\mu g\,m^{-3}$ eight-hour PEL for cadmium fume, and 200 $\mu g\,m^{-3}$ for cadmium, it based those levels on noncarcinogenic health effects such as gastritis and anemia.[132] In 1986, the International Chemical Workers Union, after OSHA rebuffed their request for an ETS, sued to compel OSHA to issue an ETS, but lost again.[133] The plaintiffs returned to court in 1989 because in the intervening time OSHA had not issued a proposed standard for cadmium. In February 1990, OSHA did finally publish a proposed standard.[134] OSHA asked the court for an extension of six months on the 1992 date for a final standard. The court set an August 31 deadline saying that OSHA's procrastination "has been too lengthy for us to temporize any longer."[135]

OSHA issued its final rule for cadmium exposure on 14 September 1992.[136] The rule set an eight-hour PEL of 5 $\mu g\,m^{-3}$ of air – to be achieved primarily by engineering controls – and an AL of 2.5 $\mu g\,m^{-3}$. For operations in certain industries, OSHA found that the PEL could be feasibly be achieved through engineering and work practice controls and established a "separate engineering control airborne limit" (SECAL) of 50 and 15 $\mu g\,m^{-3}$ depending on the industry and operation at issue.[137]

After promulgation, nine different lawsuits challenging the standard were filed by various manufacturers and industry groups. By June 1993, OSHA had settled all but one of these challenges by addressing what specific measures the individual manufacturers needed to take to comply with the standard. In the remaining challenge by the Color Pigments Manufacturers Association (CPMA), who represented dry color formulators, CPMA argued that cadmium compounds used as pigments and paints should not have been given the same PEL as other cadmium compounds because they were less soluble. The court rejected CPMA's argument and held that the rulemaking record justified including cadmium pigments into the standard.[138] The court then found that OSHA lacked evidence about current exposures in the dry color formulator industry and remanded to OSHA to restudy the technological and economic feasibility of the final cadmium standard for dry color formulators.[139]

3.2.7 Cotton Dust

Exposure to cotton dust can cause byssinosis, a pneumoconiosis also known as "brown lung." In 1971, OSHA adopted an eight-hour PEL of total cotton dust of 1000 $\mu g\,m^{-3}$ that had been issued under the Walsh–Healey Public Contracts Act. In June 1978, OSHA promulgated a new cotton dust standard that sets different PELs for yarn manufacturing, (200 $\mu g\,m^{-3}$) slashing and weaving (750 $\mu g\,m^{-3}$) and for all other processes (500 $\mu g\,m^{-3}$).[140]

The cotton dust standard was challenged by the textile manufacturers on the grounds (among others) that OSHA had not adequately assessed the risk of exposure on the health of workers,[141] but the Supreme Court rejected that argument saying "[I]t is difficult to imagine what else the agency could do to comply with this Court's decision in [Benzene]."[142] The standard was also challenged as violating Section 3(8) of the OSH Act, which required that a standard be "reasonably necessary or appropriate … ", but OSHA pointed to Section 6(b)(5) "to the extent feasible" requirement as controlling. The Court agreed with OSHA stating that feasible means "capable of being done."[143] The Court also rejected the manufacturers' contention that OSHA should have done a cost-benefit analysis, by stating "cost-benefit analysis is not required by the statute because feasibility analysis is."[144]

In 1978, OSHA also issued a companion standard regulating cotton dust in the cotton ginning industry requiring medical surveillance, work practices and respirator use, warning signs and training.[145] The standard was vacated by the Fifth Circuit because OSHA had not proved a significant risk of harm from exposure.[146]

3.2.8 1,2-Dibromo-3-Chloropropane

In March of 1978, OSHA promulgated a permanent standard regarding 1,2-dibromo-3-chloropropane (DBCP), a pesticide compound used extensively in the 1970s, but later found to cause male sterility.[147] The DBCP standard, which became effective from 17 April 1978, sets a PEL of 1 ppb (part per billion) of air over an eight-hour period. Where engineering controls and work practices are not sufficient to reduce exposure to permissible limits, respirators may be used as a supplement in order to achieve the required protection. Protective clothing is required where eye or skin contact may occur. The standard does not apply to the use of DBCP as a pesticide, or when it is stored, transported, or distributed in sealed containers.

3.2.9 Ethylene Oxide

Ethylene oxide (EtO) has been manufactured in the United States since 1925 and is an important industrial chemical

used as an intermediate in the production of ethylene glycol and other chemicals, and as a sterilant for foods and medical supplies. It is a colorless, flammable gas or refrigerated liquid with a faintly sweet odor.

In 1971, OSHA adopted a standard for ethylene oxide, and in 1981 was petitioned to issue an ETS, but denied the petition and was sued. OSHA issued a final rule for ethylene oxide on 22 June 1984 and established an eight-hour TWA of 1 ppm, but deferred setting a STEL.[148] Several months later, OSHA concluded that a STEL was not warranted based on available health data. This decision was challenged in court, and the D.C. Circuit, while upholding the validity of the eight-hour TWA of 1 ppm, ruled that OSHA's decision regarding the STEL should be remanded for further consideration.[149] OSHA hesitated and received a reprimand from the D.C. Circuit. The court stated, "enough is enough," and warned OSHA that it was "treading at the very lip of the abyss of unreasonable delay."[150] Finally, in 1988, OSHA set an ethylene oxide STEL of 5 ppm for a 15 minute period.[151] The ethylene oxide standard requires the use of engineering and work practice controls, when feasible, as well as medical surveillance, protective clothing and equipment, and employee training and warnings.[152]

3.2.10 Formaldehyde

Formaldehyde is a common building block for the synthesis for more complex compounds and materials. Most formaldehyde is used in the production of polymers and other chemicals. OSHA set its original standard for formaldehyde in 1971 at an eight-hour TWA of 3 ppm, a maximum peak for 30 minutes of 10 ppm and a ceiling limit of 5 ppm for any 10-minute period.

OSHA was asked to lower the PEL for formaldehyde in 1981 but declined to issue an ETS. The United Auto Workers sued OSHA and a federal district court found OSHA's failure to issue a standard to be arbitrary and capricious and ordered OSHA to reconsider its decision.[153] On appeal, the D.C. Circuit threatened to hold OSHA in contempt if it did not issue a standard.[154] OSHA did issue an updated formaldehyde standard in 1987, and lowered the PEL to an eight-hour TWA of 1 ppm, revoked the peak limit and set a STEL of 2 ppm.[155]

In 1992, the formaldehyde standard was significantly revised, among other things, to lower the existing PEL from 1 to 0.75 ppm for the eight-hour TWA.[156] The revisions were prompted by a decision of the D.C. Circuit to remand the 1987 standard for OSHA's reconsideration of several issues.[157] The standard, as amended, added medical removal protection (MRP) provisions for workers suffering from specific conditions that supplement its medical surveillance requirements. The revised standard also requires specific hazard labeling and annual employee training. The amendments became effective from various dates in 1992.

3.2.11 Hexavalent Chromium

Hexavalent chromium (Cr(VI)) is a carcinogenic chemical used in the plating and welding operations, dyes and pigments, leather tanning, and wood preserving. The most common oxidation states of chromium are +2, +3, and +6, with +3 being the most stable. Oxidation states +1, +4, and +5 are rare. Chromium compounds of oxidation state +6 are powerful oxidants. An investigation into hexavalent chromium release into groundwater supplies of drinking water formed the plot of the motion picture *Erin Brockovich*.

In 1993, the Oil, Chemical and Atomic Workers Union petitioned OSHA to adopt a more stringent standard for hexavalent chromium based on the risk of cancer for exposed workers.[158] Many years went by without action by OSHA. In 2002, the U.S. Court of Appeals for the Third Circuit, in response to a petition from Public Citizen Health Research Group, ordered OSHA to promulgate a standard.[159]

In 2006, OSHA published a final rule for exposure to hexavalent chromium and established a PEL of 5 $\mu g\,m^{-3}$.[160] The standard also covers medical surveillance, exposure monitoring, respirators, training, recordkeeping, and other issues. In 2009, after several challenges were filed, a three-judge panel of the Third Circuit (including retired U.S. Supreme Court Justice Sandra Day O'Connor) upheld the PEL of 5 $\mu g\,m^{-3}$ and all other aspects of the standard, but required OSHA to provide a fuller explanation for its employer exposure notification requirements (which OSHA limited to just those exposures which exceeded the PEL).[161] In 2010, OSHA decided to revise its notification requirements to require employers to notify employees of the results of all exposure determinations.[162]

3.2.12 Inorganic Arsenic

In May 1978, OSHA issued a permanent standard for inorganic arsenic.[163] The standard established an eight-hour TWA PEL of 10 $\mu g\,m^{-3}$, and also specified various other requirements such as engineering and work practice controls, respiratory protection, and employee monitoring and training. The standard was challenged by industry,[164] and it was remanded to OSHA by the U.S. Court of Appeals for the Ninth Circuit for reconsideration in light of the Supreme Court's decision invalidating the benzene standard in *Industrial Union Dept. v. American Petroleum Institute*.[165] In 1983, OSHA published a final risk assessment indicating that the 10 µg limit reduced the risk of lung cancer by about 98% from the previous TLV of 500 µg and that such a reduction satisfies the U.S. Supreme Court's "significant risk" test.[166] The Ninth Circuit later upheld the standard

as supported by substantial evidence of a significant health risk.[167] The standard applies to all occupational exposures to inorganic arsenic, except employee exposures in agriculture or industries involving pesticide application, the treatment of wood with preservatives, or the use of wood preserved with arsenic.

3.2.13 Lead

In 1971, OSHA adopted a national consensus standard of an eight-hour PEL of 200 $\mu g\,m^{-3}$ of lead. In 1975, OSHA issued a proposed standard that contained an eight-hour PEL of 100 $\mu g\,m^{-3}$ and provisions for monitoring, training, medical surveillance, and MRP.[168]

In November 1978, OSHA issued a permanent standard regulating occupational exposure to lead.[169] The final standard set an eight-hour PEL of 50 $\mu g\,m^{-3}$ of air – one-half of what OSHA had proposed. The standard required, among other things, the use of respirators and protective work clothing and equipment whenever lead exposure exceeds the PEL, compliance with vigorous rules on housekeeping and hygiene, biological monitoring, and medical surveillance. The standard also required a controversial MRP provision pursuant to which certain workers must be removed from the exposed workplace without loss of earnings, benefits, or seniority for at least 18 months. The standard further required employers to create safety and health training programs for their workers exposed to lead; to keep detailed records on environmental (workplace) monitoring, biological monitoring, and medical surveillance; and to make those records available to workers, certain of their representatives, and the government.

The lead standard was challenged by the industry and by labor and the D.C. Circuit stayed compliance with the PEL. The D.C. Circuit rejected most challenges and upheld the standard (including the PEL and MRP provisions) as to 10 industries, including primary and secondary lead smelting and battery manufacturing.[170] However, with respect to 39 other industries, the court held that OSHA failed to present substantial evidence or adequate reasons to support the feasibility of the standard for those industries and thus remanded to the Secretary for reconsideration of the technological and economic feasibility of the standard as to those industries.[171]

OSHA subsequently amended the standard to require employers that cannot reach the PEL to reduce exposure only to the lowest feasible level. OSHA also found that the standard of 50 $\mu g\,m^{-3}$ of air was technologically and economically feasible for all but nine of the remand industries.[172] OSHA continued to gather information as to these nine industry sectors, and on 11 July 1989, OSHA issued a statement of reasons as to why the 50 µg standard was feasible through engineering controls for eight of the remaining nine sectors.[173] For the ninth industry sector, nonferrous foundries, OSHA found the 50 µg standard was technologically, but not economically, feasible for small foundries, and therefore promulgated a bifurcated standard for large and small nonferrous foundries.[174]

In March 1990, the D.C. Circuit upheld the standard with respect to all but six industries,[175] and finally, on 19 July 1991, the court lifted its existing stay of the standard's engineering and work practice control requirements with respect to all of those six industries, except the brass and bronze ingot manufacturing industry.[176] In a notice published in October 1995, OSHA set the final lead standard for brass and bronze ingot manufacturers at an eight-hour TWA of 75 $\mu g\,m^{-3}$ of air, reflecting an agreement reached between the agency and the two trade associations that finally settled all litigation arising out of the 1978 standard. These employers had six years to meet the 75 µg limit.[177]

In May 1993, in response to the Housing and Community Development Act of 1992,[178] OSHA published an interim final rule intended to protect construction workers who are exposed to lead on the job. The interim rule reduced the PEL for lead in construction from an eight-hour TWA of 200 $\mu g\,m^{-3}$ of air to 50 µg, and it established a 30 µg threshold beyond which exposed workers are to be provided additional protections, including medical surveillance. The interim rule is to remain in effect until OSHA promulgates a final rule on the subject.[179]

The U.S. Environmental Protection Agency has published a final rule setting national training, certification, and accreditation standards for people conducting lead-based paint inspections, risk assessments, and abatement in certain houses and child-occupied facilities. The rule, which EPA was required to develop under Sections 402 and 404 of the Toxic Substances Control Act of 1976, includes a model state program by which states can seek permission from EPA to administer their own training, certification, and abatement programs. The agency omitted, however, controversial provisions that had targeted lead-based paint activities in commercial and public buildings.[180]

In 2016, OSHA announced in its Spring Regulatory Agenda that it would start pre-rule activities to consider the blood lead level (BLL) for medical removal.[181] OSHA stated "the lead standards for general industry and construction are based on lead toxicity information that is over 35 years old. OSHA lead standards allow for the return of the employee to former job status at a BLL < 40 $\mu g\,dL^{-1}$. The U.S. Department of Health and Human Services, Council of State and Territorial Epidemiologists (CSTE), and California's Medical Management recommends that BLLs among all adults be reduced to <10 $\mu g\,dL^{-1}$." OSHA planned to publish an Advanced Notice of Proposed Rulemaking later in 2016 to seek input from the public to identify possible areas of the lead standards for revision to improve protection of workers in industries and occupations where preventable exposure to lead continues to occur.

3.2.14 Methylene Chloride

Methylene chloride, or dichloromethane, is a colorless, volatile liquid with a moderately sweet aroma. It is widely used as a solvent, the general view being that it is one of the less harmful of the chlorocarbons, and it is miscible with most organic solvents.

In 1971, OSHA adopted the Walsh–Healey Act eight-hour TWA PEL of 500 ppm, a ceiling limit of 1000 ppm and a maximum peak above the ceiling or 2000 ppm for three minutes in a two-hour period. In 1985, evidence began to emerge that methylene chloride was linked to an increased risk of cancer, heart attack, and nerve damage. The United Auto Workers petitioned for an ETS, but OSHA denied the petition.[182] In 1992, OSHA proposed to reduce the eight-hour TWA PEL to 25 ppm (with an AL of 12.5 ppm) and to establish a STEL of 125 ppm averaged over 15 minutes.[183]

On 10 January 1997, a final OSHA standard for exposure to methylene chloride was published after considerable debate about the cancer risk posed by methylene chloride.[184] The final rule was to be phased in over 3 years. Other than the reduction of the PEL to 25 ppm, other provisions required employers to provide training, medical surveillance, and exposure monitoring. On 22 September 1998, OSHA amended its methylene chloride standard by adding a provision for temporary MRP benefits for employees who are removed or transferred to another job because of a medical determination that exposure to methylene chloride may contribute to the worker's existing skin, heart, liver, or neurological disease.[185]

The final rule on methylene chloride was challenged by the United Auto Workers (UAW), Eastman Kodak, and the Halogenated Solvents Industry Alliance (HSIA) and several individual companies. All cases were consolidated in the D.C. Circuit.[186] The trade association's suit sought review of the standard under the Small Business Regulatory Enforcement Fairness Act of 1996.[187] The UAW and the HSIA came to agreement with OSHA on the issues in dispute[188] and OSHA sought public comment on their Motion for Reconsideration.[189] In response to these challenges, OSHA revised its final rule to extend dates for certain employers to come into compliance with engineering controls and respiratory protection and to provide MRP.[190]

OSHA also faced opposition over the standard from the American College of Occupational and Environmental Medicine (ACOEM). The physicians' group sought a reopening of the methylene chloride rulemaking, arguing that allowing required medical surveillance to be conducted by health care professionals other than licensed doctors was a "radical departure" from other OSHA standards and put employees at risk of incorrect diagnosis and treatment, but OSHA denied ACOEM's petition.

In 2007, OSHA announced a review of the Methylene Chloride Standard[191] in accordance with the requirements of the Regulatory Flexibility Act and Section 5 of Executive Order 12866.[192] The review considers the continued need for the rule; whether the rule overlaps, duplicates, or conflicts with other federal, state, or local regulations; and the degree to which technology, economic conditions, or other factors may have changed since the rule was evaluated.

3.2.15 Methylenedianiline

In 1985, EPA prompted OSHA to examine what regulatory action OSHA should take to protect employees from methylenedianiline.[193] OSHA impaneled a negotiated rulemaking advisory committee to develop a permanent standard[194] and the committee's recommendations, covering general industry and construction, were published in 1987.[195] In 1989, OSHA proposed a methylenedianiline rule[196] and adopted a final rule in 1992.[197] No legal challenges to the final rule were filed.

3.2.16 Noise

In science and engineering, noise is an undesirable component that obscures a desired signal. For occupational health, noise is unwanted, and potentially harmful, sound. Sound is generally known as the vibrational transmission of mechanical energy that propagates through matter as a wave that is audibly perceived by living organisms by the sense of hearing. For humans, hearing is limited to frequencies between about 20 Hz (Hertz) and 20 kHz, with the upper limit generally decreasing with age. Since the human ear does not have a flat spectral response, sound pressure levels are often "frequency weighted" so that the measured level will match perceived levels more closely. The International Electrotechnical Commission (IEC) has defined several weighting schemes. A-weighting attempts to match the response of the human ear to noise and A-weighted sound pressure levels are labeled dBA. C-weighting is used to measure peak levels.

OSHA's standard for occupational exposure to noise specifies a maximum eight-hour TWA PEL of 90 dB (decibels on the A-weighted scale).[198] Employers are required to use feasible engineering or administrative controls, or a combination of both, whenever employee exposure to noise in the workplace exceeds the PEL. PPE may be used to supplement the engineering and administrative controls where such controls are not able to reduce the employee exposure to within the permissible limit.

In 1983, OSHA issued a final hearing conservation amendment to the noise standard.[199] Under the amendment, the employer must establish a baseline audiometric measurement from which it must compare subsequent annual measurements to determine if a shift in hearing capability has occurred for any employees whose exposures equal or exceed an eight-hour TWA of 85 dBA.[200]

To determine if the exposure equals, or exceeds this AL, employers are required to use personal sampling of noise where factors, such as high worker mobility or significant variation in sound levels, make area monitoring generally inappropriate.[201] The employer must make hearing protectors available to all employees whose exposure equals or exceeds an eight-hour TWA of 85 dBA and must ensure that hearing protectors are worn by any employee who has experienced a shift in hearing capability.[202] The U.S. Court of Appeals for the Fourth Circuit upheld the amendment.[203]

In 1987, OSHA sought public comments as to what extent the information collection requirements of the noise standard could be reduced without lessening the standard's effectiveness in preventing hearing loss. OSHA later announced, however, that no such changes would be made.[204] On 1 July 2002, OSHA issued a final rule revising the criteria for recording hearing loss cases in several ways. In the final rule, OSHA required the recording of Standard Threshold Shifts (10 dB shifts in hearing acuity) that have resulted in a total 25 dB level of hearing above audiometric zero, averaged over the frequencies at 2000, 3000, and 4000 Hz, beginning in the year 2003.[205]

3.2.17 Respirable Crystalline Silica

The historical OSHA PEL for general industry is based on a formula recommended by the American Conference of Governmental Industrial Hygienists ("ACGIH"), first in a "Notice of Intended Change" in 1968, and then finally adopted in 1972.[206] The historical PEL for construction and maritime, which was derived from ACGIH's 1962 TLV, was based on particle counting technology, which is now considered obsolete. NIOSH reviewed silica hazards in 2002 and recommended an exposure limit of 0.05 mg m^{-3} to reduce the risk of developing silicosis, lung cancer, and other adverse health effects.[207]

In 2006, the ACGIH revised their TLV, adopting an exposure limit of 0.025 mg m^{-3} for respirable crystalline silica. Both industry and worker groups have recognized that a new comprehensive standard for crystalline silica was needed to provide for exposure monitoring, medical surveillance, and worker training. The legal basis for developing such a proposed rule is a preliminary determination that workers are exposed to a significant risk of silicosis and other serious disease and that rulemaking is needed to reduce the risk. A standard for occupational exposure to crystalline silica appeared at the top of OSHA's Regulatory Agenda for many years.

On 12 September 2013, OSHA published a proposed rule, *Occupational Exposure to Respirable Crystalline Silica*,[208] and published a final rule on 25 March 2016.[209] OSHA issued two separate standards – one for general industry and maritime, and one for construction. The final establishes a new eight-hour TWA PEL of 50 µg m^{-3}, and an AL of 25 µg m^{-3} in all industries covered by the rule. It includes other provisions to protect employees such as requirements for exposure assessment, detailed methods for controlling exposure, respiratory protection, medical surveillance, hazard communication, and recordkeeping. On 19 October 2017, OSHA issued guidance for enforcing 29 C.F.R. Section 1926.1153, *Respirable Crystalline Silica*.[210]

OSHA's *Respirable Crystalline Silica* final rule was legally challenged by industry and labor. The court rejected all five of industry's challenges.[211] The North American Building Trades Union petitioned for review of two parts of the final rule: (i) the requirement that medical surveillance for construction workers be provided only if the employee has to wear a respirator for 30 days for one employer in a one-year period; and (ii) the absence of MRPs from the final rule. The court ruled that OSHA has failed to explain adequately its decision to omit MRPs from the rule and remanded that issue for further consideration by OSHA.[212]

3.2.18 Vinyl Chloride

Vinyl chloride is used to make polyvinyl chloride (PVC). PVC is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials. A link between vinyl chloride exposure and angiosarcoma of the liver in rubber industry workers was published in the early 1970s (3). On 5 April 1974, OSHA promulgated an emergency standard for vinyl chloride and a permanent standard on 1 October 1974 that was shown great deference by the Second Circuit when it was challenged.[213] The rule set an eight-hour TWA PEL for vinyl chloride at 1 ppm.[214]

Generally, the standard requires feasible engineering and work practice controls to reduce exposure below the permissible level wherever possible. Specifically, the employer is required to provide respiratory protection and protective garments for employees.[215] The employer must provide, for each employee engaged in vinyl chloride operation, a training program "relating to the hazards of vinyl chloride and precautions for its safe use."[216] Entrances to regulated areas must be posted with signs warning of the cancer-suspect nature of vinyl chloride.[217] Moreover, the employer must institute a program of medical surveillance for each employee exposed to vinyl chloride in excess of the AL, without regard for use of respirators.[218] Finally, the employer must maintain accurate medical records to measure employee exposure to vinyl chloride.[219]

3.3 Employer Duties Arising from Generic Health Standards

3.3.1 Bloodborne Pathogens

In 1991, OSHA promulgated a standard aimed at controlling occupational exposure to infectious agents that can be

transmitted through contact with blood or other potentially infectious materials, that is, "bloodborne pathogens," such as the human immunodeficiency virus (HIV) and the hepatitis B virus (HBV).[220] Application of the standard is triggered by an employee's reasonably anticipated contact with blood or other potentially infectious materials (defined by a list of specific body tissues and fluids). Affected employers must develop written exposure control plans that identify exposed employees and tailor the standard's work practices and engineering controls to the particular work environment. Central to the standard is the mandatory use of "universal precautions," a practice by which all blood and other potentially infectious materials are handled *as if* they are contaminated with bloodborne pathogens.[221] The standard has stringent requirements regarding the disposal of wastes and used needles, the use of PPE, employee training, and labels and warnings. Employers must offer exposed employees the HBV vaccine free of charge, and must also provide free post-exposure medical evaluation and testing. In addition, extensive recordkeeping, including documented follow-up of exposure incidents, is mandated by the standard. The standard is aimed at protecting over 5 million workers, many of whom are outside the health care industry.

The bloodborne pathogens standard was challenged by several health care industry groups, but the U.S. Court of Appeals for the Seventh Circuit upheld the standard in January 1993.[222] However, the court did agree with Home Health Services and Staffing Association, Inc. that OSHA needed to explain better the compliance obligations of home health care employers who do not control their worksites, and the court remanded the rule to the agency for clarification of its application to those employers.[223]

The U.S. Supreme Court declined to review the Seventh Circuit's ruling, thus ending the challenge by the American Dental Association (ADA). The ADA had argued that dentists and their employees generally were exposed less to blood than other health care providers and that the standard – by its use of the term "ensure" when referring to employer's obligation to ensure worker compliance – was imposing a form of strict liability. The court disagreed with the ADA and said that the employer was required to only take "all reasonable steps to prevent his employees from violating the rule but if despite these measures the employee violates the rule, the employer is off the hook."[224]

3.3.2 Carcinogens

OSHA excluded the ACGIH' list of carcinogenic chemicals from its 1971 interim standards promulgation package. After approximately 1 year of consulting with NIOSH and receiving data and commentary from interested groups, the Secretary promulgated ETSs on 3 May 1973 for a list of 14 chemicals found to be carcinogenic. Permanent standards for the 14 carcinogens[225] were issued on 29 January 1974.[226] In *Synthetic Organic Chemical Manufacturers Ass'n v. Brennan*,[227] the Third Circuit upheld all the carcinogens standards except one. The standard for 4,4'-methylene bis(2-chloraniline) (MOCA) was subsequently revoked by OSHA.[228]

In January 1980, OSHA promulgated a generic carcinogen policy for identifying, classifying, and regulating workplace carcinogens.[229] The policy includes a process for screening chemicals and establishing priorities for rulemaking. It places substances in two categories: potential carcinogenicity and suggestive potential. Model permanent and ETSs are included. Lists of carcinogen candidates were to be published by OSHA periodically pursuant to the policy, but the listing requirements have been administratively stayed since 1983.[230]

3.3.3 Coke Oven Emissions

In October 1976, the Secretary issued a permanent standard regulating workers' exposure to coke oven emissions. The standard defines coke oven emissions as the benzene-soluble fraction of total particulate matter present during the destructive distillation of coal for the production of coke. It limits exposure to 150 µg of benzene-soluble fraction of total particulate matter per cubic meter of air averaged over an eight-hour period.[231]

The standard mandates specific engineering controls and work practices that were to be in use by 20 January 1980. For example, the employer is required to provide protective clothing and equipment,[232] hygienic changing rooms,[233] and lunchrooms with a filtered air supply.[234] The employer must ensure that in the regulated area food and beverages are not consumed, smoking is prohibited, and cosmetics are not applied.[235] The employer must provide training to employees regarding the dangers of the regulated area.[236] In addition, the employer must post precautionary signs and labels.[237] The employer must institute a medical surveillance program for all those employed in the regulated area at least 30 days per year.[238] The employer also must maintain accurate medical records to measure employee exposure to coke oven emissions.[239] The steel industry challenged the validity of the coke oven standard, but it was upheld by the Third Circuit in *American Iron and Steel Institute v. OSHA*.[240]

3.3.4 Hazard Communication

In an attempt to address multiple chemical hazards at one time, OSHA issued a hazard communication standard in November 1983.[241] The standard required manufacturers to establish a method to communicate the hazards of chemicals to those who worked with them, mainly through the use of labels on containers, materials safety data sheets (later revised to safety data sheets or SDSs), and training programs.[242] The Third Circuit generally

upheld the standard but remanded it to OSHA on several issues, including whether the scope of the standard should be expanded beyond the manufacturing sector.[243] OSHA reopened the record to consider the scope issue, but the agency was reprimanded by the court for doing so and got a 60-day deadline to answer the court's remand order.[244] On 24 August 1987, OSHA expanded the scope of the standard to encompass nonmanufacturing employment.[245] The Third Circuit denied subsequent petitions for review of the expanded standard.[246] The Hazard Communication Standard now applies to all industries, but before the standard's scope was finalized, OMB took exception to the requirement that SDSs be exchanged at multiemployer worksites based on the authority granted to them by the PRA. OMB's authority to interfere in the OSHA standard was challenged in court and the Third Circuit upheld the challenge.[247] The Supreme Court affirmed,[248] but Congress nullified the Court's holding when it amended the PRA in 1995.[249]

In 1994, while litigation was occurring, OSHA published a final rule clarifying the 1987 hazard communication standard. The clarifications and amendments include (i) certain exemptions from labeling requirements and other provisions in the standard; (ii) parts of the provision for a written hazard communication program; (iii) the duties of distributors, manufacturers and importers of hazardous chemicals to provide SDSs; and (iv) provisions regarding the content of the SDSs.[250]

In 1990, OSHA promulgated a separate hazard communication standard for laboratories. This laboratory standard superseded the hazard communication standard along with several other health standards for research and analytical type labs if the laboratory implemented a chemical hygiene plan that includes training, medicals, monitoring, hazard identification, and recordkeeping.[251] In 1994, OSHA promulgated another final hazard communication rule requiring employers who receive shipments of hazardous materials to leave any existing placards or warning labels on the shipments until the materials are removed from their containers.[252]

In 2006, OSHA published an advanced notice of proposed rulemaking, indicating it would update the hazard communication standard to be consistent with the internationally recognized *Globally Harmonized System (GHS) for the Labeling of Chemicals*.[253] At the same time, OSHA made available on its Web site a GHS information topic page.[254] In 2009, OSHA published a notice of proposed rulemaking[255] and a notice of correction to correct misprints in the proposal.[256]

In 2012, OSHA promulgated a final rule. The final rule included: (i) revised criteria for classification of chemical hazards; (ii) revised labeling provisions that include requirements for use of standardized signal words, pictograms, hazard statements, and precautionary statements; (iii) a specified format for SDSs, and related revisions to definitions of terms used in the Hazard Communication Standard; and (iv) requirements for employee training on labels and SDSs.[257]

3.3.5 Hazardous Waste Operations

Pursuant to the Superfund Amendments and Reauthorization Act (SARA) of 1986, OSHA issued an interim standard in 1986 on hazardous waste operations.[258] In 1989, OSHA issued a final standard on hazardous waste operations and emergency response ("HAZWOPER").[259] The HAZWOPER standard for the construction industry (29 CFR 1926.65) is identical to 29 CFR 1910.120 for general industry. The final standard was challenged by the AFL-CIO on the sixtieth day following issuance, but the D.C. Circuit, relying on Section 6(5)(b), dismissed the petition for review based on lack of timeliness in filing.[260]

In 1987, Congress amended the Superfund law to require OSHA to add provisions to the HAZWOPER standard to establish certification of training given to emergency responders.[261] OSHA proposed certification rules in 1990.[262] After developing nonmandatory guidelines to address training criteria for hazardous waste workers, and observing the private sector accreditation procedures, OSHA withdrew the accreditation of training programs for hazardous waste operations from their Regulatory Agenda on 9 December 2002.[263] OSHA's current position is summarized on its Web site as follows:

The Hazardous Waste Operations and Emergency Response standard (HAZWOPER), 29 C.F.R. § 1910.120, states in paragraph (e)(5) that "Trainers shall be qualified to instruct employees about the subject matter that is being presented in training". In addition, 29 C.F.R. 1910.120(e)(5) explains that the qualifications of the instructors may be shown by academic degrees, completed training courses and/or work experience. At this time, OSHA does not have any specific requirements to certify an instructor. The subjects that trainers should be able to convey to employees at hazardous waste operations who need training are summarized in paragraphs (e), (p) and (q) of the HAZWOPER standard.[264]

3.3.6 Respiratory Protection

In January 1998, OSHA published a revised respiratory protection rule.[265] The revised respiratory protection standard applies to General Industry (Part 1910), Shipyards (Part 1915), Marine Terminals (Part 1917), Longshoring (Part 1918), and Construction (Part 1926). Paragraph (a)(1) establishes OSHA's hierarchy of controls by requiring the use of feasible engineering controls as the primary means to control air contaminants. Respirators are required when "effective engineering controls are not feasible, or while they are being instituted." Paragraph (a)(2) requires employers to provide employees with respirators that are "applicable and suitable"

for the purpose intended "when such equipment is necessary to protect the health of the employee."

If respirators are necessary to protect the health of the employer or respirators are required by the employer, the standard requires employers to develop and implement a written respiratory protection program with worksite-specific procedures. Such programs are to list all circumstances in the employees' working environment for which respirators are necessary to protect their health and are to contain workplace-specific procedures for respiratory protection. OSHA estimated that about five million workers at more than a million workplaces would be protected by the final standard that is considered a "building block standard" because future standards that call for respirator use in working with specific toxic substances will refer back to the final respiratory protection rule. Importantly, the respiratory protection standard provides that fit testing is required prior to initial use, whenever a different respirator facepiece is used, and at least annually thereafter. An additional fit test is required whenever the employee reports, or the employer or health care provider makes visual observations of, changes in the employee's physical condition that could affect respirator fit (e.g. facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight).

The 1998 revised respiratory protection standard was challenged by several industry groups and upheld in its entirety by the U.S. Court of Appeals for the Eleventh Circuit.[266] In 1998, when the new respiratory protection standard was adopted for all other industries, OSHA redesignated the previous §1910.134 as §1910.139, Respiratory Protection for *Mycobacterium tuberculosis* (TB). OSHA anticipated that §1910.139 would be replaced shortly by a final rule for TB since they had published a notice of a proposed TB standard in late 1997,[267] which would have required that respirators be used to protect health care workers from TB exposure. When the tuberculosis infection rates decreased significantly in the late 1990s, OSHA abandoned its plans for a TB rule. In 2003, OSHA published a final rule revoking §1910.139 and terminated its TB rulemaking.[268]

The effect on the healthcare industry was to place them under a duty to comply with §1910.134, which requires initial and annual fit testing for all respirator wearers. The health care industry objected to the additional burden of performing the more frequent fit tests for respirators worn to protect against TB. In 2004, an appropriations rider was added to OSHA's budget preventing it from using funds appropriated in fiscal year (FY) 2005 (beginning on 1 October 2004) to enforce the annual fit testing requirement, when the respirators were worn solely to protect against occupational exposure to TB. In FY 2006 and FY 2007, the same budget language was enacted and OSHA refrained from inspecting or citing employers for requirement to do annual fit testing of respirators for occupational exposure to tuberculosis. In the Consolidated Appropriations Act of 2008, no appropriations rider appeared to limit OSHA's enforcement of the respiratory protection standard in health care institutions.

In 2006, OSHA revised its existing Respiratory Protection Standard to add definitions and requirements for Assigned Protection Factors (APFs) and Maximum Use Concentrations (MUCs).[269] The revisions also supersede the respirator selection provisions of existing substance-specific standards with these new APFs (except for the respirator selection provisions of the 1,3-Butadiene Standard). The final rule became effective from 22 November 2006.

3.4 Employer Duties Arising from Selected Safety Standards

3.4.1 Confined Spaces

Beginning in in 1975,[270] and extending through 1979[271] and 1980,[272] OSHA worked on developing a standard on confined spaces for general industry and for the construction industry. In 1989, OSHA issued a proposed rule on confined spaces, but for general industry only.[273] In January 1993, OSHA published a final rule on permit-required confined spaces for general industry, requiring employers to establish permit systems and training programs for workers.[274] The standard was designed to protect workers who enter storage tanks and other confined spaces nearly five million times each year from toxic atmospheres, lack of oxygen and other hazards. The rule requires employers to identify all confined spaces at their worksites that could pose a hazard and to establish policies preventing unauthorized entry into them. It also requires employers to provide trained rescue teams, although off-site emergency response personnel can be used to satisfy this requirement.

Following the settlement of several legal challenges that had been consolidated in the Eleventh Circuit, OSHA issued an amendment to the final confined spaces rule in December 1998 that provided for greater participation by employees in the permitting system, allowed for employees to observe testing or monitoring of confined spaces, and clarified employers' duties in providing the rescue program.[275] OSHA also promulgated a separate final confined spaces standard for the shipyard industry, which requires shipyard employers to designate "competent" individuals to make initial evaluations of confined spaces, to ensure that detailed records of atmospheric testing of confined spaces are kept, and to label unsafe confined spaces.[276] In 2007, OSHA proposed a rule for confined spaces in the construction industry and addressed issues that are unique to construction such as higher employee turnover rates, changing worksites, and the multi-employer business model that is common to construction sites.[277] In 2015, OSHA promulgated a final rule for confined spaces in construction.[278]

3.4.2 Personal Protective Equipment

In 1971, OSHA adopted a national consensus standard on PPE. In April 1994, OSHA published a final rule setting out employers' requirements to provide their workers with protective equipment, including gloves, goggles, helmets and safety shoes.[279] The rule was intended to provide improved eye, face, hand, head, and foot protection for nearly 11.7 million employees. In October 1994, OSHA established a policy on the issue of payment for required PPE and stated that for all PPE standards the employer must both provide and pay for the required PPE, except in limited situations.[280]

In October 1997, the Review Commission declined to accept OSHA's interpretation in its memorandum as applied to 29 C.F.R. §1910.132(a) because the Review Commission believed the memorandum was inconsistent with OSHA's previous position on the issue and vacated OSHA's citation to the employer for failing to pay for metatarsal foot protection.[281] Rather than appealing this decision, OSHA decided to revise its final rule to make clear that it intended for employers to pay for the required equipment.

In 1999, the OSHA published a proposal to require employers to pay for all protective equipment, including PPE, with explicit exceptions for certain safety shoes, prescription safety eyewear, and logging boots.[282] After an initial notice and comment period, an informal rulemaking hearing, a second notice and comment period on specific issues, and a filing of a lawsuit by labor unions in 2007 to force OSHA to issue a final rule, OSHA did finally issue its final PPE rule *Employer Payment for Personal Protective Equipment*.[283]

3.5 Other Standards Not Promulgated by OSHA or Nullified by Congress

OSHA has proposed standards in the past that have not been promulgated or, in the case of Ergonomics, promulgated by OSHA but subsequently nullified by Congress. OSHA continues to develop safety and health standards. For an up-to-date list of OSHA regulatory and deregulatory actions, the reader is encouraged to go to the *Unified Agenda of Federal Regulatory and Deregulatory Actions* at www.reginfo.gov.

3.5.1 Combustible Dust

In 2006, the U.S. Chemical Safety and Hazard Investigation Board (CSB) completed a study of combustible dust hazards and identified 281 combustible dust incidents between 1980 and 2005 that killed 119 workers and injured 718. The CSB recommended that OSHA pursue rulemaking to protect further loss of life from incidents of combustible dust. On 7 February 2008, a sugar refinery owned by Imperial Sugar in Port Wentworth, GA sustained a dust explosion, killing 13 people and injuring 42 others. The CSB report and the Imperial Sugar Refinery explosion resulted in OSHA's decision to consider rulemaking to develop a combustible dust standard for general industry.

There are a number of existing OSHA standards that address prevention of combustible dust explosion risk such as (i) 1910.22 Housekeeping; (ii) 1910.38 Emergency Action Plans; (iii) 1910.94 Ventilation; (iv) 1910.107 Spray Finishing; (v) 1910.146 Permit Required Confined Spaces; (vi) 1910.269 Electric Power Generation; (vii) Transmission and Distribution (coal handling); (viii) 1910.272 Grain Handling Facilities; and (ix) 1910.307 Hazard Communication. Despite these standards, OSHA lacks a comprehensive standard that addresses combustible dust hazards. However, OSHA has published a Safety and Health Information Bulletin on the topic[284] that has implemented a Combustible Dust National Emphasis Program (NEP)[285] and has conducting stakeholder meetings.[286]

3.5.2 Diacetyl

Health hazard evaluations performed by the NIOSH of workplaces using "butter flavorings" used in the microwave popcorn industry have implicated diacetyl as a cause of a rare, but severe, lung disease, called *bronchiolitis obliterans* (4). Severe obstructive airway disease has been observed not only in the microwave popcorn industry but also in other food flavoring manufacturing plants. Diacetyl is a chemical that is found as a natural constituent of butter as well as a chemical added as a flavoring to impart a "buttery" taste to foods.

On 26 July 2007, the United Food and Commercial Workers International Union (UFCW) and the International Brotherhood of Teamsters (IBT) filed a petition requesting that OSHA issue an ETS for all employees exposed to diacetyl. OSHA denied the petition on 25 September 2007. However, in July 2007, OSHA announced a National Special Emphasis Program for Microwave Processing Plants.[287] In 2007, OSHA also published a Safety and Health Information Bulletin on the topic[288] and issued Hazard Communication guidance for food flavorings containing diacetyl.[289] In October 2007, OSHA also held a stakeholder meeting to consider Section 6(b) rulemaking for diacetyl and planned to set up a panel to assess the impact of diacetyl on small business in the face of congressional legislation to force OSHA to issue an interim PEL within 90 days and a final PEL within two years after enactment.[290] OSHA published an advanced notice of proposed rulemaking on 21 January 2009,[291] but withdrew an advance notice of proposed rulemaking on 17 March 2009.[292]

3.5.3 Ergonomics

In 1991, various labor organizations petitioned OSHA to issue an ETS to address musculoskeletal disorders

among workers performing repetitive job tasks.[293] OSHA declined to issue and ETS but did publish an advance notice of proposed rulemaking seeking information from the public for a permanent standard.[294] OSHA promulgated a proposed Ergonomics Program rule on 23 November 1999,[295] and a final rule on 14 November 2000.[296] OSHA's Ergonomics Program standard rulemaking proved to be its most controversial. A provision requiring workplace removal protection – similar to MRP found in toxic chemical standards – was "particularly controversial (5)."

In 2001, OSHA's ergonomics standard became the first standard to be "nullified" by Congress by means of a resolution of disapproval under the Congressional Review of Agency Rulemaking Act (CRA).[297] The resolution of disapproval under the CRA was signed into law by President Bush on 20 March 2000, and OSHA's Ergonomics Program Standard ceased to have any legal effect.[298] OSHA has issued guidance documents to address ergonomic issues industry by industry.[299] OSHA has issued ergonomic guidelines for meatpacking, nursing homes, retail grocery stores, poultry processing, and shipyards.[300]

The question arises whether OSHA can promulgate a new ergonomics standard considering the nullification by Congress of its first ergonomics standard. The CRA states in Section 801(b)(2): "A rule that does not take effect … may not be reissued in substantially the same form, and a new rule that is substantially the same as such a rule may not be issued, unless the reissued or new rule is specifically authorized by a law enacted after the date of the joint resolution disapproving the original rule." Although this is uncharted legal territory, OSHA could develop a rule that is not "substantially the same form," or OSHA could conceivably reissue its previous standard if "specifically authorized" by the Congress.

3.5.4 Indoor Air Quality

In 1987, public interest groups petitioned OSHA to issue an ETS to prohibit environmental tobacco smoke in indoor workplaces,[301] but OSHA denied the petitions in 1989.[302]

In April 1994, as part of a larger rulemaking on indoor air quality in the workplace, OSHA proposed a rule that would require virtually all employers to ban tobacco smoking or to provide separately ventilated areas for smokers.[303] In the face of stiff opposition, OSHA withdrew the indoor air quality proposed rule in 2001 citing that most states now ban smoking thus eliminating most of the indoor air quality concerns and that the nontobacco parts of the rule elicited few comments.[304]

3.5.5 Tuberculosis and other Infectious Diseases

OSHA proposed a tuberculosis standard in October 1997 that would have covered an estimated 5.3 million health care workers.[305] The rule, as proposed, would have required covered employers to develop written exposure control and response plans, install engineering controls, offer employees free TB skin tests and provide respiratory protection for workers exposed to certain conditions. In 2003, after a rulemaking hearing, OSHA withdrew its proposal for a separate TB standard.[306] OSHA noted that the need for a tuberculosis standard had decreased because hospitals were adhering to guidelines issued by the Centers for Disease Control and Prevention.[307]

Even though OSHA's standard pertaining to tuberculosis was withdrawn, the issue of how to protect health care workers from disease-causing bioaerosols in the workplace has only increased since 2003. After OSHA withdrew its tuberculosis standard, State Occupational Safety and Health Plan states began consideration of bioaerosol standards. On 5 August 2009, California's first-in-the-nation Aerosol Transmissible Diseases (ATD) Standard took legal effect.[308] The California Standard establishes a comprehensive approach to control of diseases identified as either requiring "droplet precautions" or "airborne infection isolation." Among the controls required by the standard are written infection control procedures including source control measures such as providing surgical masks or other materials to symptomatic persons who enter the facility. The procedures should include how those patients can be placed in separate areas, to the extent feasible, to reduce exposure to employees.

In 2010, OSHA published a RFI on occupational exposure to infectious diseases in healthcare settings.[309] OSHA intended to publish a proposed rule to address the risk to workers exposed to infectious diseases in healthcare and other related high-risk environments such as emergency response, corrections, homeless shelters and laboratories.[310]

3.5.6 Workplace Violence Prevention

OSHA has issued a number of guidelines for employers on the topic. OSHA's violence prevention guidelines cover health care and social services,[311] and late-night retail establishments.[312] In addition to issuing guidelines on workplace violence prevention, in 2016 OSHA issued a RFI on a potential standard to prevent workplace violence in healthcare and social assistance settings.[313] The RFI requested information on topics such as effective strategies for reducing incidents of violence in various healthcare and social assistance settings.

3.6 Employer Duties Arising from Specific Regulations

3.6.1 Recordkeeping

The OSH Act requires the Secretary to adopt regulations in two areas of recordkeeping. First, Section 8(c)(2) requires the Secretary to issue regulations requiring employers

"maintain accurate records of, and to make periodic reports on, work-related deaths, injuries and illnesses other than minor injuries requiring only first aid treatment and which do not involve medical treatment, loss of consciousness, restriction of work or motion, or transfer to another job."[314] Section 8(c)(1) also authorizes the Secretary to promulgate regulations requiring employers to make, keep, and preserve such records regarding the causes and prevention of occupational accidents and illnesses.[315] Second, Section 24(a) requires the Secretary to develop and maintain an effective program of collection, compilation, and analysis of occupational safety and health statistics.[316] After passage of the OSH Act, OSHA issued the required occupational injury and illness recording and reporting regulations as 29 C.F.R. Part 1904.[317]

In 1990, OSHA and the Bureau of Labor Statistics (BLS) executed a memorandum of understanding that makes the BLS responsible for conducting the nationwide statistical compilation of occupational illnesses and injuries (Annual Survey of Occupational Injuries and Illnesses), while OSHA administers the regulatory components of the recordkeeping system. The BLS program requires employers to participate in periodic surveys of occupational injuries and illnesses. The survey form is OSHA Form 300S, and an employer who receives such a form has a duty to complete and return it promptly.[318]

In 2001, OSHA updated significantly its recordkeeping regulations implementing Sections 8(c)(1) and (2).[319] OSHA's new standard requires employers to keep the following records (or the equivalents thereof): (*1*) OSHA Form 300 – a log and annual summary of all recordable occupational injuries and illnesses and (*2*) OSHA Form 10 – a supplementary record for each occupational injury or illness.[320] The regulations further require that a copy of Form 300, summarizing the year's occupational illnesses and injuries, be posted in each establishment in a conspicuous place or places where notices to employees are customarily posted. The required records must be retained in each establishment for five years following the end of the year to which they relate.[321]

Small employers are exempt from many, but not all, of OSHA's recordkeeping requirements. For example, employers who had no more than 10 employees at any time during the calendar year preceding the current one are exempt from the requirements of keeping OSHA Forms 300 and 101. Such employers, however, are not exempt from the requirement of reporting accidents resulting in fatalities or multiple hospitalizations. In addition, small employers may be selected to participate in the BLS periodic surveys and, if selected, must maintain a log and summary on Form 300 for the survey year, and must make the required reports on survey Form 300S.[322]

Several studies have raised the issue that the Survey of Occupational Injuries and Illness (SOII) conducted by the BLS based on a sample of collected OSHA Form 300s may not be representative of the true magnitude of nonfatal occupational injuries and illnesses (6, 7). As pointed out by the U.S. General Accountability Office (GAO) in its October 2009 report,[323] the BLS does not verify the accuracy of the data it collected for the SOII and has recognized that the limited scope of its survey may affect how representative the SOII's findings are for prioritization of governmental action on safety and health risks.

The GAO report also stated that many factors affect the accuracy of employers' injury and illness data including disincentives that may discourage workers from reporting work-related injuries and illnesses to their employers and disincentives that may discourage employers from recording them. Among these factors include a worker's fear of job loss or disciplinary action or fear of jeopardizing rewards based on having low injury or illness. Employers may not record injuries or illnesses because they are afraid of increasing their workers' compensation premiums or jeopardizing their chances of winning contract bids for new work. In response to the GAO Report, OSHA announced in 2009 a National Emphasis Program to ensure that injuries and illnesses are accurately reported.[324]

In 2016, OSHA revised its *Recordkeeping and Reporting Occupational Injuries and Illnesses* regulation[325] to add requirements for the electronic submission of injury and illness information employers are already required to keep under existing OSHA regulations.[326] The final rule also amends OSHA's recordkeeping regulation to update requirements on how employers inform employees to report work-related injuries and illnesses to their employer. The final rule requires "employers to inform employees of their right to report work-related injuries and illnesses free from retaliation; clarifies the existing implicit requirement that an employer's procedure for reporting work-related injuries and illnesses must be reasonable and not deter or discourage employees from reporting; and incorporates the existing statutory prohibition on retaliating against employees for reporting work-related injuries or illnesses."[327]

OSHA developed an *Injury Tracking Application* to aid employer in the electronic submission of the required records to OSHA.[328] The electronic submission requirement became effective on 1 January 2017. The new reporting requirements will be phased in over two years. In 2017, all covered establishments must submit information from their completed 2016 Form 300A by 15 December 2017. In 2018, covered establishments with 250 or more employees must submit information from all completed 2017 forms (300A, 300, and 301) by 1 July 2018, and covered establishments with 20–249 employees must submit information from their completed 2017 Form 300A by 1 July 2018. Beginning in 2019 and every year thereafter, covered establishments must submit the information by March 2.[329]

3.6.2 Reporting Occupational Injuries and Illnesses to OSHA

Previously, employers were required to report to OSHA the death of any employee from a work-related incident or the inpatient hospitalization of three or more employees from a work-related incident. Employers had 48 hours to report, but in 1994 OSHA reduced the reporting period to eight hours.[330] In 1995, the fatality and multiple hospitalization reporting rule was extended to federal agencies.[331]

In 2014, OSHA revised the requirements for reporting work-related fatality, injury, and illness information and updated the list of industries that are partially exempt from requirements to keep records of work-related injuries and illnesses due to relatively low occupational injury and illness rates.[332] Revised 29 C.F.R. Section 1904.39 now requires employers to report the following events to OSHA: (i) all work-related fatalities; (ii) all work-related hospitalizations of one or more employees; (iii) all work-related amputations; and (iv) all work-related losses of an eye.[333] Employers can report in three ways: (i) by telephone or in person to the OSHA Area Office that is nearest to the site of the incident; (ii) by telephone to the OSHA toll-free central telephone, 1-800-321-OSHA (6742); or (iii) by electronic submission using the reporting application located on OSHA's public Web site at www.osha.gov.[334]

3.6.3 Access to Employee Exposure and Medical Records

Section 8(c)(3) of the OSH Act authorizes the Secretary, in cooperation with the Secretary of Health and Human Services, to issue regulations requiring employers to maintain accurate records of employee exposure to potentially toxic materials or harmful physical agents, which are required to be monitored or measured under Section 6. Employees or their representatives have an opportunity to observe such monitoring or measuring, and to have access to the records.[335] The *Access to Employee Exposure and Medical Records* regulation requires employers to maintain exposure and medical records pertaining to their employees' exposure to toxic substances and harmful physical agents.[336] The regulation requires that the medical record for each employee shall be preserved and maintained for at least the duration of employment plus 30 years[337] with exceptions.[338]

In 1980, OSHA promulgated a rule providing access to employer-generated exposure and medical records to employees and employee representatives.[339] The rule was challenged on a number of grounds such as exceeding OSHA's authority, in violation of an employer's Fourth Amendment rights, and in violation of an employee's right to privacy, but upheld by the U.S. Court of Appeals for the Fifth Circuit in 1984.[340] In 1988, OSHA made minor amendments to the standard.[341]

4 CHALLENGING A STANDARD AFTER PROMULGATION

4.1 Judicial Review

Any person who may be adversely affected by an OSHA standard may file a petition under Section 6(f) challenging its validity in the U.S. Court of Appeals in the circuit wherein such person resides or has the principal place of business.[342] However, the OSH Act does not grant such special court status to OSHA regulations; judicial review of OSHA regulations must first occur within the jurisdiction of a federal district court.[343] A petition for judicial review of an OSHA standard may be filed at any time prior to the sixtieth day after the issuance of the standard. Unless otherwise ordered, the filing of a petition does not operate as a "stay" of the standard.

Section 6(f) of the OSH Act directs the courts to uphold the Secretary's determinations in promulgating standards if those determinations are "supported by substantial evidence in the record considered as a whole." In practice, federal courts have generally declined to apply a strict "substantial evidence" standard of review. Instead, the courts have chosen to apply two different standards depending on whether the agency determination to be reviewed is one of "fact" or "policy." Courts have essentially taken the position that only the Secretary's findings of fact should be reviewed pursuant to a substantial evidence standard, while the Secretary's policy determinations should be substantiated by a detailed statement of reasons, which are subject to a test of reasonableness.[344] The courts have adopted this approach with respect to ETSs as well as permanent standards.

4.2 Variance from Compliance with Specific Standards

4.2.1 Permanent Variance

Section 6(d) of OSHA provides that any affected employer may apply to the Secretary for a variance from an OSHA standard.[345] The employer must show by a preponderance of the evidence that the conditions, practices, means, methods, operations, or processes used or proposed to be used will provide "employees with employment and places of employment that are as safe and healthful as those that would prevail if the employer complied with the standard."[346] Affected employees are to be given notice of each application for a variance and an opportunity to participate in a hearing.

4.2.2 Temporary Variance

The OSH Act provides mechanisms to enable employers to obtain variances of a more temporary nature than those

sought under Section 6(d). Section 6(b)(6)(A) provides for "temporary" variances upon application when an employer establishes one of two conditions. First, the employer is unable to comply with a standard by its effective date because of unavailability of professional or technical personnel, or of materials and equipment needed to come into compliance with the standard, or because necessary construction or alteration of facilities cannot be completed by the effective date. Second, the employer is taking all available steps to safeguard employees against the hazards covered by the standard and has an effective program for coming into compliance with it.[347] Temporary variances are limited by the circumstances of need or for one year.[348]

4.2.3 Experimental Variance

Section 6(b)(6)(C) authorizes the Secretary to grant a variance from any standard, or part of a standard, if it is determined by the Secretary (or upon certification by the HHS Secretary) that such a variance is needed to allow an employer to engage in an approved experiment. The aim of an experimental variance is for OSHA to gain additional knowledge about effective health and safety method that can be adopted by OSHA for wider application.

4.2.4 National Defense Variance

Section 16 permits the Secretary, after notice and an opportunity for hearing, to provide such reasonable limitations and rules and regulations allowing "reasonable variations, tolerances, and exemptions to and from any or all provisions of this Act as he may find necessary and proper to avoid serious impairment of the national defense."[349]

5 ENFORCEMENT OF THE OSH ACT

The enforcement scheme set forth in the OSH Act has been subject to various legal challenges on several fronts, including challenges to its constitutionality. For instance, in *Atlas Roofing Company, Inc. v. OSHRC*,[350] a cited employer argued that the OSH Act was constitutionally defective because civil penalties under the act are criminal in nature, and call for the constitutional protections of the Sixth Amendment and Article III of the U.S. Constitution. Second, the employer contended that even if, the penalties are civil in nature, the OSH Act violates the Seventh Amendment because of the absence of a jury trial for fact-finding. Third, the employer argued that the OSH Act denies the employer his or her right to a Fifth Amendment "prejudgment" due process hearing since Review Commission orders are self-executing unless the employer affirmatively seeks review. Finally, the employer asserted that the overall penalty structure of the OSH Act violates due process because it "chills" the employer's right to seek review of the citation and penalty. In *Atlas Roofing*, the Fifth Circuit rejected all the employer's constitutional contentions. The U.S. Supreme Court granted a petition for *certiorari* in that case, limited to the Seventh Amendment issue, and subsequently upheld the OSH Act's provision for imposition of civil penalties without fact finding by a jury.[351]

There have been other constitutional challenges to various OSHA enforcement policies. In March 1998, the U.S. Court of Appeals for the Seventh Circuit rejected an employer's contention that being fined administrative penalties even after it was criminally prosecuted for the same offenses under the OSH Act, violated the double jeopardy clause of the Fifth Amendment.[352] Finally, in a due process challenge, the Review Commission has held that OSHA did not violate an employer's due process rights when it issued separate sets of citations, instead of only one citation, for alleged violations at nine different trenching sites on the same construction project.[353]

5.1 Types of Inspections

OSHA conducts two general types of inspections: unprogrammed and programmed. Unprogrammed inspections are conducted in response to specific evidence of a hazardous condition at a specific worksite (9). These types of inspections can be in response to a complaint filed by an employee or an employee representative,[354] referral from media reports, report of an imminent danger, report of a fatality or catastrophe, or for the purpose of follow-up or monitoring.[355] Programmed inspections are inspections conducted as a part of a national or regional inspection scheduling plan. The scheduling plan uses neutral criteria in selecting specific establishments to inspect. Criteria such as injury or illness incidence rates in a specific industry sector or type of establishment, previous citation history, or employee exposure to specific toxic agents are frequently used as the basis for programmed inspections.

5.2 Right to Inspect and Warrants

Section 8(a) of the OSH Act authorizes the Secretary to enter, inspect, and investigate places of employment to discover possible violations of the employer's general and specific duties under the OSH Act.[356] Even though Section 8(a) grants OSHA broad authority to enter and inspect workplaces, the Fourth Amendment has been held to apply to OSHA's inspections.

In 1978, the U.S. Supreme Court held Section 8(a) unconstitutional insofar as it authorized nonconsensual, warrantless inspections at an employer's establishment. In *Marshall v. Barlow's, Inc.*,[357] the Court held that an employer may refuse entry to an OSHA compliance officer unless a warrant

is obtained, reasoning that employers have a reasonable expectation of privacy in their commercial property and are, therefore, guaranteed the right, under the Fourth Amendment, to be free from unreasonable official intrusions.[358] The Court explained, however, the Secretary does not need to make a showing of probable cause in the criminal sense to obtain an inspection warrant. Probable cause for an administrative inspection may be based either on a specific evidence of a violation or on a showing that reasonable legislative or administrative standards for conducting an inspection are satisfied with respect to a particular establishment.[359] By way of illustration of the latter, the Court stated that a warrant could properly be issued upon a showing that a particular business was chosen for inspection pursuant to a general enforcement plan derived from "neutral sources."[360]

An inspection may proceed without a warrant, of course, if the employer[361] or an authorized third party consents to the inspection,[362] or if the conditions observed by OSHA are in "plain, obvious view" on the employer's premises.[363] Modern technology can even be employed to obtain a "view" of a worksite. For example, in *L.R. Wilson & Sons, Inc. v. OSHRC*,[364] the Fourth Circuit held that an OSHA inspector could videotape employer activities from across the street from the worksite. However, the general rule is that absent employer consent, the existence of the plain view exception, or when OSHA cannot show there was an emergency,[365] a warrant is required.

5.2.1 Probable Cause Necessary for Warrant

Following the *Barlow's* decision, federal courts have addressed the question of what constitutes a showing of probable cause necessary to obtain an OSHA inspection warrant. The Supreme Court stated in *Barlow's* that probable cause authorizing an OSHA inspection may be based on evidence that a specific violation exists at the establishment to be inspected. Thus, probable cause for warrant issuance may be established by OSHA's receipt of a written, signed employee complaint, although circuit courts have held that the nature of the violation complained of must be described in the warrant application so the magistrate issuing the warrant may make an independent determination that probable cause exists. In addition, the majority of federal courts addressing the issue have concluded that a warrant based on specific employee complaints is overly broad if it purports to authorize a "wall-to-wall" inspection of the entire plant. Instead, the scope of the warrant and resulting inspection must bear a reasonable relationship to the specific violations that formed the basis of the complaint.[366]

5.2.2 Ex Parte Warrants

Ex parte warrants (without notice from OSHA or knowledge by the employer of the warrant) are the preferred form of compulsory process for OSHA. In 1980, OSHA amended its regulation concerning "compulsory process."[367] OSHA stated it may obtain an inspection warrant without prior notice to the employer."[368]

5.2.3 Challenging the Validity of a Warrant

An employer who wishes to contest a warrant has several choices. First, the employer may refuse to obey the warrant and may then move to quash it in district court. Second, the employer may refuse to comply with the warrant and litigate its validity in a civil contempt proceeding. Third, the employer may allow the inspection to proceed and move to suppress evidence after the warrant's execution (10).

In *Babcock & Wilcox Company v. Marshall*, the Third Circuit indicated that an employer may obtain a district court hearing on a warrant's validity *prior to* inspection by refusing to obey the warrant (thereby risking contempt), moving to quash the warrant, and promptly appealing if the motion is denied.[369] However, the Third Circuit held that if the employer obeys the warrant, he must "exhaust his administrative remedies" before the Review Commission prior to obtaining judicial review of his objections to the warrant.[370] The overwhelming majority of federal appellate courts have agreed with the Third Circuit that the doctrine of exhaustion of remedies precludes an employer from challenging an executed warrant in federal court.[371] In contrast, the Seventh Circuit has held that in certain circumstances an employer may obtain district court review of a warrant even after an inspection has been completed.[372] The same court, however, modified its stance on post-execution challenges when it joined the other circuits in requiring employers who challenge completed OSHA inspections on Fourth Amendment grounds to go to the Review Commission first before turning to the federal courts.[373]

5.3 Inspection Procedures

OSHA inspections must be made at reasonable times, in a reasonable manner, and within reasonable limits.[374] In *Hamilton Fixture v. Secretary of Labor*,[375] the employer challenged the reasonableness of OSHA's conducting a wall-to-wall inspection of a manufacturing facility during a work slowdown prompted by labor unrest. The employer claimed that a work slowdown was not a reasonable time to do the inspection, because it was unable to follow its normal safety procedures under those circumstances. The court, however, rejected this argument and held the inspection to be reasonable.

5.4 Imminent Danger Inspections

Section 13(a) of the OSH Act defines an imminent danger as "any conditions or practices in any place of employment

which are such that a danger exists which could reasonably be expected to cause death or serious physical harm immediately or before the imminence of such danger can be eliminated through the enforcement procedures otherwise provided in this Act."[376] If a complaint of imminent danger is received, OSHA can conduct an immediate inspection or arrange to have employees removed from the danger. If an inspection cannot be conducted in a timely fashion, or employees cannot be removed, OSHA may ask for injunctive relief. The Act confers jurisdiction on the U.S. district courts, upon petition of the Secretary, to restrain hazardous employment conditions or practices if they create an imminent danger of death or serious physical harm that cannot be eliminated through the OSH Act's other enforcement procedures.[377]

Section 13(d) also provides that an employee, who may be injured by OSHA's failure to protect him or her from an imminent danger, can bring a mandamus action to compel the Secretary to seek injunctive relief.[378] A more realistic employee response to imminent danger is self-help rather than finding an attorney and seeking a mandamus writ (i.e. lawsuit used to compel OSHA to act).

5.5 Types of Violations

The OSH Act authorizes the Secretary to issue citations and propose penalties for employers who are believed to have violated the Act or its implementing standards and regulations. Section 9(a) directs the Secretary to issue citations "with reasonable promptness" following an inspection or investigation.[379] According to Section 9(c), no citation may be issued after the expiration of six months from the occurrence of any violation.[380]

Each citation is to be in writing and must "describe with particularity the nature of the violation," including a reference to the provision of the statute, standard, rule, regulation, or order alleged to have been violated.[381] Interpretations of the "particularity" requirements have generally dealt with the precision of the reference to the standard allegedly violated, and the adequacy of the description of the alleged violation. Several federal courts have held that, to meet the particularity requirement, a citation must provide the employer with "fair notice" of the violation sufficient to enable it both to prepare its defense and to correct the cited hazard.[382] The Fifth Circuit has held that an employer may raise a citation's lack of particularity in a later failure-to-abate violation issued by the Secretary. The court reasoned that a citation that is too vague to give notice of the action necessary to correct the cited hazard also makes it impossible for the Review Commission to determine whether the hazard has been abated.[383]

Section 9(a) states that each citation must also fix a reasonable time for the abatement of the violation.[384] Section 9(b) requires employers to post each citation prominently at or near each place where a violation referred to in the citation occurred. The mechanics of how, when, where, and how long to post the citations are set forth in regulations issued by the Secretary.[385]

Within a reasonable time after a citation has been issued, the Secretary is directed by Section 10(a) to notify the employer by certified mail of the penalty, if any, which will be assessed for the violation. Civil violations fall into the following general categories: *de minimus*, other-than-serious, serious, willful, and repeated. A civil penalty is based, at least in part, on the nature of the violation.[386]

5.5.1 DeMinimis Violations

If noncompliance with an OSHA standard or regulation presents no direct or immediate relationship to the safety or health of employees, the violation is *de minimis*.[387]

There are three situations which can result in a finding a *de minimis* violation. First, an employer complies with the clear intent of the standard but deviates from its particular requirements in a manner that has no direct or immediate relationship to employee safety or health. Second, an employer complies with a proposed standard or amendment or a consensus standard rather than with the standard in effect at the time of the inspection, and the employer's action clearly provides equal or greater employee protection or the employer complies with a written interpretation issued by the OSHA Regional or National Office. Third, an employer's workplace is technically beyond the requirements of the applicable standard and provides equivalent or more effective employee safety or health protection.[388]

5.5.2 Other-than-Serious Violations

An other-than-serious type of violation is "one in which there is a direct and immediate relationship between the violative condition and occupational safety and health, but is not of such relationship that a resultant injury is death or serious physical harm."[389] The OSHA *Field Operations Manual* (FOM) states that an other-than-serious type of violation "shall be cited in situations where the most serious injury or illness that would be likely to result from a hazardous condition cannot reasonably be predicted to cause death or serious physical harm to exposed employees but does have a direct and immediate relationship to their safety and health."[390]

The original Senate version of the OSH Act treated all violations as "serious." As finally enacted, however, the OSH Act incorporated a House proposal for violations "determined not to be of a serious nature."[391] The statute does not describe the elements of an other-than-serious violation and provides no guidelines for determining when a violation is not serious. The Fifth Circuit, however, has

described other-than-serious violations as violations that do not create a substantial probability of serious physical harm.[392] The Review Commission has explained that serious, and other-than-serious violations, can be distinguished based on the seriousness of injuries that experience has shown are reasonably likely to result when an accident does arise from a particular set of circumstances.[393]

5.5.3 Serious Violations

Section 17(k) of the OSH Act provides that a violation is serious if, in the event of an accident, there is a substantial probability that death or serious physical harm *could* result.[394]

The *probability* of an *accident* occurring need not be shown to establish that a violation is serious. Rather, as the Ninth Circuit Court ruled in *California Stevedore and Ballast v. OSHRC*,[395] a serious violation exists if any accident that *could* result from the violation would have a substantial probability of resulting in death or serious physical harm.[396] No actual death or physical injury is required to establish a serious violation.[397] Employer knowledge is a key element of a serious violation. The knowledge requirement in Section 17(k) can be satisfied by a showing of actual or constructive employer knowledge of practices or conditions that constitute violations of the OSH Act. The burden is on the Secretary to prove knowledge as well as the other elements of a serious violation.

5.5.4 Willful Violations

The OSH Act contains no definition of "willful" violation. Thus, it is not surprising that there has been some disagreement on the elements of a willful violation. In *Frank Irey Jr., Inc. v. OSHRC*,[398] the Third Circuit initially held that "[w]illfulness connotes defiance or such reckless disregard of consequences as to be equivalent to a knowing, conscious, and deliberate flaunting of the Act. Willful means more than merely voluntary action or omission – it involves an element of obstinate refusal to comply."

The majority of the circuits, as well as the Review Commission, declined to follow the *Frank Irey* definition of "willfulness." The First and Fourth Circuits interpreted a willful action as a "conscious, intentional, deliberate voluntary decision," regardless of venial motive.[399] The Review Commission agreed that no showing of malicious intent is necessary to establish "willfulness,"[400] and defined a willful violation as one "committed with either an intentional disregard of, or plain indifference to, the Act's requirements."[401] Most courts of appeals have adopted the Review Commission's standard of intentional disregard or plain indifference, or have embraced similar definitions that do not require a showing of a bad motive.[402]

Thus, a conflict developed between the Third Circuit's view, as expressed in *Frank Irey*, and the majority approach. The D.C. Circuit characterized this conflict as more apparent than real. In *Cedar Construction Co. v. OSHRC and Marshall*,[403] the court indicated that the two approaches were likely to yield the same results in particular cases since there is little practical difference between "obstinate refusal to comply" and "intentional disregard" of the OSH Act. The Third Circuit later agreed when it again addressed the "willfulness" question in *Babcock & Wilcox Co. v. OSHRC*.[404] This clarification by the Third Circuit resulted in general agreement among the circuits that the Review Commission's "intentional disregard" standard is the correct one, and that no malicious intent need be shown to establish a willful violation.

5.5.5 Repeated Violations

The OSH Act provides no definition of a "repeated" violation. It is OSHA policy that "n employer may be cited for a repeated violation if that employer has been cited previously for a substantially similar condition and the citation has become a final order of the Review Commission. Generally, similar conditions can be demonstrated by showing that in both situations the identical standard was violated. In some circumstances, similar conditions can be demonstrated when different standards are violated. Although there may be different standards involved, the hazardous conditions found could be substantially similar and therefore a repeated violation would be appropriate".[405]

5.5.6 Failure-to-Abate Violations

The OSH Act does not specify fixed periods within which violations must be remedied, but Section 9(a) does require that each citation "fix a reasonable time for the abatement of the violation."[406] The abatement period does not begin to run until the date of the final order of the Review Commission affirming the citation, as long as the review proceeding, if any, initiated by the employer was in good faith and not solely for delay or avoidance of penalties.[407] An employer who fails to correct a violation within the period specified in the citation may receive an additional citation pursuant to Section 10(b) for failure to abate.

In 1996, OSHA instituted a nationwide "Quick Fix" abatement incentive program. Under the program, employers could be given a 15% penalty reduction for correcting a cited workplace hazard within 24 hours of the inspection. The penalty reduction does not apply to violations linked to fatal injury or illness, to serious incidents resulting in serious injuries to employees, nor to high- or medium-gravity serious, willful, repeat or failure-to-abate violations.[408] In 1997, OSHA published an Abatement Verification final rule requiring employers to certify to OSHA that they have

corrected cited violations and to inform their employees of the abatement actions taken.[409] Prior to the final rule, employer compliance with requests to provide verification of abatement was voluntary, and follow-up inspections often were necessary in order to determine whether abatement had occurred.

5.6 Civil Penalties

On 2 November 2015, Congress passed the Federal Civil Penalties Inflation Adjustment Act Improvement Act (2015 Inflation Adjustment Act) as part of a Bipartisan Budget Act of 2015.[410] The Inflation Adjustment Act amends the Federal Civil Penalties Inflation Adjustment Act of 1990. The Inflation Adjustment Act requires the DOL to adjust its civil money penalty levels for inflation (with an initial catch-up adjustment) no later than January 15 of each year. The DOL issued an interim final rule to adjust its civil monetary penalties for inflation on 1 July 2016,[411] and a final rule on 18 January 2017.[412] Annual updates are expected.

Importantly, the 2015 Inflation Adjustment Act amends the 1990 Inflation Adjustment Act by rescinding an exemption that previously disallowed inflationary adjustments for violations of the OSH Act. As a result of the 2015 Inflation Adjustment Act, OSHA's maximum monetary civil penalties were increased significantly for the years 2016[413] and 2017. For 2017, the maximum statutory monetary civil penalty for serious, other-than-serious, and posting requirements increased from $7 000 to $12 675.[414] The maximum statutory monetary civil penalty for failure-to-abate violations increased from $7 000 per day beyond the abatement date to $12 675 per day beyond the abatement date.[415] The maximum statutory monetary civil penalty for a willful or repeated violation increased from $70 000 to $126 749 per violation.[416]

5.7 Criminal Sanctions

To secure a criminal conviction under Section 17(e) of the OSH Act, there must be evidence to support two elements of the offense: (i) the employer willfully violated a specific standard, rule, order or regulation of the OSH Act; and (ii) the violation caused the death of the employee. Willful violations that cause death to an employee are punishable upon conviction by a fine of up to $10 000 or imprisonment for up to six months or both.[417] For a repeated willful violation that causes the death of an employee, the punishment is increased to a fine of not more than $20 000 and 1 year in jail (or both).[418]

Proof of willfulness can be shown by the employer taking deliberate action in spite of having knowledge of an OSHA requirement or being plainly indifferent to the requirement.[419] The second element is more easily satisfied; all that needs to be shown is that the violation was a cause or a contributing factor to the death of an employee.[420] OSHA will issue a civil citation even if the citation involves allegations under consideration for criminal prosecution.[421]

The criminal penalties provided for in the OSH Act can only be imposed by federal courts and not by the Review Commission. For a case to be considered for criminal sanctions provided by the OSH Act, OSHA must make a referral for criminal prosecution to the U.S. Department of Justice. How the criminal provisions of the OSH Act have been used – or not been used – has come under criticism.[422] For example, the OSH Act's criminal provision is limited to willful violations that result in a worker death. But, in some of the most egregious examples of employer actions that have proved dangerous to workers, the worker suffered irreversible coma or another type of severe injury but did not die. In those cases, application of the criminal provisions of the OSH Act is inapplicable. Even when a worker death does occur, the crime is only a Class B misdemeanor, carrying a maximum sentence of only six months in jail.[423]

In addition to criminal sanctions under the OSH Act, employers can also be subject to criminal felony penalties for knowingly and willfully concealing a material fact, making a materially false statement, or making or using any false writing or document subject to OSHA's jurisdiction.[424] Penalties include a fine of up to $250 000 for an individual and up to $500 000 for an organization (or two times any resulting financial gain or loss related to the falsification).[425] Employers under the jurisdiction of an occupational safety and health state plan can also be prosecuted under that state's general criminal laws – homicide or manslaughter – for work-related deaths or serious injuries.

In 2005, OSHA joined the Department of Justice (Environmental Crimes Unit) and the EPA in a criminal liability initiative based on the notion that firms that violate OSHA laws may also violate environmental laws. In 2007, the joint effort has had positive results in a case where a company and its management officials were convicted of violating the Clean Air and Clean Water Act and making false statements to OSHA and obstructing OSHA's investigation of a forklift accident.[426] In most of the cases brought by the Environmental Crimes Section at the U.S. Department of Justice, the Department has charged violations of the endangerment provisions of environmental protection statutes, or the general criminal provisions of Title 18 of the United States Code, instead of the criminal provisions of the OSH Act. Title 18 – the general criminal statute of the United States – makes it a crime to make false statements,[427] obstruct justice,[428] and commit conspiracy to defraud the United States by impeding effective implementation of government regulatory programs.[429] Under Title 18, the Department of Justice was able to charge crimes that were charged as felonies – not misdemeanors – and were punishable by up to 15 years in jail for knowing

endangerment and 20 years in jail for some forms of obstruction of justice.

5.8 Specific Enforcement Policies

5.8.1 Cases Subject to Violation-by-Violation Penalties

In 1986, OSHA adopted what is commonly referred to as its "egregious penalty policy." Cases subject to OSHA's violation-by-violation penalty policy are those cases where the employer's actions were so far outside of acceptable standards that the willful violation was "egregious." Besides a violation that meets the willful serious characterization, one of six factors must also be present to meet the "egregiousness" standard. The violation must have led to fatalities, a worksite catastrophe, or a large number of injuries or illnesses. The violation must have led to persistently high rates of injuries or illnesses. The employer had an extensive history of violations. The employer has intentionally disregarded its safety and health responsibilities. The employer's conduct, taken as a whole, amounts to clear bad faith in the performance of his or her OSH Act duties. Finally, the number of violations employer committed undermined the effectiveness of any safety and health program the employer might have implemented.[430] Since a penalty is calculated for each instance of, or each employee subject to, the violation, the total amount of the penalty can be substantial.

After the Review Commission's decision in *Ho,*[431] which rejected OSHA's use of the egregious penalty policy and disapproved the assessment of separate, per-employee penalties, OSHA promulgated a final rule amending a number of its standards "to add language clarifying that the PPE and training requirements impose a compliance duty to each and every employee covered by the standards and that noncompliance may expose the employer to liability on a per-employee basis."[432] In *National Ass'n of Home Builders v. OSHA*,[433] the D.C. Circuit affirmed OSHA's violation-by-violation penalty policy. The Review Commission has also affirmed OSHA's authority to cite an employer on a per-employee basis by overruling *Ho* in its case entitled *E. Smalis Painting Co*., which involved an employer's failure to provide each exposed employee with medical surveillance under OSHA's lead standard.[434]

5.8.2 Multi-Employer Citation Policy

OSHA's longstanding multi-employer citation policy permits the agency to cite more than one employer for a violative condition. Although the multi-employer citation policy originated in the construction industry, the OSHRC has ruled that with respect to the citation policy there is no distinction between construction and nonconstruction workplaces.[435]

In the construction industry, there are often many different employers on the same worksite. Four different types of employers can be characterized based on their relationship to a condition that violates an OSHA standard. When a violation is observed and a particular employer's employees are exposed to the hazard (regardless of whether that employer created the violative condition), OSHA may issue a citation to that employer – the "*exposing*" employer. The employer who created the condition is "*creating*" employer. A creating employer may be cited by OSHA even though the creating employer had no employees exposed to the hazard. Even if an employer has no employees exposed to the violative condition, nor did the employer create the hazard, he or she may still be cited by OSHA if that employer was in a position to control or correct the hazard – *controlling* or *correcting* employers. A controlling or correcting employer is often the general contractor.

OSHA's multiemployer citation policy had its origin in 1976 when the Revision Commission stated (in a footnote) "the general contractor is well situated to obtain abatement of hazards either through its own resources or through its supervisory capacity."[436] In a 1999 OSHA Instruction, OSHA stated that citations should be issued not only to exposing employers, but also to creating, controlling, and correcting employers "whether or not their own employees are exposed."[437]

Most circuit courts have held that general contractors – as controlling or correcting employers – may be cited by OSHA under Section 5(a)(2) even if their own employees were not their own.[438] However, the Fifth Circuit has held that "OSHA regulations protect only an employer's own employees."[439] In 2017, OSHA appealed a case originating in Texas (within the jurisdiction of the Fifth Circuit) of a willful citation to a general contractor based solely on exposure to a subcontractor's employees.[440] The outcome is uncertain at this writing.

6 CONTESTATION PROCEEDINGS

6.1 Contesting Citations and Penalties

Section 10(a) of OSH Act,[441] and the regulations of the Review Commission pertaining to that section,[442] provide procedures for an employer to "contest" or challenge an OSHA citation and its proposed civil penalties. After the employer has been notified of the penalty proposed by the Secretary, the employer has 15 working days to notify the Secretary that it wishes to contest the citation or the proposed assessment of civil penalty. A failure to notify the Secretary within 15 days of intent to contest the citation or proposed penalty will render the citation or penalty "a final order of the Review Commission and not subject to review by any court or agency."[443]

OSHA regulations[444] instruct employers "very notice of intention to contest shall specify whether it is directed to the citation or to the proposed penalty, or both." Similarly, the courts have construed the OSH Act's enforcement scheme as mandating a distinction between contesting a citation and contesting a proposed penalty.[445] The Fifth Circuit held[446] that an employer's letter that contested the proposed penalty but failed to contest the citation (in fact, the letter affirmatively admitted the violation), constituted waiver of the employer's right to challenge the citation on appeal. However, the Review Commission has stated that it will construe notices of contest that are limited to the penalty to include a contest of the citation as well, if the cited employer indicates later that it was his or her intent to contest the citation.[447] If an employer files a timely notice of contest (or if within 15 working days of the issuance of a citation, a representative of the employees files a notice challenging the period of abatement specified in the citation), the Secretary must immediately advise the Review Commission of the intent to contest. The Review Commission then must afford an opportunity for an administrative hearing.[448]

The Commission's Rules of Procedures govern all of its proceedings.[449] Where the Commission has not promulgated a rule, the Federal Rules of Civil Procedure apply.[450] In addition to the extensive, formal rules of practice, the rules of the Review Commission permit any party to request simplified proceedings before an administrative law judge in cases that do not involve alleged general duty clause violations or alleged violations of certain enumerated standards.[451] Procedures are simplified in several ways – pleadings are limited, discovery is generally not permitted, the Federal Rules of Evidence do not apply, and interlocutory appeals are not permitted. The Review Commission makes available an online publication designed for nonlawyers called the *Guide to Commission Procedures*.[452]

A Review Commission hearing is conducted pursuant to the U.S. Administrative Procedure Act and is presided over by a single administrative law judge employed by the Review Commission. After taking testimony, the judge writes an opinion that is subject to review by the full three-member Commission at its discretion. An aggrieved party may petition for discretionary review before the full Review Commission and any Commission member may direct review of a case on his or her own motion.[453] If no Commissioner member directs review, or if a timely petition for review is not filed, the administrative law judge's decision becomes a final order of the Review Commission.[454]

Section 17(j) further empowers the Review Commission to assess appropriate civil penalties, giving due consideration 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.[455] The Review Commission has taken the position that it may exercise its power to increase the Secretary's proposed penalty after considering the factors outlined above, and courts of appeals have expressed the view that the Commission may act in this manner.[456] However, the Commission has only very rarely acted on that authority. The Review Commission has also held that it does not have to give "substantial weight" to the Secretary's proposed penalties.[457] Courts have also sanctioned the Review Commission's right to increase the degree of a violation from other-than-serious to serious.[458] The Review Commission has taken the view that it can reduce the degree of a violation as well.[459]

6.2 Employer's Affirmative Defenses

A number of defenses are available to the employer when contesting an OSHA citation and/or propose penalties. Some defenses are "affirmative" defenses. An employer wishing to use an affirmative defense must assert the defense in the employer's appeal of the citation to the Review Commission.[460] Once raised, the employer has the burden of proving the defense.[461]

Affirmative defenses are varied. First, an employer can assert that the standard cited is too vague to be legally valid. Second, an employer can assert that the standard cited was not properly promulgated by OSHA. Third, the employer can assert that OSHA should have cited a more specific standard than the one they did. Fourth, the employer can assert that another federal agency regulates the same condition. Fifth, the employer can charge that all means of compliance with the standard are infeasible. Sixth, compliance with the standard will create a greater hazard than the one cited by OSHA. Seventh, the employer can asset that the inspection was unreasonable or that the citation represented vindictive prosecution by OSHA. Eighth, the employer can asset that the citation lacked particularity as required by Section 9(a). Ninth, an employer can assert that there was an unreasonable delay in issuing the citation. Tenth, the employer can assert that the violation was unpreventable because of employee misconduct. In asserting any of these affirmative defenses, the employer must show that the employer's ability to defend against the citation was adversely affected.

6.3 Courts of Appeals Review

The final stage of an OSHA enforcement proceeding is review in a court of appeals (and thereafter, discretionary review by the Supreme Court). Any person adversely affected or aggrieved by the Review Commission's disposition of its case may obtain review in an appropriate court of appeals pursuant to Section 11(a) of the OSH Act.[462] Section 11(b) provides that the Secretary may also obtain review or enforcement of any final order of the Review

Commission by filing a petition for such relief in the appropriate court of appeals. The reviewing court is bound by Section 11(a) to apply the "substantial evidence test" to the Commission's findings of fact. The same section empowers the court to direct the Review Commission to consider additional evidence if the evidence is material and reasonable grounds existed for a party's failure to admit it in the hearing before the Commission. Regarding the penalty imposed by the Review Commission, the reviewing court may inquire only whether the Review Commission abused its discretion because the assessment of a penalty is not a finding of fact but rather the exercise of a discretionary grant of power.[463] The Seventh Circuit has held that interest on penalties assessed against an employer by the Commission accrues from the date the Commission's order is entered, even when an employer appeals to a federal court.[464]

7 RIGHTS OF EMPLOYEES AND THEIR REPRESENTATIVES UNDER THE OSH ACT

7.1 Information Rights

7.1.1 Poster

Section 8(c)(1) of the OSH Act states that the "Secretary shall also issue regulations requiring employers to keep their employees informed of their protections and obligations under this Act, including provisions of applicable standards."[465] OSHA meets these requirements by requiring employers to post in a conspicuous place a poster furnished by OSHA containing basic information on the OSH Act and employee rights under the Act.[466] Employers are subject to a citation and penalty for failure to post the required poster.[467]

7.1.2 Injury and Illness Log

Section 8(c)(2) requires the Secretary to prescribe regulations requiring employers to maintain accurate records of work-related fatalities, injuries, and illnesses. Under this provision of the Act, OSHA requires most employers to maintain a log of work-related injuries and illnesses,[468] and to post an annual summary of the log in a conspicuous place in each workplace and to certify that the summary is accurate.[469]

7.2 Right to Refuse Hazardous Work under Section 11(c) of the OSH Act

An employee has no explicit right under the OSH Act to refuse a work assignment because of what the employee feels is a dangerous working condition. However, Section 11(c)(1) of the Act prohibits discrimination against an employee because of their exercise of rights provided by the Act.[470] In 1973, the Secretary issued an administrative regulation that interprets the Act as implying such a right under four limited circumstances.[471] First, the employee's refusal must be made in good faith. Second, the condition the employee believes is a hazard is one that a reasonable person would conclude is one that poses a real danger of death or serious physical injury. Third, there is insufficient time to eliminate the hazard by use of the OSH Act's normal enforcement means. Fourth, the employee must have asked the employer to correct the hazard, but the employee was unable to obtain such a correction from the employer. In *Usery v. Whirlpool Corp,* the Supreme Court was faced with the question whether an employee is protected from retaliation by his employer if he walks off the job in an imminent danger situation.[472] In *Whirlpool Corp*., the Supreme Court upheld § 1977.12(b)(2) as a valid exercise of the Secretary's authority under the OSH Act. Thus, employees are afforded a limited right to refuse to work in imminent danger situations.

7.3 Right to Request and Participate in a Compliance Inspection

Section 8(f)(1) gives employees and their representatives the right to file a complaint and request an inspection.[473] OSHA must conduct an inspection when a valid complaint is filed with an OSHA Area Office. To be valid, the complainant must identify themselves to OSHA. Section 8(e) of the Act grants the right to employees and their representatives to participate in the inspection and its opening and closing conferences.[474] The Act also provides that "a representative of the employer, and a representative authorized by his employees, shall be given an opportunity to accompany the Secretary or his authorized representative during the physical inspection of any workplace … "[475] The term "representative" means: (i) an authorized bargaining unit representative; (ii) employee's attorney; or (iii) any other person acting in a bona fide representative capacity.[476] Even though a walkaround right is specified in the OSH Act, there is no requirement that the employer must compensate the employee for his or her time.

7.4 Rights to Participate in Litigation before the Review Commission

Two rights are granted in Section 10(c) of the OSH Act. First, Section 10(c) grants employees the right to file a notice of contest "alleging that the period of time fixed in the citation for the abatement of the violation is unreasonable" and in response," the Commission shall afford an opportunity for a

hearing … ”[477] Second, Section 10(c) also provides a right to employees to participate as parties to hearings.[478] A lengthy history of litigation has occurred over the rights granted by Section 10(c).

7.5 Right to be Notified of Possible Imminent Danger and Right to Seek Relief for Imminent Dangers

Section 13(c) and (d) of the OSH Act grans employees the right to be notified of possible imminent danger situations, and the right to file an action to compel the Secretary to seek relief in such situations if the Secretary has “arbitrarily and capriciously” failed to do so.[479]

7.6 Right to File a Complaint against State Program Administration

Individuals, including employees, who have a complaint against the manner in which an OSHA-approved occupational safety and health state plan is being administered by the state have the right to lodge a complaint with the Secretary’s representative in the federal region in which the state is located.[480]

7.7 Right to Access Exposure Records

Section 8(c)(3) of the OSH Act give employees the right to observe any exposure monitoring to potentially toxic materials or harmful physical agents which are required under a Section 6(b)(5) standard and a right of access to those exposure records.[481]

7.8 Antidiscrimination Rights

Section 11(c) of the OSH Act makes it unlawful for any person to discharge or in any manner discriminate against an employee because the employee has exercised his or her rights under the OSH Act.[482] This provision is designed to encourage employee participation in the enforcement of OSHA standards.[483] Employees who believe they have been discriminated against in violation of Section 11(c) must file a complaint with the Secretary within 30 days after such violation has occurred.[484] The prohibitions in Section 11(c) are not confined to employers only as it states that “[N]o person shall … discriminate against any employee … ”.[485] In Solis v. Brighton Medical Clinic, a federal district court held that a clinic physician could be held personally liable for retaliatory discharge of an employee under Section 11(c).[486]

The Secretary is required to investigate the complaint. If the Secretary determines that Section 11(c) has been violated, the Secretary is authorized to bring an action in federal district court for an order restraining the violation and for recovery of all appropriate relief, including rehiring or reinstatement of the employee to his or her former position with back pay. Section 11(c)(1) authorizes only the Secretary to bring an action for violation of Section 11(c), not the employee.[487]

8 VOLUNTARY COMPLIANCE PROGRAMS

8.1 On-Site Consultation Program

Since the mid-1970s, OSHA has administered a program where employers could obtain assistance free of charge from trained occupational safety and health personnel funded by cooperative agreements with state agencies or universities. In 1998, Congress and President Clinton provided express statutory authority for OSHA’s on-site consultation program by passing the Occupational Safety and Health Administration Compliance Assistance Authorization Act.[488] The Act added new Section 21(d) to the OSH Act. In 2000, OSHA revised its 1970s regulations pertaining to OSHA’s agreements with states.[489] A consultation visit parallels what happens during an enforcement inspection, except no penalties are assessed for violations that are identified.[490] However, if an employer refuses to correct an imminent danger or a serious hazard, the consultant is required to inform the appropriate federal or state enforcement authority.[491] The on-site consultation program is maintained by states separate from their enforcement activities to ensure the confidentiality of information obtained from the employer.

8.1.1 Safety and Health Achievement Recognition Program (SHARP)

OSHA regulations require every state that receives consultation program funding to establish a consultation program aimed at small, high-hazard, employers. Employers who undergo a full on-site consultation visit, and meet other requirements such as maintaining an injury and illness prevention program that at a minimum addressed OSHA’s Safety and Health Management Program Guidelines,[492] may be recognized under SHARP for their exemplary safety and health management systems. Worksites that receive SHARP recognition are exempt from programmed inspections during the period that the SHARP certification is valid.

8.2 OSHA's Cooperative Programs

8.2.1 Alliance Program

Through the Alliance Program, OSHA works with groups committed to worker safety and health to prevent workplace fatalities, injuries, and illnesses. OSHA and the groups work together to develop compliance assistance tools and resources, share information with workers and employers, and educate workers and employers about their rights and responsibilities.[493] In the Alliance Program, OSHA works with varied partners including unions, consulates, trade or professional organizations, faith- and community-based organizations, businesses, and educational institutions, to leverage resources and expertise to help ensure safe and healthy workplaces and worker rights under the Occupational Safety and Health Act.

8.2.2 OSHA Strategic Partnership Program

Occupational Safety and Health Administration Strategic Partnerships (OSPP) are "unique agreements designed to encourage, assist, and recognize partner efforts to eliminate serious hazards and enhance workplace safety and health practices."[494] OSPPs are operated out of local OSHA Area or Regional Offices. They focus on ways to improve safety and health in major corporations, government agencies, at large construction projects and private sector industries where OSHA has jurisdiction.

8.2.3 Voluntary Protection Program

OSHA's Voluntary Protection Programs (VPPs)[495] are partnerships between management, labor, and OSHA at workplaces that have implemented and maintain an exemplary comprehensive safety and health management programs. VPP membership is OSHA's official recognition of the outstanding efforts of employers and employees who have achieved exemplary occupational safety and health.[496] VPP procedures involve submission of a detailed application, including detailed site injury and illness rates, a written safety and health management program, commitment from management and worker representatives, and a rigorous on-site review by OSHA personnel and special government employees (SGEs).[497] VPP members represent nearly all industrial classifications[498] and have their own association – the Voluntary Protection Programs Participants' Association (VPPPA).[499]

8.2.4 OSHA Challenge Program

The OSHA Challenge Program assists employers to improve their safety and health management programs through mentoring, training and progress tracking. Challenge participants do not receive exemptions from OSHA programmed inspections.[500]

9 REGULATION OF OCCUPATIONAL SAFETY AND HEALTH BY THE STATES

One of the primary factors that induced Congress to enact a comprehensive OSH Act was the failure of many of the states to regulate workplace safety and health adequately.[501] In passing the OSH Act, Congress hoped to ensure at least a minimum level of protection for workers throughout the country.

The OSH Act preempts a state's occupational safety or health standard with respect to a standard promulgated by OSHA.[502] However, OSHA does not totally ban the states from developing and enforcing occupational safety and health standards on their own. Pursuant to Section 18(b) of the Act, a state may regain jurisdiction over development and enforcement of occupational safety and health standards by submitting to the federal government an effective State Occupational Safety and Health Plan ("state plan"). Final approval of a state plan can lead ultimately to exclusive authority by a state over the matters included in its plan. The process of regaining jurisdiction over the regulation of occupational safety and health begins with the submission of a plan that sets forth specific procedures for ensuring workers' safety and health. States can submit one of the two types of plans – a complete plan or a developmental plan.

A "complete" plan"[503] is a plan that, upon submission, satisfies the criteria for plan approval set forth in Section 18(c) of the Act, as well as certain additional criteria outlined by the Secretary in administrative regulations.[504] Section 18(c) specifies the requirements a state must fulfill to receive approval of its own occupational safety and health plan.[505] Complete plans are given "initial" approval by the Secretary upon submission. For at least 3 years following the "initial" approval, the Secretary will monitor the state plan to determine whether the criteria set forth in Section 18(c) are being applied. If this determination – as so-called Section 18(e) determination – is favorable, the state plan will be granted "final approval" and the state will regain exclusive jurisdiction with respect to any occupational safety or health issue covered by the state plan. Federal standards continue to apply to hazards not covered by the state program.

A "developmental" plan[506] is a plan that, upon submission, does not fully meet the criteria set forth in the statute or in OSHA's regulations. A developmental plan may receive initial approval upon submission, however, if the plan contains "satisfactory assurances" that the state will take the necessary steps to bring its program into conformity within three years following commencement of the plan's

operation. If the developmental plan satisfies all the statutory and administrative criteria within the three-year "developmental period," the Secretary will certify and will initiate an evaluation of the actual operations of the state plan for purposes of making a Section 18(e) determination. The evaluation must proceed for at least one year before such a determination can be made. Developmental plans that have received final approval will continue to be monitored and evaluated by the Secretary pursuant to Section 18(f) of the Act, which authorizes the Secretary to withdraw approval if a state fails to comply substantially with any provision of the state's plan.

Although a state does not regain exclusive jurisdiction over matters contained in its plan until the plan receives final approval, a state with initial plan approval may participate in the administration and enforcement of the Act prior to final approval by satisfying four criteria.[507] First, the state must have enacted enabling legislation conforming to that specified in OSHA and the regulations. Second, the state plan must contain standards that are found to be "at least as effective as" the comparable federal standards, Third, the state plan must provide for a sufficient number of qualified personnel who will enforce the standards in accordance with the state's enabling legislation. Fourth, the plan's provisions for review of state citations and penalties (including the appointment of the reviewing authority and the promulgation of implementing regulations) must be in effect. If the criteria above are met, the state plan is considered "operational." The federal government then enters into an operational agreement with the state whereby the state is authorized to enforce safety and health standards under the state plan.[508]

Most states that are presently operating approved and/or certified plans have adopted standards that are substantially similar, if not identical, to the federal standards. At least five state plans, however, have standards that contain certain provisions that vary from the federal standards, yet have been approved as being "at least as effective" as the federal standards. The states are California, Hawaii, Michigan, Oregon, and Washington. In some instances, these states have adopted standards that are more stringent than the analogous federal standards.

Early on, OSHA developed numerical staffing requirements for states, so-called staffing "benchmarks." These benchmarks were challenged by the AFL-CIO who argued that the benchmarks were too low. In *AFL-CIO v. Marshall*,[509] the court agreed with the AFL-CIO. The court that, in referring to personnel and funding levels in terms of adequacy and sufficiency, Congress intended that states would have the resources "necessary to do the job" and that "such interim federal benchmarks must be a part of an articulated, coherent program calculated to achieve a fully effective program at some point in the foreseeable future."[510] On remand, the district court ordered OSHA in 1978 to develop a five-year schedule for each state to meet the "fully effective" enforcement staffing levels and made meeting the OSHA "benchmark" staffing schedule a prerequisite for final state plan approval.[511] Since Congress failed to appropriate additional resources to meet the benchmark staffing levels, the benchmarks have since lost much of their impact.

10 REGULATION OF OCCUPATIONAL SAFETY AND HEALTH BY OTHER FEDERAL STATUTES

10.1 Partial Exemption from Coverage by the OSH Act

Section 4(b)(1) of OSH Act states that "[N]othing in this chapter shall apply to working conditions of employees with respect to which other federal agencies, and State agencies acting under Section 201 of Title 42,[512] exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health."[513] Although Section 4(b)(1) seems to be self-defining, it has generated a significant amount of litigation. Three major interpretive questions have been raised. First, what constitutes a sufficient *exercise of regulatory authority* to preempt OSHA regulation? Second, does the exercise of authority by another federal agency in substantial areas of employee safety and health *exempt the entire industry* from OSHA standards? Third, must the other *federal agency's motivation* in acting have been to protect workers?

Exercise of Authority. The mere existence of statutory authority to regulate safety or health is not sufficient to oust OSHA's regulatory scheme; some exercise of that authority is necessary.[514] Speculative pronouncements of proposed regulations by a federal agency are not sufficient to warrant preemption of OSHA standards; Section 4(b)(1) requires a concrete exercise of statutory authority.[515]

Industrywide Exemption. Courts have also rejected the notion that the exercise of statutory authority by another federal agency creates an industry-wide exemption from OSHA regulations. Rather, the courts have agreed that the term "working conditions" in Section 4(b)(1) refers to something more limited than every aspect of an entire industry.

Working Conditions. Ambiguity remains, however, with respect to the scope of the displacing effect of another agency's regulation of a "working conditions." OSHA understands the term "working conditions" to mean particular hazards, to which an employee may be exposed.[516] First, Second and Eleventh Circuits follow the OSHA "hazard" approach. The Fourth Circuit defined "working conditions" as "the environmental area in which an employee customarily goes about his daily tasks." In *Southern Railway Company,* the Fourth circuit explained that OSHA would

be displaced when another federal agency had exercised its statutory authority to prescribe standards affecting occupational safety or health for such an area.[517] In *Southern Pacific Transportation Company*, the Fifth Circuit explained that the term "working conditions" has a technical meaning in the language of industrial relations; it encompasses both a worker's surroundings and the hazards incident to the work. The court stated that the displacing effect of Section 4(b)(1) would depend primarily on the agency's articulation of its regulations.[518]

Adequacy of the Other Agency's Enforcement. How stringent the other agency's enforcement of their regulations is not a consideration under Section 4(b)(1).[519] Preemption may still apply when the other agency's regulations are not as strong as OSHA's regulations.[520] Once the other agency's rule has been shown to have the effect of law, no further inquiry into how well the agency enforces that rule will be made.[521]

10.2 Selected Other Federal Agencies Affecting Occupational Safety and Health

10.2.1 Mine Safety and Health Administration

Occupational safety and health matters with respect to the nation's mining industry are regulated pursuant to the Federal Mine Safety and Health Act of 1977 (Mine Act).[522] The DOL established the Mine Safety and Health Administration (MSHA) to enforce the Mine Act. There are a number of important differences between the Mine Act and the OSH Act.

First, unlike the OSH Act which does not mandate inspection frequency, the Mine Act requires that MSHA inspect all underground mines at least four time per year and all surface mines at least twice a year. Further, MSHA does not require a warrant to conduct nonconsensual mine inspections. The purposes of these visits include determining whether an imminent danger exists and whether there is compliance with MSHA's health and safety standards. Second, the Mine Act permits MSHA to shut down coal or other mine operations without a restraining order from a court. Section 107(a) of the Mine Act provides that when a federal inspector finds that an imminent danger is present in a mine, the inspector shall order the withdrawal of all other persons from a part, or all of that, mine until the imminent danger no longer exists.[523]

Third, mine operators are required to abate a violation immediately even if the mine operator challenges the citation before the Mine Commission. Fourth, recordkeeping and reporting requirements under the Mine Act are set forth in subsections 103(c)–103(e) and 103(h). The Mine Act contains a broad antiretaliation provision and grants other rights to mine employees as well. For example, Section 111 of the Mine Act provides pay for miners who accompany an MSHA inspector on an inspection. Section 107 also provides pay when a MSHA issues a "withdrawal order," requiring the closure of a mine and removal of miners from the mine. Fifth, the Mine Act, unlike the OSH Act, does not permit state plans. A state may, however, enforce its own mine safety and health laws if they consistent with or more stringent the Mine Act of MSHA regulations and standards.[524]

Following a January 2006 explosion at the Sago Mine in Sago, West Virginia, in which 12 trapped miners lost their lives, the Mine Act was amended by the Mine Improvement and New Emergency Response (MINER) Act of 2006.[525] The MINER Act amended Section 316 of the Mine Act to require mine operators to "carry out on a continuing basis a program to improve accident preparedness and response at each mine" and to "develop and adopt have a written accident response plan." The MINER Act also amended Section 103(j) to require a mine operator to notify MSHA "within 15 min" of the death or entrapment of any miner. The MINER Act also increases the penalty for willfully violating a mandatory health or safety standard, or knowingly refusing to comply with any order issued under Sections 104 and 107, to $250 000 or imprisonment for not more than 1 year or by both. The MINER Act also provided MSHA with the authority to request an injunction to close a mine when the mine operator refuses to pay a final civil penalty.

10.2.2 U.S. Chemical Safety and Hazard Investigation Board

In 1990, Congress created the Chemical Safety and Hazard Investigation Board (CSB) to investigate the causes of any accidental chemical release resulting in a death or substantial property damage.[526] Despite overlap between the investigation authority of OSHA and the CSB, the CSB's reports focus on the root causes and often recommend changes in existing standards, or a new standard, to OSHA, EPA, NIOSH, and other federal agencies. Findings contained in the CSB's Reports may be admitted as evidence in a civil action arising from the investigated accident.[527] The CSB maintains a file of its current and completed investigation reports on its Web site.[528]

10.2.3 Nuclear Regulatory Commission

OSHA has published occupational health and safety standards regulating exposure to ionizing radiation (i.e. alpha, beta, gamma, X-ray, and neutron) and nonionizing (i.e. radiofrequency and electromagnetic) radiation for the General Industry, Shipyard Employment, and Construction.[529] However, the primary federal law regulating human exposure to radiation is not the OSH Act, but is the Atomic Energy Act of 1954.[530] Under the Act, the Nuclear Regulatory Commission (NRC) can promulgate

regulations about the safety of employees exposed to, or working with, nuclear materials."[531]

Any person holding a license issued under the Atomic Energy Act of 1954 and using "licensed material" (i.e. radioactive or radiation-emitting material) may not permit the exposure of individuals within a "restricted area" (i.e. an area in which radioactive materials are being used) to greater doses of radiation than are set forth in the regulations.[532] Although the primary thrust of the NRC regulations is to control ionizing radiation within the "restricted area," the NRC has also published regulations on permissible levels of radiation in unrestricted areas, in effluents discharged into unrestricted areas, and for the disposal of radioactive materials by release into sanitary sewerage systems.[533] The EPA Administrator, exercising authority under the Atomic Energy Act of 1954, has also promulgated regulations limiting exposure of the general population to ionizing radiation produced during the operation of nuclear power plants licensed by the NRC.[534]

There are additional federal agencies empowered to set standards for ionizing radiation control within areas under their jurisdiction. The DOL, for example, has promulgated regulations regarding radiation exposure in underground mines.[535] The DOL has also issued radiation standards for uranium mining conducted under the Walsh–Healey Public Contracts Act.[536] Radiation generated by devices and products that are not governed by the Atomic Energy Act and licensed by the NRC is regulated by the federal Radiation Control for Health and Safety Act of 1968.[537] OSHA and the NRC established a Memorandum of Understanding in 1989 to govern mutual activities.[538]

10.2.4 Consumer Product Safety Commission

The Consumer Product Safety Act of 1972 created a Consumer Product Safety Commission (CPSC) and empowered it to promulgate "consumer product safety standards" applicable to consumer products found to present an unreasonable risk of injury. Under authority granted to it by the Federal Hazardous Substances Act,[539] the CPSC may find that a substance distributed in interstate commerce is "hazardous." The CPSC may impose packaging and labeling requirements to protect public health and safety or – in the cases of hazardous substances intended for the use of children or likely to be subject to access by children, or substances intended for household use – prohibit distribution altogether ("banned hazardous substance").[540] Insofar as safety in the workplace, the effect of the Federal Hazardous Substances Act is that hazardous substances distributed in interstate commerce and utilized by the U.S. worker will arrive safely packaged and accompanied by appropriate warnings. The CPSC does not have authority to regulate consumer product risk if such risk could be addressed by OSHA.[541]

10.2.5 Environmental Protection Agency

Under Section 4(b)(1) of the OSH Act, when the EPA issues regulations that cover the same working conditions and employee safety as OSHA standards and regulations cover, the EPA regulations may preempt OSHA regulations, but only as applied to EPA regulations under the *Federal Insecticide, Fungicide, and Rodenticide Act* (FIFRA). Under other EPA statutes concerning waste disposal, toxic substances, air, and water, the relevant statute specifically provides that actions taken by EPA have no preemptive effect under the OSH Act.[542]

Under the *FIFRA* (also known as the Environmental Pesticide Act),[543] EPA has the authority to regulate the use of pesticides and makes misuse of pesticides civilly and criminally punishable. The D.C. Circuit has held that the FIFRA authorizes EPA to promulgate and enforce occupational health and safety standards with respect to farm workers' exposure to pesticides,[544] and EPA has exercised that authority.[545] In EPA's regulations concerning pesticide use, there are standards pertaining to pesticide exposure in the workplace.[546] OSHA is thus preempted from regulating in that area.

The *Clean Air Act* authorizes EPA to promulgate emission control standards and to inspect workplaces to see that its standards are being met.[547] EPA has promulgated regulations designed to protect workers, among others, from accidental chemical releases. Under a final rule published by EPA in 1996, nearly 70 000 facilities that manufacture or handle certain hazardous chemicals were required to develop risk management plans by June 1999 to reduce the likelihood and severity of accidental chemical releases.[548] However, Section 7412(r)(7)(D) requires EPA to consult with the Secretary before promulgating regulations pertaining to prevention of accidental releases.

The *Emergency Planning and Community-Right-to-Know Act,*[549] also known as Title III of the SARA of 1986, requires the Secretary of Labor to issue regulations to protect workers at hazardous waste sites and during emergency response operations. In 1990, OSHA issued a hazardous waste operations and emergency response (HAZWOPER) standard.[550] In 1994, OSHA published a nonmandatory appendix to the HAZWOPER standard for the certification and accreditation of training programs for workers handling hazardous materials.[551] The requirements of the Emergency Planning and Community-Right-to-Know Act do not preempt OSHA standards.[552]

The *Toxic Substances Control Act of 1976 (TSCA)* established a broad, nationwide program for the federal regulation of the manufacture and distribution of toxic substances.[553] TSCA authorizes EPA to regulate the manufacture, processing, distribution, use, and disposal of chemical substances and mixtures of chemical substances. If EPA determines that a substance poses an unreasonable

risk to health or the environment, EPA may prohibit the manufacture or sale of the chemical or may adopt rules regulating its use. Actions taken by EPA under TSCA do not preempt actions OSHA takes under the OSH Act.[554]

In 2016, the TSCA of 1976 was amended by the *Frank Lautenberg Chemical Safety for the 21st Century Act*.[555] The new law received bipartisan support in both the U.S. House of Representatives and the Senate. Amended TSCA includes: (i) a mandatory requirement for EPA to evaluate existing chemicals with clear and enforceable deadlines; (ii) new risk-based safety standard; (iii) increased public transparency for chemical information; and (iv) consistent source of funding for EPA to carry out the responsibilities under the new law. In addition, the word "workers" is now included in the definition of "potentially exposed or susceptible subpopulation."[556]

10.2.6 Department of Transportation

The Department of Transportation (DOT) protects employees under a number of federal laws pertaining to aviation,[557] railways,[558] motor carriers,[559] and pipelines.[560] The DOT has issued regulations concerning employee safety in each of these areas.

Aviation. The Federal Aviation Act of 1958 (as amended) authorizes the Federal Aviation Administration (FAA) to promote safety of flight of civil aircraft in air commerce,[561] as well as to establish minimum safety standards for the operation of airports that serve any scheduled or unscheduled passenger operation of air carrier aircraft designed for more than 30 passenger seats.[562] It is generally accepted that FAA jurisdiction extends only to flight-crew members (pilots and flight attendants), not to ground personnel.

Railways. The Federal Railroad Safety Act of 1970 authorizes the Federal Railroad Administration (FRA), an agency within the DOT, to promulgate regulations for all areas of railroad safety, including employee safety. To date, however, the DOT has not adopted railroad occupational safety standards for all railroad working conditions or workplaces. OSHA retains jurisdiction over safety and health of railroad employees with respect to those "working conditions" for which the DOT has not adopted standards.

Motor Carriers. Motor carriers are regulated by the DOT through the Motor Carrier Act of 1984.[563] Even though the DOT has promulgated regulations for commercial motor vehicle worker protection with regard to step, handhold and deck requirements,[564] motor vehicle common carriers are still subject to OSHA standards in areas where the DOT has not specifically regulated.[565]

Pipelines. The Natural Gas Pipeline Safety Act of 1968 (NGPSA) authorizes the DOT Secretary to establish minimum federal safety standards for pipeline facilities and the transportation of gas in commerce. DOT's authority under NGPSA preempts OSHA rules. In *Texas Eastern Transmission Corp*.,[566] the Review Commission determined that the DOT's minimal federal safety standards regarding working conditions preempted OSHA standards regarding working conditions that were the subject of the alleged violations. However, a contractor engaged in repairing a pipeline would be subject to OSHA standards because NGPSA standards apply only to persons engaged in gas transport or operation of pipeline facilities.[567]

11 FUTURE OF OCCUPATIONAL SAFETY AND HEALTH LAW

After nearly 50 years, the OSH Act still enjoys broad support among stakeholders despite continuing concerns about the pace of standards development. The slower pace of OSHA's development of occupational safety and health standards, and the obsolescence of many existing OSHA PELs heighten the influence of international consensus standards. In the twenty-first century, international standards may play a bigger role in determining multinational employer actions than national governmental laws and regulations. What impact the realities of the twenty-first century's global economy will have on the OSH Act remains to be seen. What is certain is that many of legal and policy issues arising from the Occupational Safety and Health Act of 1970 will undoubtedly continue to occupy the attention of stakeholders, Congress, OSHA, the Review Commission, and the federal courts for many years yet to come.

ENDNOTES

1 41 U.S.C. § 35.
2 30 U.S.C. § 471.
3 33 U.S.C. § 901.
4 40 U.S.C. § 327.
5 41 U.S.C § 351.
6 30 U.S.C. § 801.
7 Occupational Safety and Health Act of 1970, 29 U.S.C. §§ 651–678 (2000).
8 29 U.S.C. § 651. The provisions of the OSH Act can be enumerated in two ways: (*1*) by reference to sections of Title 29 of the United States Code (U.S.C.), e.g., Sections 651, 652, and 653 and (*2*) by reference to internally numbered sections of the OSH Act, e.g., Sections 1, 2, and 3. In the text of this chapter, internally numbered sections will be cited (e.g., Section 4), but in the references, United States Code citations will be used (e.g., 29 U.S.C.§ 653).
9 29 U.S.C. § 661.
10 29 U.S.C. §§ 669 and 670.
11 29 U.S.C. § 671.

[12] For a discussion of the weight to be accorded by the Secretary to NIOSH recommendations, *see* Industrial Union Department, AFL-CIO v. Hodgson, 499 F.2d 467, 476–477, 1 OSH Cases 1631 (D.C. Cir. 1974). References to "F.2d" designate the volume (e.g., 499) and page (e.g., 467) of the *Federal Reporter*, Second Series, which contains the official reported decisions of the U.S. Courts of Appeals as published by the West Publishing Company. References to "OSH Cases" designate the same decision as reported in the "Occupational Safety and Health Cases" published by Bloomberg Government (formerly the Bureau of National Affairs or BNA).

[13] 29 U.S.C. § 656.

[14] 29 U.S.C. § 676(b).

[15] For a description of the activities of the National Commission on State Workmen's Compensation Laws and an evaluation of its work, *see* Ashford (1).

[16] The Review Commission has held that the Secretary may even cite individuals or companies who have gone out of business and fine them for violating OSHA regulations; such authority is intended to encourage future compliance with job safety rules. *See* Secretary of Labor v. Yandell, OSHRC, No. 94-3080, March 12, 1999; Secretary of Labor v. Kenny Niles Construction Co., OSHRC, No. 95-1539, March 12, 1999.

[17] 29 U.S.C. § 668.

[18] Executive Order 12196. *See* https://www.archives.gov/federal-register/codification/executive-order/12196.html.

[19] 29 U.S.C. §§ 652 and 653(a).

[20] 29 U.S.C § 652(5). In 1998, President Clinton signed legislation extending OSHA coverage to U.S. Postal Service facilities.

[21] American Law Institute. 2015. Restatement of the Law, Employment Law: Conditions for the existence of employment relationship, Section 1.01.

[22] An "established federal standard" is defined in 29 U.S.C. § 652(10) as "any operative occupational safety and health standard established by any agency of the United States and presently in effect, or contained in any act of Congress in force on the date of enactment of this Act." 29 U.S.C. 653(b)(2) of the OSH Act listed several federal statutes from which established federal standards were to be derived, including, but not limited to, the Walsh–Healey Act (41 U.S.C. §§ 35–45), the Service Contract Act of 1965 (41 U.S.C. §§ 351–357), and the National Foundation on Arts and Humanities Act (20 U.S.C. §§ 951–960).

[23] A "national consensus" standard is defined in 29 U.S.C. § 652(9) of the OSH Act as any occupational safety and health standard, which "(*1*) has been adopted and promulgated by a nationally recognized standards producing organization under procedures, whereby it can be determined by the Secretary that persons interested and affected by the scope or provisions of the standard have reached substantial agreement on its adoption, (*2*) was formulated in a manner which afforded an opportunity for diverse views to be considered, and (*3*) has been designated as such a standard by the Secretary, after consultation with other appropriate federal agencies." The principal sources for national consensus standards were the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA). American Federation of Labor v. Brennan, 530 F.2d 109, 111 at n. 2, 3 OSH Cases 1820, 1821 at n. 2 (Third Cir. 1975).

[24] Pub. L. No. 404, 60 Stat. 237, Chapter 324, §§ 1–12 (1946) (codified by Pub. L. No. 89-554 (1966) in 5 U.S.C. § 551–559, 701–706, 1305, 3105, 3105, 3344, 5372, 7521).

[25] The courts have held that OSHA does not have the right to change advisory national consensus standards ("should") to mandatory standards ("shall") upon adoption as OSHA standards without following formal rulemaking procedures. Absent such rulemaking, citations issued to employers pursuant to these standards have been vacated. Usery v. Kennecott Copper Corp., 577 F.2d 1113, 1117–1118, 6 OSH Cases 1197, 1199 (Tenth Cir. 1977); Marshall v. Pittsburgh-Des Moines Steel Co., 584 F.2d 638, 644, 6 OSH Cases 1929, 1933 (Third Cir. 1978). *See also* Marshall v. Anaconda Co., 596 F.2d 370, 376–377, 7 OSH Cases 1382, 1385–1386 (Ninth Cir. 1979).

[26] 29 U.S.C. § 655(c)(1).

[27] Florida Peach Growers Association v. Department of Labor, 489 F.2d 120, at 124, 1 OSH Cases 1472, at 1475 (Fifth Cir. 1974). See also Industrial Union Dept. AFL-CIO v. American Petroleum Institute, 448 U.S. 607, 651 n. 59, 8 OSH Cases 1586, 1602 (1980).

[28] 29 U.S.C.§ 655(b)(1) to (4).

[29] 29 U.S.C. § 655(b)(5).

[30] 5 U.S.C. § 553.

[31] 5 U.S.C. § 706(1).

[32] National Congress of Hispanic Am. Citizens (El Congreso) v. Usery, 554 F.2d 1196, 5 OSH Cases 1255 (D.C. Cir. 1977).

[33] Farmworker Justice Fund v. Brock, 811 F.2d 613, 13 OSH Cases 1049 (D.C. Cir. 1986, *vacated as moot*, 817 F.2d 890, 13 OSH Cases 1288 (D.C. Cir 1987) (using the authority under Section 706(1) of the Administrative Procedure Act).

[34] Oil, Chemical & Atomic Workers Union v. OSHA ("Oil Workers"), 145 F.3d 120, 122 (Third Cir. 1998).

[35] Public Citizen Health Research Group v. Chao, 314 F.3d 143 (Third Cir.2002).

[36] Industrial Union Dep't v. American Petroleum Inst., 448 U.S. 607, 8 OSH Cases 1586.

[37] AFL-CIO v. OSHA, 965 F.2d 962, 15 OSH Cases 1729 (11th Cir. 1992)
[38] *Id*. at 986, 15 OSH Cases 1729.
[39] 452 U.S. 490, 509 (1981), 9 OSH Cases 1913 (1981).
[40] 452 U.S. at 513, n. 31; 9 OSH Cases at 1922, n. 31. Section 3(8) [29 U.S.C. § 652(8)] states "The term 'occupational safety and health standard' means a standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, *reasonably necessary or appropriate* to provide safe or healthful employment and places of employment" (*emphasis added*). For standards dealing with toxic materials or harmful physical agents, Section 6(b)(5) [29 U.S.C. 655(b)(5)], imposes the following additional requirements: "The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents under this subsection, shall set the standard which most adequately assures, *to the extent feasible*, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity, even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life" (*emphasis added*).
[41] Industrial Union Department, AFL-CIO v. Hodgson, 499 F.2d at 478, 1 OSH Cases at 1639, cited approvingly by the Supreme Court in American Textile Mfrs. v. Donovan, 452 U.S. at 513, n. 31, 9 OSH Cases at 1922, n. 31.
[42] American Textile Mfrs. v. Donovan, 452 U.S. at 530, n. 55, 9 OSH Cases at 1928–1929, n. 55; United Steelworkers of America, AFL-CIO v. Marshall and Bingham, 647 F.2d at 1265, 8 OSH Cases at 1864.
[43] American Textile Mfrs. v. Donovan, 452 U.S. at 530, n. 55, 9 OSH Cases at 1928–1929, n. 55.
[44] *Id*. at 509.
[45] *Id*. at 513, n. 32.
[46] *Id*. at 509, n. 29.
[47] 58 Fed. Reg. 16,612 (1993).
[48] 938 F.2d 1310, 15 OSH Cases 1145 (D.C. Cir. 1991).
[49] United Steelworkers v. Marshall, 647 F.2d 1189, 1266, 8 OSH Cases 1810 (D.C. Cir. 1980), cert. denied, 453 U.S. 913 (1981).
[50] American Iron & Steel Inst., 577 F.2d at 838, 6 OSH Cases 1451.
[51] United Steelworkers v. Marshall, 647 F.2d at 1272, 8 OSH Cases 1810.
[52] 42 U.S.C. § 4332(2)(c).
[53] 29 C.F.R. § 11.10(a)(3).
[54] 29 C.F.R. § 11.10(a)(1).
[55] 5 U.S.C. § 603(a).
[56] Small Business Regulatory Enforcement and Fairness Act, Pub. L. No. 104-121, 110 Stat. 847 (codified at 5 U.S.C. § 611).
[57] 29 U.S.C. § 609(b) and (d).
[58] 29 U.S.C. § 611(a)(4).
[59] 29 U.S.C. § 611(b).
[60] Pub. L. No. 96-511, 94 Stat. 2812 (codified at 44 U.S.C. §§ 3501–3521).
[61] 44 U.S.C. ch. 35; 5 C.F.R. Part 1320.
[62] *Id*. §§ 3502(3)(A), 3506(c)(1). The 1995 amendments to the Paperwork Reduction Act overruled Dole v. United Steelworkers, 494 U.S. 26, 14 OSH Cases 1425 (1990) (holding that the OSH Act did not apply to OSHA's hazardous communication standard because information was disseminated to the public rather than collected by OSHA).
[63] *See* 74 Fed. Reg. 55,269-55,272 (October 27, 2009).
[64] 46 Fed. Reg. 13,193 (February 17, 1981).
[65] Executive Order 12866, *Regulatory Planning and Review*, 58 Fed. Reg. 51,735 (October 4, 1993).
[66] *Id*. at Section 6(a)(3)(C).
[67] 72 Fed. Reg. 2763 (January 23, 2007).
[68] OMB issued a memorandum (M-07-13) on the implementation of Executive Order 13422 on April 25, 2007. *See* http://www.whitehouse.gov/omb/inforeg/regpol.html.
[69] 76 Fed. Reg. 3821 (January 21, 2011).
[70] 82 Fed. Reg. 9339 (January 30, 2017).
[71] Treasury and General Government Appropriations Act for Fiscal Year 2001, Pub. L. No. 106-554, Section 515.
[72] *See* https://www.whitehouse.gov/omb/fedreg_final_information_quality_guidelines.
[73] Salt Institute v. Leavitt, 345 F. Supp. 2d 589, 598-601(E.D. VA 2004) (Fourth Cir. March 6, 2006).
[74] An employer's general duty to provide a safe workplace may not necessarily be discharged simply by the employer's compliance with specific OSHA standards. In UAW v. General Dynamics, 815 F.2d 1570, 1577, 13 OSH Cases 1201, 1206-07 (D.C. Cir.), *cert. denied*, 484 U.S. 976 (1987), the court stated [I]f … an employer knows a particular safety standard is inadequate to protect his workers against the specific hazard it is intended to address, or that the conditions in his place of employment are such that the safety standard will not adequately deal with the hazards to which his employees are exposed, he has a duty under section 5(a)(1) to take whatever measures may be required by the OSH Act, over and above those mandated by the safety standard, to safeguard his workers. In sum, if an employer knows that a specific standard will not protect his workers against a particular hazard, his duty under section 5(a)(1) will not be discharged no matter how faithfully he observes that standard."
[75] 489 F.2d 1257. 1285, 1 OSH Cases 1422 (D.C. Cir. 1973).
[76] Titanium Metals Corp. v. Usery, 579 F.2d 536, 541, 6 OSH Cases 1940, 1945 (Rev. Comm'n 1981).

[77] 501 F.2d 504, 2 OSH Cases 1041 (Eighth Cir. 1974).

[78] Brennan v. OSHRC (Vy Lactos Laboratories), 494 F.2d 460, 462, 1 OSH Cases 1623, 1624 (Eighth Cir. 1974).

[79] National Realty & Constr. Co., v. OSHRC, 1 OSH Cases 1049 (Rev. Comm'n 1972), *rev'd*, 489 F.2d 1257, 1265, 1 OSH Cases 1422, 1426 (D.C. Cir. 1973); Babcock & Wilcox Co. v. OSHRC, 622 F.2d 1160, 1165, 8 OSH Cases 1317, 1319 (Third Cir. 1980); Illinois Power Co. v. OSHRC, 632 F.2d 25, 28, 8 OSH Cases 1512, 1514–1515 (Seventh Cir. 1980); Titanium Metals Corp. of America v. Usery, 579 F.2d 536, 541, 6 OSH Cases 1873, 1876–1878 (Ninth Cir. 1978).

[80] *See* 29 U.S.C. § 666.

[81] OSHA, *Field Operations Manual*, ch. 4.II.c.3.

[82] 12 OSH Cases 1928 (Rev. Comm'n 1986).

[83] Industrial Union Dep't AFL-CIO v. American Petroleum Inst., 448 U.S. 607, 8 OSH Cases 1586 (1980).

[84] National Realty & Constr. Co., v. OSHRC, 1 OSH Cases 1049 (Rev. Comm'n 1972), *rev'd*, 489 F.2d 1257, 1 OSH Cases 1422 (D.C. Cir. 1973).

[85] 29 U.S.C. § 654.

[86] 58 Fed. Reg. 35,308 (June 30, 1993).

[87] Health and safety standards promulgated by the Secretary pursuant to OSH Act can be found at 29 C.F.R. Part 1910. Federal health and safety standards for the construction industry were initially promulgated under the Contract Work Hours and Safety Standards Act, 40 U.S.C. § 327 et seq. These standards were incorporated by reference under the OSH Act, are enforceable under both laws, and can be found at 29 C.F.R. Part 1926. Health and safety standards for ship repairing, shipbuilding, shipbreaking, and longshoring were initially promulgated pursuant to the Longshore and Harbor Worker's Compensation Act, 33 U.S.C. § 901. These standards were incorporated by reference under the OSH Act, are enforceable under both laws, and can be found in 29 C.F.R. Parts 1915 and 1918. Health and safety standards originally promulgated under the Walsh–Healey Public Contracts Act, the McNamara–O'Hara Service Contract Act of 1965, and the National Foundation on the Arts and Humanities Act of 1965 can be found in 41 C.F.R. Part 50-204, 29 C.F.R. Part 1516, and 20 C.F.R. Part 505. These were adopted and are enforceable by OSHA. Standards promulgated under the aforementioned statutes will be superseded if corresponding standards that are promulgated under the OSH Act are determined by the Secretary to be more effective. See 29 U.S.C § 653.

[88] For a listing of the initial package of national consensus and established federal standards, *see* 36 Fed. Reg. 10,466 (1971).

[89] In 1995, OSHA pledged to eliminate over 1000 of the over 3000 pages dedicated to the agency in the Code of Federal Regulations. Most of the standards to be done away with were included in 29 C.F.R. § 1910, which sets job safety and health provisions for general industry, and OSHA pledged also to revise and simplify the 1971 consensus standards. On March 7, 1996, OSHA published a final rule characterized as a "down payment" on OSHA's pledge and eliminated 275 of OSHA pages in the Code of Federal Regulations. *See* 61 Fed. Reg. 9228 (March 7, 1996).

[90] TLVs had been developed principally in 1968 by the American Conference of Governmental Industrial Hygienists (ACGIH) and were subsequently incorporated into the Walsh–Healey Public Contracts Act. Ashford, *supra* note 15 at p. 154. The Secretary did not include the ACGIH's carcinogen standards in his Section 6(a) package, but instead preferred to develop his own standards regarding carcinogens.

[91] 54 Fed. Reg. 2332 (January 19, 1989). *OSHA* defines hundreds of *air contaminants* in three tables (Tables Z-1, Z-2, and Z-3 of 29 C.F.R. 1910.1000; often called the "Z Lists").

[92] The PELs established by OSHA can be found at 29 C.F.R. § 1910.1000, Tables Z-1, Z-2, and Z-3. Pursuant to a January 1989 rulemaking, OSHA made 212 PELs more protective, established 162 new PELs for previously unregulated substances, and left other PELs unchanged. In doing so, OSHA stated that it relied heavily on the widely accepted 1987–1988 TLVs published by ACGIH and the recommended exposure limits (RELs) developed by the NIOSH. 54 Fed. Reg. 2332, 2333–35 (January 19, 1989).

[93] AFL-CIO v. OSHA, 965 F.2d 962, 15 OSH Cases 1729 (Eleventh Cir. 1992).

[94] OSHA formally revoked the 1989 PELs in June 1993 with publication of a notice at 58 Fed. Reg. 35,338 (June 30, 1993). In so doing, OSHA republished the less stringent limits that were in effect prior to 1989.

[95] 29 C.F.R. § 1910.1045.

[96] 36 Fed. Reg. 23,207 (1971).

[97] 37 Fed. Reg. 11,318 (1972).

[98] Industrial Union Department, AFL-CIO v. Hodgson, 449 F.2d 467, 477–478, 1 OSH Cases 1631 (D.C. Cir. 1974). The court upheld the standard with two exceptions: OSHA had to reconsider (*1*) the effective date of the two-fiber standard and (*2*) the standard's record-keeping provision. However, OSHA took no action and the standard with the lower PEL went into effect in 1976.

[99] 48 Fed. Reg. 51,086 (1983).

[100] Asbestos Information Ass'n v. OSHA, 727 F.2d 415, 11 OSH Cases 1817 (Fifth Cir. 1984).

[101] 51 Fed. Reg. 22,612 (June 20, 1986).

[102] The asbestos standard for construction included provisions for asbestos removal and demolition work.

[103] In 1992, OSHA deleted these latter three substances from the standard. See 57 Fed. Reg. 24,310 (1992).
[104] Building & Constr. Trades Dep't, AFL-CIO v. Secretary of Labor, 838 F.2d 1258, 13 OSH Cases 1561 (D.C. Cir. 1988).
[105] 29 C.F.R. § 1910.1001(c)(2).
[106] 59 Fed. Reg. 40,964 (August 10, 1994). The rule was codified at 29 C.F.R. §§ 1910.1001, 1915.1001 and 1926.1101 (formerly 1926.58), and the several revisions that followed were written into those sections.
[107] *Id*.
[108] 61 Fed. Reg. 43,454 (August 23, 1996).
[109] AIA/NA v. OSHA, 117 F.3d 891, 17 OSH Cases 2089, 117 F.3d 891 (Fifth Cir. 1997).
[110] 63 Fed. Reg. 35,137 (June 29, 1998). The changes were made to 29 C.F.R. Parts 1915 and 1926. The asbestos provisions in 29 C.F.R. Part 1910, the general industry asbestos standard, remained unchanged.
[111] 43 Fed. Reg. 5918 (1978). OSHA based its reasoning on its carcinogen policy that mandated that OSHA set a PEL for a carcinogen at the lowest feasible level in the absence of any evidence that a higher level was safe. See 45 Fed. Reg. 5282 (1980)(codified at 29 C.F.R. Part 90).
[112] Industrial Union Dept. v. American Petroleum Institute (Benzene), 448 U.S. 607, 8 OSH Cases 1586 (1980). OSHA was required to review other standards (e.g., the arsenic standard) in light of this U.S. Supreme Court decision on significant risk.
[113] 448 U.S. at 607, 8 OSH Cases at 1596.
[114] 50 Fed. Reg. 50,512 (1985).
[115] 52 Fed. Reg. 34,460 (September 11, 1987)(codified at 29 C.F.R. § 1910.1028).
[116] The 1 ppm limit is identical to that set in the 1978 standard. The 1987 standard, however, is followed by a risk assessment analysis from which OSHA determined the benzene level that posed a significant risk. The 1978 standard was based on a feasibility determination after OSHA simply assumed that no level of benzene exposure would be safe for humans. 43 Fed. Reg. 5918, 5946–5947 (1978).
[117] 29 C.F.R. § 1910.1028(i).
[118] 29 C.F.R. § 1910.1000, TABLE Z-2.
[119] 40 Fed. Reg. 48,814 (October 17, 1975).
[120] 67 Fed. Reg. 70,707 (November 26, 2002).
[121] 80 Fed., Reg. 47,565 (August 7, 2015).
[122] 82 Fed. Reg. 2470 (January 9, 2017).
[123] *Id*. at 29,187.
[124] 82 Fed. Reg. 14,439 (May 20, 2017).
[125] 82 Fed. Reg. 8346 (January 24, 2017).
[126] 82 Fed. Reg. 29,182 (June 27, 2017).
[127] 15 U.S.C. § 2601.
[128] 51 Fed. Reg. 35,003 (1986).
[129] 55 Fed. Reg. 32,736 (1990).
[130] 61 Fed. Reg. 56,746 (1996).
[131] 61 Fed. Reg. 56,746 (November 4, 1996) (codified at 29 C.F.R. § 1910.1051).
[132] 57 Fed. Reg. 42,104 (1992).
[133] *In re* International Chem. Workers Union, 830 F.2d 369, 13 OSH Cases 1402 (D.C. Cir. 1987).
[134] 55 Fed. Reg. 4052 (1990).
[135] *In re* International Chem. Workers Union, 958 F.2d 11444, 1150, 15 OSH Cases 1529 (D.C. Cir. 1992).
[136] 57 Fed. Reg. 42,101 (September 14, 1992). The standard for general industry is codified at 29 C.F.R. § 1910.1027 and the standard for construction is codified at 29 C.F.R. § 1926.63.
[137] 29 C.F.R. § 1910.1027(f)(1)(ii) and Table 1. For those operations subject to a separate engineering control airborne limit in addition to lowering exposures through engineering and work practice controls, employers must also require employees to use respiratory protection. *See* 29 C.F.R. § 1910.1027(f)(2)(i).
[138] Color Pigments Mfrs. Ass'n v. OSHA, 16 F.3d 1157, 16 OSH Cases 1665 (Eleventh Cir. 1994).
[139] *Id*. at 1164.
[140] 43 Fed. Reg. 27,350 (1978) (codified at 29 C.F.R. § 1910.1043). The original standard was generally upheld by the U.S. Supreme Court in American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 9 OSH Cases 1913 (1981). Cotton that has been washed in accordance with outlined processes is exempt from the standard. *See* 29 C.F.R. § 1910.1043(n). Some forms of cotton dust exposure not covered by the separate cotton dust standard are regulated pursuant to the air contaminants standard, 29 C.F.R. § 1910.1000.
[141] Challenge was based on the Supreme Court's *Benzene* requirement that OSHA must establish that a significant risk of harm exists before regulating, even though the cotton dust standard preceded in time the *Benzene* decision.
[142] American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 506 n. 25, 9 OSH Cases 1913 (1981).
[143] *Id*. at 508-509.
[144] *Id*. at 509.
[145] 43 Fed. Reg. 27,418 (1978).
[146] Texas Indep. Ginners Ass'n v. Marshall, 630 F.2d 398, 401, 8 OSH Cases 2225 (Fifth Cir. 1980).
[147] 29 C.F.R. § 1910.1044.
[148] 49 Fed Reg. 25,734 (June 22, 1984) (codified at 29 C.F.R. § 1910.1047).
[149] Public Citizen Health Research Group v. Tyson, 796 F.2d 1479, 12 OSH Cases 1905 (D.C. Cir. 1986).
[150] Public Citizen Health Research Group v. Brock, 823 F.2d 626, 13 OSH Cases 1362 (D.C. Cir. 1987).
[151] 53 Fed. Reg. 1724 (January 8, 1988) (STEL is codified at 29 C.F.R. § 1910.1047(c)(2)).

[152] The standard prohibits rotating employees in and out of exposure areas as a means of exposure control because of the risk to other employees.
[153] United Auto Workers v. Donovan, 590 F. Supp. 747, 11 OSH Cases 2017 (D.D.C. 1984).
[154] United Auto Workers v. Donovan, 756 F.2d 162, 12 OSH Cases 1201 (D.C. Cir. 1985).
[155] 52 Fed. Reg. 46,168 (December 4, 1987) (codified at 29 C.F.R. § 1910.1048).
[156] 57 Fed. Reg. 22,290 (May 27, 1992).
[157] UAW v. Pendergrass, 878 F.2d 389, 14 OSH Cases 1025 (D.C. Cir. 1989).
[158] OCAW v. OSHA, 145 F.3d 120, 18 OSH Cases 1321 (Third Cir. 1998).
[159] Public Citizen Health Research Group v. Chao, 314 F.3d 143 (Third Cir. 2002).
[160] 71 Fed. Reg. 10,100 (February 28, 2006) (codified at 29 C.F.R. § 1910.1026).
[161] Public Citizen Health Research Group v. Dept.of Labor, 557 F.3d 165 (Third Cir. 2009).
[162] 75 Fed. Reg. 12,681 (March 17, 2010).
[163] *29* C.F.R. § 1910.1018.
[164] Asarco, Inc. v. OSHA, 647 F.2d 1, 9 OSH Cases 1508 (Ninth Cir. 1981).
[165] 448 U.S. 607, 8 OSH Cases 1586 (1980).
[166] 48 Fed. Reg. 1864 (January 14, 1983).
[167] Asarco, Inc. et al. v. OSHA, 746 F.2d 483, 11 OSH Cases 2217 (Ninth Cir. 1984).
[168] 40 Fed. Reg. 45,934 (1975).
[169] 43 Fed. Reg. 52,952 (1978)(29 C.F.R. § 1910.1025). *See also* 43 Fed. Reg. 54,354 (1978).
[170] United Steelworkers of Am., AFL-CIO v. Marshall, 647 F2d 1189, 8 OSH Cases 1810 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981).
[171] *Id.* at 1311, 8 OSH Cases 1810 for a listing of the industries as to which the standard was remanded as well as for a summary of the court's order.
[172] 46 Fed. Reg. 60,758 (December 11, 1981).
[173] 54 Fed. Reg. 29,142 (July 11, 1989).
[174] 55 Fed. Reg. 3146 (January 30, 1990). OSHA set the standard for small foundries at 75 µg and at 50 µg for large foundries.
[175] American Iron and Steel Inst. V. OSHA, 939 F.2d 975, 15 OSH Cases 1177 (D.C. Cir. 1991). Those six industries were nonferrous foundries, secondary copper smelters, brass and bronze ingot manufacturers, independent collectors and processors of scrap lead (including independent battery breakers), leaded steel-making operations, and lead chemical manufacturers.
[176] The court remanded the standard as to the brass and bronze industry for an economic feasibility determination of the 50 µg standard.
[177] 60 Fed. Reg. 52,856 (October 11, 1995).
[178] 42 U.S.C. § 4853.
[179] 58 Fed. Reg. 26,590 (May 4, 1993).
[180] 61 Fed. Reg. 45,778 (August 29, 1996) (codified at 49 C.F.R. Part 745 Subparts L and Q).
[181] *See* https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201604&RIN=1218-AD10.
[182] 51 Fed. Reg. 42,257 (1986); 56 Fed. Reg. 57,036 (1991).
[183] 56 Fed. Reg. 57,036 (1991).
[184] 62 Fed. Reg. 1494 (January 10, 1997) (codified at 29 C.F.R. § 1910.1052).
[185] 63 Fed. Reg. 50,712 (September 22, 1998).
[186] 28 U.S.C. § 2112(a).
[187] Pub. L. No. 104-121, 110 Stat. 857-874.
[188] The issues in contention were medical removal protection provision, extension of the date by which employers in certain industry sectors were required to conform to engineering and work practice controls and relaxing of the respirator requirements.
[189] 63 Fed. Reg. 24,501 (May 4, 1998).
[190] 63 Fed. Reg. 50,712 (September 22, 1998).
[191] 29 C.F.R. § 1910.1052.
[192] 72 Fed. Reg. 37,501 (July 10, 2007).
[193] 50 Fed. Reg. 27,674 (1985).
[194] 50 Fed. Reg. 42,789 (1985).
[195] 52 Fed. Reg. 26,776 (1987).
[196] 54 Fed. Reg. 20,672 (1989).
[197] 57 Fed. Reg. 35,630 (1992).
[198] 29 C.F.R. *§* 1910.95.
[199] 29 C.F.R. § 1910.95(c)–(p). The amendment exempts employers engaged in oil and gas well drilling and services operations.
[200] 29 C.F.R. § 1910.95(g). The Review Commission has ruled that the action level of 85 dB excludes "impulse noise," defined as sharp noise peaks lasting less than 1 s and spaced more than 1 s apart. Collier-Keyworth Co., 13 OSH Cases 1208, remanded 13 OSH Cases 1269 (Rev. Comm'n 1987), on remand 13 OSH Cases 1940 (Rev. Comm'n 1988). An employer's failure to make audiometric tests available to its employees is classified as a "serious" OSHA violation. Secretary of Labor v. Miniature Nut and Screw Corp., 17 OSH Cases 1557 (Rev. Comm'n 1996).
[201] 29 C.F.R. § 1910.959(d)(1)(ii).
[202] 29 C.F.R. § 1910.95(i) (1), (2) (ii) (B). Notwithstanding the fact that an employer provides hearing protectors, employers may receive citations for failing to ensure their use. *See, e.g.*, United States Container Corp., 13 OSH Cases 1415 (Rev. Comm'n 1987).
[203] Forging Indus. Ass'n v. Donovan, 773 F.2d 1436 (Fourth Cir. 1985).
[204] 53 Fed. Reg. 26,437 (July 13, 1988).
[205] 67 Fed. Reg. 44,037 (July 1, 2002).
[206] The historical OSHA PEL was derived by assessing percent quartz in a respirable dust sample and using

the following arithmetical formula: PEL = 10 divided by the sum 2 + percent quartz in the sample. The measured concentration of respirable dust is then compared against the computed PEL to determine compliance. If the respirable quartz is pure quartz (100%), the formula will result in a PEL of approximately 0.1 mg m^{-3}.

207 In 1974, NIOSH originally recommended setting a 0.05 mg/m^3 exposure limit. *See* NIOSH, *Criteria for a Recommended Standard for Occupational Exposure to Crystalline Silica*, DHEW (NIOSH) Pub. No. 75–120. In recommending the limit, NIOSH stated that "[U]ntil improved sampling and analytical methods are developed for respirable crystalline silica, NIOSH will continue to recommend an exposure limit of 0.05 mg m^{-3} to reduce the risk of developing silicosis, lung cancer, and other adverse health effects. NIOSH also recommends minimizing the risk of illness that remains for workers exposed at the REL by substituting less hazardous materials for crystalline silica when feasible, by using appropriate respiratory protection when source controls cannot keep exposures below the NIOSH Recommended Exposure Limit, and by making medical examinations available to exposed workers."

208 78 Fed. Reg. 56,274 (September 12, 2013).

209 81 Fed. Reg. 16,285 (March 25, 2016).

210 *See* Interim Enforcement Guidance for the Respirable Crystalline Silica in Construction Standard, 29 CFR 1926.1153 at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=31349.

211 North America's Building Trade Unions v. OSHA & Chamber of Commerce, No. 16-1105 (December 22, 2017).

212 *Id*.

213 Society of the Plastics Industry v. OSHA, 509 F.2d 1301, 1306, 2 OSH Cases 1496, 1500 (Second Cir.) *cert. denied sub nom*. Firestone Plastics v. Department of Labor, 421 U.S. 992 (1975) (finding vinyl chloride regulation proper where it was based on scientific evidence from animal studies and the occurrence of cases of rare liver cancers in three employees).

214 29 C.F.R. § 1910.1017.

215 29 C.F.R. § 1910.1017(h)(1)(ii).

216 29 C.F.R. § 1910.1017(j).

217 29 C.F.R. § 1910.1017(l).

218 29 C.F.R. § 1910.1017(k).

219 29 C.F.R. § 1910.1017(m).

220 56 Fed. Reg. 64,004 (December 6, 1991) (codified at 29 C.F.R. § 1910.1030).

221 29 C.F.R. § 1910.1030(d)(1).

222 American Dental Association v. Martin, 984 F.2d 823, 15 OSH Cases 2097 (Seventh Cir. 1993), *cert. denied*, 510 U.S. 859 (1993).

223 *Id*. at 830.

224 *Id*. at 829.

225 The original 14 chemicals included in the carcinogen standards were 4-nitrobiphenyl, alpha-naphthylamine, 4,4′-methylene bis (2-chloroaniline)(deleted in 1976), methyl chloromethyl ether, 3,3′-dichlorobenzidine (and its salts), bis-chloromethyl ether, beta-naphthylamine, benzidine, 4-aminodiphenyl, ethyleneimine, beta-propiolacetone, 2-acetylaminofluorene, 4-dimethylaminoazobenzene, and *N*-nitrosodimethylamine.

226 29 C.F.R. §§ 1910.1003–1910.1016.

227 503 F.2d 1155, 2 OSH Cases 1159 (Third Cir. 1974), *cert. denied*, 420 U.S. 973 (1975) (upholding OSHA's decision to rely on animal studies showing a substance to be carcinogenic as the best available evidence of the substance's probable effect in human beings).

228 29 C.F.R. § 1910.1005 was deleted in 41 Fed. Reg. 35,184 (August 20, 1976).

229 OSHA's Cancer Policy is codified at 29 C.F.R. Part 1990.

230 48 Fed. Reg. 242 (January 4, 1983).

231 29 C.F.R § 1910.1029.

232 29 C.F.R. § 1910.1029(h). This includes, but is not limited to, flame-resistant pants, jackets, gloves, footwear, and face shields.

233 29 C.F.R. § 1910.1029(i)(1).

234 29 C.F.R. § 1910.1029(i)(3).

235 29 C.F.R. § 1029(i)(5).

236 29 C.F.R. § 1029(k).

237 29 C.F.R. § 1029(l).

238 29 C.F.R. § 1029(j).

239 29 C.F.R. § 1029(m).

240 577 F.2d 825, 6 OSH Cases 1451 (Third Cir. 1978), *cert. dismissed*, 448 U.S. 917 (1980).

241 48 Fed. Reg. 53,280 (1983) (codified at 29 C.F.R. § 1910.1200).

242 A federal district court has ruled, in the context of a product liability suit brought by a worker against a chemical maker and distributor, that OSHA's Hazard Communication Standard does not preempt a failure-to-warn claim. Wickham v. American Tokyo Kasei, Inc., 927 F. Supp. 293 (N.D. Ill. 1996).

243 United Steel Workers of America v. Auchter, 763 F.2d 728, 12 OSH Cases 1337 (Third Cir. 1985).

244 Steelworkers v. Pendergass, 819 F.2d 1263, 13 OSH Cases 1305 (Third Cir. 1987).

245 52 Fed. Reg. 31,852 (August 24, 1987).

246 Associated Builders and Contractors, Inc. v. OSHA, 862 F.2d 63, 13 OSH Cases 1945 (Third Cir. 1988),

cert. denied, 490 U.S. 1003, 13 OSH Cases 2168 (1989).

247 Steelworkers v. Pendergass, 855 F.2d 108, 13 OSH Cases 1825 (Third Cir. 1988).

248 Dole v. Steelworkers, 494 U.S. 26, 14 OSH Cases 1425 (1990).

249 Pub. L. No. 104-13, 109 Stat 163 (1995).

250 59 Fed. Reg. 6126 (February 9, 1994).

251 29 C.F.R. § 1910.1450.

252 59 Fed. Reg. 36,695 (July 19, 1994).

253 71 Fed. Reg. 53,617 (September 12, 2006).

254 See http://www.osha.gov/dsg/hazcom/ghs.html (last visited on November 26, 2009).

255 74 Fed Reg. 50,279 (September 30, 2009).

256 74 Fed. Reg. 57,278 (November 5, 2009).

257 77 Fed. Reg. 17,574 (March 26, 2012). OSHA also modified and modified provisions of other standards including standards for flammable and combustible liquids, process safety management and most substance-specific health standards, to ensure consistency with the final rule.

258 51 Fed. Reg. 45,654 (1986).

259 54 Fed. Reg. 9294 (1989) (codified at 29 C.F.R. § 1910.120).

260 AFL-CIO v. OSHA, 905 F.2d 1568, 1570-71, 14 OSH Cases 1636 (D.C. Cir. 1990).

261 Pub. L. No. 100-203, 101 Stat. 1330 (1987).

262 55 Fed. Reg. 2776 (January 26, 1990).

263 67 Fed. Reg. 74,749 (December 9, 2002).

264 *See* https://www.osha.gov/html/faq-hazwoper.html#faq6.

265 63 Fed. Reg. 1152 (January 8, 1998) (codified at 29 C.F.R. § 1910.134).

266 AISI (Am. Iron and Steel Inst.) v. OSHA, 182 F.3d 1261, 1273 (Eleventh Cir. 1999).

267 62 Fed. Reg. 54,160 (October 17, 1997).

268 68 Fed. Reg. 75,776 (December 31, 2003).

269 71 Fed. Reg. 50,121 (August 24, 2006).

270 40 Fed. Reg. 30,980 (1975).

271 44 Fed. Reg. 60,334 (1979).

272 45 Fed. Reg. 19,266 (1980).

273 54 Fed. Reg. 24,080 (1989).

274 58 Fed. Reg. 4462 (1993) (codified at 29 C.F.R. *§* 1910.146). The Review Commission has held that OSHA's definition of a "confined space" is not unenforceably vague. *See* Secretary of Labor v. CBI Services, Inc., 15 OSH Cases 2046 (Rev. Comm'n 1992).

275 63 Fed. Reg. 66,018 (December 1, 1998).

276 58 Fed. Reg. 37,816 (July 25, 1994) (codified at 29 C.F.R. Part 1915, Subpart B).

277 72 Fed. Reg. 67,351 (November 28, 2007).

278 80 Fed. Reg. 25,366 (May 4, 2015).

279 59 Fed. Reg. 16,334 (April 6, 1994) (codified at 29 C.F.R. § 1910.132).

280 OSHA Memorandum by Deputy Assistant Secretary Jim Stanley to Field Staff, "Employer Obligation to Pay for Personal Protective Equipment," October 18, 1994. OSHA stated that for all PPE standards the employer must both provide and pay for the required PPE, except in limited situations. The memorandum stated that where PPE is very personal in nature and used by the employee off the job, such as is often the case with steel-toe safety shoes (but not metatarsal foot protection), the issue of payment may be left to labor–management negotiations.

281 Secretary of Labor v. Union Tank Car Co., 18 OSH Cases 1067 (Rev. Comm'n 1997).

282 64 Fed. Reg. 15,402 (March 31, 1999).

283 72 Fed. Reg. 64,342 (November 15, 2007).

284 OSHA, *Combustible Dust in Industry: Preventing and Mitigating the Effects of Fire and Explosions*, SHIB 07-31-2005, Available at http://www.osha.gov/dts/shib/shib073105.html.

285 OSHA, *Combustible Dust National Emphasis Program*, Reissued, March 11, 2008, (CPL 03-00-008).

286 74 Fed. Reg. 57,974 (November 10, 2009).

287 *Special Emphasis Program for Microwave Popcorn Manufacturing Facilities*, Available at http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=3649.

288 OSHA, *Respiratory Disease Among Employees in Microwave Popcorn Processing Plants*, Available at http://www.osha.gov/dts/shib/shib092107.html.

289 *See* http://www.osha.gov/dsg/guidance/diacetyl-guidance.html.

290 H.R. 2693, *Popcorn Workers Lung Disease Prevention Act*, Available at http://thomas.loc.gov/cgi-bin/query/C?c110:./temp/~c11043NFgD.

291 74 Fed. Reg. 3938 (January 21, 2009).

292 74 Fed. Reg. 11,329 (March 17, 2009).

293 *See* 64 Fed. Reg. 65,768 (November 23, 1999).

294 57 Fed. Reg. 34,192 (August 3, 1992).

295 64 Fed. Reg. 65,768 (November 23, 1999).

296 65 Fed. Reg. 68,262 (November 14, 2000).

297 5 U.S.C. §§ 801-808 (Congressional Review of Agency Rulemaking).

298 A resolution of disapproval was signed by President Bush on March 20, 2000 and became law. *See* Pub. L. No. 107-5.

299 In addition to guidelines for ergonomics, OSHA has also published guidelines for the prevention of workplace violence. See Guidelines for Preventing Workplace Violence for Health Care and Social Services and Recommendations for Workplace Violence Prevention Programs in Late-Night Retail Establishments (http://www.osha.gov/SLTC/

workplaceviolence/solutions.html). In *ConocoPhillips Co. v. Henry*, Slip Copy, 2007 WL 2908879 (N.D. Okla.), the court expressed serious concern about criminal laws depriving employer property owners from their right to exclude those workers and other individuals from carrying and transporting firearms in their vehicles and decided that such state laws impermissibly conflicts with the Occupational Safety and Health Act "which requires employers to abate hazards in their workplaces that could lead to death or serious bodily harm and which encourages employers to prevent gun-related workplace injuries." See page 42.

300 OSHA, *Ergonomics Guidelines*, Available at http://www.osha.gov/SLTC/ergonomics/guidelines.html.

301 *See* 59 Fed. Reg. 15,969 (April 5, 1994) (describing the history of the issue).

302 *Id*.

303 59 Fed. Reg. 15,968 (April 5, 1004). While the proposed smoking ban would have applied to nearly all of the six million employers under OSHA's jurisdiction, the broader indoor air quality provisions would have applied to only nonindustrial employers and would require those employers to ensure that their heating, air-conditioning and ventilation systems are operated and maintained to ensure healthful indoor air.

304 66 Fed. Reg. 64,946 (December 17, 2001).

305 62 Fed. Reg. 54,160 (October 17, 1997).

306 68 Fed. Reg. 75,767 (December 31, 2003).

307 *Id*. at 75,769, and 75,771.

308 *See* Title 8, California Code of Regulations, Section 5199 (Adopted May 21, 2009) at http://www.dir.ca.gov/Title8/5199.html.

309 *See* https://www.gpo.gov/fdsys/pkg/FR-2010-05-06/pdf/2010-10694.pdf#page=1.

310 *See* https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201610&RIN=1218-AC46.

311 *Guidelines for Preventing Workplace Violence for Healthcare and Social Assistance Workers*. OSHA 3148-06R 2016 at https://www.osha.gov/Publications/osha3148.pdf.

312 *Recommendations for Workplace Violence Prevention Programs in Late-Night Retail Establishments*, OSHA 3153-12R 2009 at https://www.osha.gov/Publications/osha3153.pdf.

313 81 Fed. Reg. 88,147 (December 7, 2016).

314 29 U.S.C. § 657(c)(2).

315 29 U.S.C. § 657(c)(1).

316 29 U.S.C. § 673(a).

317 OSHA's recordkeeping and reporting regulations were challenged as vague, but the Review Commission found them to have been validly promulgated and dismissed the vagueness challenge. General Dynamics Corp. Elec. Boat Div., Quonset Point Facility, 16 OSH Cases 1717 (Rev. Comm'n J. 1994).

318 29 C.F.R. §§ 1904.20–1904.21. In addition, since 1996, OSHA has conducted an annual survey that requires about 80,000 employers to submit injury and illness records directly to OSHA. The regulation creating this annual survey (29 C.F.R. § 1904.17) was invalidated by a federal district court in American Trucking Associations v. Secretary of Labor, 17 OSH Cases 1881, 955 F. Supp. 4 (D.C.D.C. 1997), and OSHA responded by promulgating a final rule to preserve its authority to collect the survey (62 Fed. Reg. 6434 (February 11, 1997)).

319 66 Fed. Reg. 5916 (January 19, 2001) (codified as 29 C.F.R. Part 1904).

320 In 29 C.F.R. § 1904.12(c), the Secretary has defined "recordable occupational injuries or illnesses" as those that result in: (*1*) fatalities, regardless of the time between the injury and death, or the length of the illness; (*2*) lost workday cases, other than fatalities, that result in lost workdays; or (*3*) nonfatal cases without lost workdays, which result in transfer to another job or termination of employment, or require medical treatment (other than first aid) or involve: loss of consciousness or restriction of work or motion. This category also includes any diagnosed occupational illnesses that are reported to the employer but are not classified as fatalities or lost workday cases. Employers should resolve doubts about whether an injury is recordable – e.g., because it is unclear whether an injury required first aid or medical treatment or whether the injury is occupationally related – in favor of recording. *See, e.g.,* General Motors Corp., Inland Div., 8 OSH Cases 2036 (Rev. Comm'n 1980); General Motors Corp. Warehousing and Distribution Division, 10 OSH Cases 1844 (Rev. Comm'n 1982).

321 29 C.F.R. § 1904.6. Effective January 1, 1991, the responsibility for establishing recordkeeping requirements for occupational illnesses and injuries was transferred from the BLS in DOL to OSHA and its newly created Office of Recordkeeping and Data Analysis.

322 29 C.F.R. § 1904.15.

323 U.S. General Accountability Office, *Enhancing OSHA's Records Audit Process Could Improve the Accuracy of Worker Injury and Illness Data*, October 2009, GAO-10-10.

324 See https://www.osha.gov/news/newsreleases/national/10012009.

325 29 C.F.R. Part 1904.

326 81 Fed. Reg. 29,624 (May 12, 2016).

327 *Id*.

328 *See* Injury Tracking Application for Electronic Submission of Injury and Illness Records to OSHA as https://www.osha.gov/injuryreporting/index.html.

[329] *Id*.
[330] 59 Fed. Reg. 15,594 (1994).
[331] 60 Fed. Reg. 18,993 (April 14, 1995).
[332] 79 Fed. Reg. 56,130 (September 18, 2014).
[333] 29 C.F.R. § 1904.39(a)(2).
[334] 29 C.F.R. § 1904.39(a)(3)(i)–(iii).
[335] 29 U.S.C. § 657(c)(3).
[336] 29 C.F.R. § 1910.1020(d).
[337] 29 U.S.C. § 1910.1020(d)(1)(iii).
[338] 29 U.S.C. § 1910.1020(d)(1)(i)(A) to (C).
[339] 45 Fed. Reg. 35,212 (1980) (codified at 29 U.S.C. § 1910.1020).
[340] Louisiana Chem. Ass'n v. Bingham, 731 F.2d 280, 11 OSH Cases 1922 (Fifth Cir. 1984)(per curiam), *aff'g* 550 F. Supp. 1136, 10 OSH Cases 2113 (W.D.La. 1982).
[341] 53 Fed. Reg. 38,140 (September 29, 1988).
[342] 29 U.S.C. § 655(f).
[343] The test for determining what is a standard and what is a regulation was first announced in a case Louisiana Chemical Ass'n v. Bingham, 657 F.2d 777, 10 OSH Cases 1017 (Fifth Cir. 1981) (holding that OSHA's Access to Employee Exposure and Medical Records rule was a regulation not a standard). The court stated that a "standard [is] a remedial measure addressed to a specific and already identified hazard, not a purely administrative effort designed to uncover violations of the Act and discover unknown dangers. In short, standards should aim toward correction rather than mere inquiry into possible hazards." *Id*. at 782. The Third Circuit followed this reasoning when they ruled that OSHA's Hazard Communication Standard was a standard not a regulation. *See* United Steelworkers v. Auchter, 763 F.2d 728, 12 OSH Cases 1337 (Third Cir. 1985).
[344] Fellner and Savelson (8). This approach has been summarized as one requiring the reviewing court to determine whether the agency (*1*) acted within the scope of its authority; (*2*) followed the procedures required by statute and by its own regulations; (*3*) explicated the bases for its decision; and (*4*) adduced substantial evidence in the record to support its determination. United Steelworkers of America, AFL-CIO, v. Marshall and Bingham, 647 F.2d 1189, 1206, 8 OSH Cases 1810, 1816 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981).
[345] 29 U.S.C. § 655(d).
[346] *Id*.
[347] 29 U.S.C. § 655(6)(b)(A).
[348] *Id*.
[349] 29 U.S.C. § 655.
[350] 518 F.2d 990; 3 OSH Cases 1490 (Fifth Cir. 1975); *aff'd*, 430 U.S. 442; 5 OSH Cases 1105 (1977).
[351] 430 U.S. 442, 5 OSH Cases 1105 (1977).
[352] S. A. Healy v. Occupational Safety and Health Review Commission, 18 OSH Cases 1193 (Seventh Cir. 1998). The Seventh Circuit's decision was a reversal of its previous holding on the matter, which was vacated by the Supreme Court. On remand from the Supreme Court, the Seventh Circuit held that the administrative penalty was "civil" rather than "criminal" and thus did not constitute a separate criminal proceeding for purposes of double jeopardy.
[353] Secretary of Labor v. Andrew Catapano Enterprises, Inc., 17 OSH Cases 1776 (Rev. Comm'n 1996). In this case, the employer argued that all the nine trench sites should have been treated as a single workplace and the violations thus treated as a single case, but the Commission ruled that it was within OSHA's discretion to prosecute the violations at each trench site as a separate case.
[354] 29 U.S.C. § 657(f)(1).
[355] *See* OSHA Field Operations Manual, Chapter 2, V.
[356] 29 U.S.C. § 657(a)(1) & (2).
[357] 436 U.S. 307, 6 OSH Cases 1571 (1978).
[358] In contrast, the U.S. Supreme Court has upheld the constitutionality of warrantless inspections of stone quarries under the Federal Mine Safety and Health Act of 1977 because mining has long been a pervasively regulated industry, in which a businessperson can have no reasonable expectation of privacy against official inspections. In Donovan v. Dewey, 452 U.S. 594 (1981), the Court reasoned further that the Federal Mine Safety and Health Act inspection provisions are more narrowly drawn and provide for less administrative discretion concerning inspections than does OSHA, thus making such inspections reasonable under the Fourth Amendment.
[359] 436 U.S. at 320–321, 6 OSH Cases at 1575–1576.
[360] 436 U.S. at 321, 6 OSH Cases at 1575–1576. Such "neutral sources," according to the Court, could include statistics indicating "dispersion of employees in various types of industries across a given area, and the desired frequency of searches in any of the lesser divisions of the area … " 6 OSH Cases at 1576.
[361] L.R. Wilson & Sons, Inc. 17 OSH Cases 2059 (Rev. Comm'n 1997), *aff'd in part and rev'd in part*, 134 F3d 1235, 18 OSH Cases 1129 (Fourth Cir.), *cert. denied*, 525 U.S. 962, 18 OSH Cases 1576 (1998).
[362] A general contractor can consent to OSHA's inspection of a construction work site at which many employers work. J.L. Foti Constr. Co. v. Donovan, 786 F.2d 714, 12 OSH Cases 1737 (Sixth Cir. 1986).
[363] Ackermann Enters., 10 OSH Cases 1709, 1711-1712 (Rev. Comm'n 1982).
[364] 134 F.3d 1235 (Fourth Cir.), *cert. denied*, 525 U.S. 962 (1998) (holding that work site videotaping not only does not violate the OSH Act but also does

not violate the Fourth Amendment's right to privacy because the employer "left the construction site open to observation from vantages outside its control."). The Seventh Circuit has also held that it is not unreasonable for an inspection warrant to allow videotaping of the workplace. *In re* Establishment Inspection of Kelly-Springfield Tire Co., Seventh Cir., No. 93-1082, January 18, 1994.

365 Camara v. Municipal Court of City and County of San Francisco, 387 U.S. 523 (1967). *Accord* Michigan v. Tyler, 436 U.S. 499, 509–510 (1978). *See also* Mark A. Rothstein, *OSHA Inspections After Marshall v. Barlow's, Inc*., Vol. 1979 (No. 1) Duke Law Journal 63 (1979).

366 Marshall v. North American Car Co., 626 F.2d 320, 8 OSH Cases 1722 (Third Cir. 1980) (rejecting the Secretary's argument that 29 C.F.R. § 1, which provides that an inspection based on an employee complaint is not limited to matters complained of, permits a wall-to-wall inspection).

367 45 Fed. Reg. 65,916 (1980) (codified at 29 C.F.R. § 1903.4).

368 The new regulation, held valid by the court in Donovan v. Blue Ridge Pressure Castings, Inc., 543 F. Supp. 53, 10 OSH Cases 1217 (M.D. Pa. 1981), states "(d) For purposes of this section, the term compulsory process shall mean the institution of any appropriate action, including *ex parte* application for an inspection warrant or its equivalent. *Ex parte* inspection warrants shall be the preferred form of compulsory process in all circumstances where compulsory process is relied upon to seek entry to a workplace under this section." *See* 29 C.F.R. § 1903.4(d).

369 610 F.2d 1128, 1135–1136, 7 OSH Cases 1880, 1884 (Third Cir. 1979). An employer's right to a pre-inspection hearing in federal court on a warrant's validity was reaffirmed by the Third Circuit in Cerro Metal Products v. Marshall (holding an employer could bring an action in district court, prior to inspection, seeking to enjoin OSHA from obtaining an *ex parte* warrant). The Seventh Circuit has also held an employer may raise a pre-inspection warrant challenge in district court under limited circumstances. *See* Blocksom & Co. v. Marshall, 582 F.2d 1122, 6 OSH Cases 1865 (Seventh Cir. 1978) (employer may raise invalidity of warrant as a defense in action seeking to hold it in contempt for failure to obey warrant).

370 610 F.2d at 1135–1137, 7 OSH Cases at 1883–1885. *Accord* Marshall v. Whittaker Corp., Berwick Forge & Fabricating Co., 610 F.2d 1141, 6 OSH Cases 1888 (Third Cir. 1979); Establishment Inspection of the Metal Bank of America, Inc., 700 F.2d 910, 11 OSH Cases 1193 (Third Cir. 1983).

371 *In re* Worksite Inspection of Quality Products, Inc., 592 F.2d 611, 7 OSH Cases 1093 (First Cir. 1979); Marshall v. Central Mine Equipment Co., 608 F.2d 719, 7 OSH Cases 1907 (Eighth Cir. 1979); Baldwin Metals Co., Inc. v. Donovan, 642 F.2d 768, 9 OSH Cases 1568 (Fifth Cir.), *cert. denied sub nom*. Mosher Steel Co. v. Donovan, 454 U.S. 893 (1981); *In re* J. R. Simplot Co., 640 F.2d 1134 (Ninth Cir. 1981), *cert. denied*, 455 U.S. 939 (1982); Robert K. Bell Enters. v. Donovan, 710 F.2d 673 (Tenth Cir. 1983), *cert. denied*, 464 U.S. 1041 (1984); Establishment Inspection of Gould Publishing Co., 934 F.2d 457, 15 OSH Cases 1073 (Second Cir. 1991).

372 Weyerhaeuser Co. v. Marshall, 592 F.2d 373, 7 OSH Cases 1090 (Seventh Cir. 1979); Federal Casting Div., Chromalloy American Corp. v. Donovan, 684 F.2d 504, 10 OSH Cases 1801 (Seventh Cir. 1982) (following Weyerhaeuser).

373 *In re* Establishment Inspection of Kohler Co., 935 F.2d 810 (Seventh Cir. 1991).

374 29 C.F.R. 1903.7(d). ("The conduct of inspections shall be such as to preclude unreasonable disruption of the operations of the employer's establishment.").

375 16 OSH Cases 1073, 1081 (Rev. Comm'n 1993), aff'd, 16 OSH Cases 1889 (Sixth Cir. 1994).

376 29 U.S.C. § 662(a).

377 *Id*.

378 29 U.S.C. § 662(d).

379 29 U.S.C. § 658(a).

380 The Review Commission has held that this 6-month limitation period does not apply if the Secretary's inability to discover the violation was caused by the employer's failure to report a fatal accident as the Secretary's regulations require (29 C.F.R. § 1904.8). The Review Commission reasoned that allowing an employer to escape a citation because of its own failure to comply with OSHA's reporting requirements would reward it for its own wrongdoing. Yelvington Welding Service, 6 OSH Cases 2013 (Rev. Comm'n. 1978). The Review Commission has held that OSHA may issue a citation for an alleged violation even though it may have had the opportunity during an earlier inspection to discover the same alleged violation and cite it—the holding was based on the idea that the purpose of Section 9(c) is simply to ensure that violations are prosecuted while events are still relatively fresh and that this purpose is not compromised so long as the subsequent violative conduct is prosecuted within six months. Secretary of Labor v. Safeway Store No. 914, 16 OSH Cases 1504 (Rev. Comm'n. 1993); Johnson Controls, Inc., 15 OSH Cases 2132, 2135–2136 (Rev. Comm'n 1993).

381 *See* 29 U.S.C. § 658(a).

[382] Whirlpool Corp. v. OSHRC and Marshall, 645 F.2d 199, 7 OSH Cases 2059 (Ninth Cir. 1980), *cert. denied*, 457 U.S. 1132 (1982); Noblecraft Industries, Inc. v. Secretary of Labor and OSHRC, 614 F.2d 199, 7 OSH Cases 2059 (Ninth Cir. 1980*);* Whirlpool Corp. v. OSHRC and Marshall, 645 F.2d 1096, 9 OSH Cases 1362 (D.C. Cir. 1981). *See also* Otis Elevator Co., 13 OSH Cases 1791 (Rev. Comm'n 1988 (holding that the citation was not too vague because (1) the basic elements of the charge describing the hazard were present and (2) there was extensive pretrial discovery), *aff'd*, 871 F.2d 155, 13 OSH Cases 2085 (D.C. Cir. 1989).

[383] Marshall v. B.W. Harrison Lumber Co. and OSHRC, 569 F.2d 1303, 6 OSH Cases 1446 (Fifth Cir. 1978);

[384] 29 U.S.C. § 658(a).

[385] The employer must post notice of OSHA citations at or near the place of the violation immediately upon receipt of the notice (29 C.F.R. §§ 1903.14 & 1903.16). If it is not possible to post the notice of citation at the violation site, employers must post it in a "prominent place where it will be readily observable by all affected employees" (29 C.F.R. § 1903.16(a)). If the employer settles with OSHA (to reduce the fines), a notice of settlement must also be posted (29 C.F.R. § 2200.100(c)).

[386] Penalties are prescribed by 29 U.S.C. § 666. Applicable regulations on proposed penalties are found at 29 C.F.R. § 1903.15. In addition to the gravity of the violation, the size of the business, the employer's good faith, and the employer's history of previous violations are also taken into account in determining the amount of the proposed penalty. *See* 29 C.F.R. § 1903.15(b).

[387] 29 U.S.C. § 658(a).

[388] OSHA, *Field Operations Manual,* Chapter 4, Section VIII.A.1 through 3. https://www.osha.gov/OshDoc/Directive_pdf/CPL_02-00-160.pdf.

[389] Crescent Wharf & Warehouse Co., 1 OSH Cases 1219, 1222 (Rev. Comm'n 1973).

[390] OSHA, *Field Operations Manual*, Chapter 4, Section IV. https://www.osha.gov/OshDoc/Directive_pdf/CPL_02-00-160.pdf.

[391] Conference Report 91-1765, 1970, U.S. Code Congressional and Administrative News, p. 5237; OSHA § 17(c).

[392] Ryder Truck Lines, Inc. v. Brennan, 497 F.2d 230, 233, 2 OSH Cases 1075, 1077 (Fifth Cir. 1974).

[393] In determining whether a violation is serious or other-than-serious, the Commission has held that a number of other-than-serious violations may be grouped together to form a serious violation if the cumulative effect of the violations could result in an accident causing death or serious injury. *See* H. A. S. & Associates, 4 OSH Cases 1894, 1897–1898 (Rev. Comm'n 1976). When the violation poses a risk of illness through cumulative exposure to a toxic substance, the relevant question is whether the Secretary can show a substantial probability of serious harm resulting from the degree and length of actual employee exposure. Bethlehem Steel Corp., 11 OSH Cases 1247, 1252 (Rev. Comm'n 1983); Texaco, Inc., 8 OSH Cases 1758, 1761 (Rev. Comm'n 1980).

[394] 29 U.S.C. § 666(k).

[395] 517 F.2d 986, 3 OSH Cases 1174 (Ninth Cir. 1975).

[396] *Accord* Usery v. Hermitage Concrete Pipe Co. and OSHRC, 584 F.2d 127, 6 OSH Cases 1886 (Sixth Cir. 1979); Kent Nowlin Construction Co., Inc. v. OSHRC, 648 F.2d 1278, 9 OSH Cases 1709 (Tenth Cir. 1981); Central Brass Mfg. Co., 13 OSH Cases 1609, 1611 (Rev. Comm'n 1987).

[397] Brennan v. OSHRC and Vy Lactos Laboratories, Inc., 494 F.2d 460, 1 OSH Cases 1623 (Eighth Cir. 1974).

[398] 519 F.2d 1200, 1207, 2 OSH Cases 1283, 1289 (Third Cir. 1974), *aff'd sub nom*. Atlas Roofing Co., Inc. v. OSHRC, 430 U.S. 442, 5 OSH Cases 1105 (1977).

[399] Messina Construction Corp. v. OSHRC, 505 F.2d 701, 2 OSH Cases 1325 (First Cir. 1974); Inter-county Construction Co. v. OSHRC, 522 F.2d 777, 780, 3 OSH Cases 1337, 1339 (Fourth Cir. 1975), *cert. denied* 423 U.S. 1072 (1976).

[400] Kent Nowlin Construction, Inc., 5 OSH Cases 1051, 1055 (Rev. Comm'n 1977), *aff'd in relevant part* 593 F.2d 368, 369, 7 OSH Cases 1105, 1108 (Tenth Cir. 1979).

[401] Kus-Tum Builders, Inc., 10 OSH Cases 1128, 1131 (Rev. Comm'n 1981); A. Schonbek & Co., Inc., 9 OSH Cases 1189, 1191 (Rev. Comm'n 1980), *aff'd*, 646 F.2d 799, 9 OSH Cases 1562 (Second Cir. 1981).

[402] A. Schonbek & Co., Inc. v. Donovan and OSHRC, 646 F.2d 799, 9 OSH Cases 1562 (Second Cir. 1981), *aff'g*, 9 OSH Cases 1189 (Rev. Comm'n 1980); Mineral Industries & Heavy Construction Group (Brown & Root, Inc.) v. OSHRC and Marshall, 639 F.2d 1289, 9 OSH Cases 1387 (Fifth Cir. 1981); Georgia Electric Co. v. Marshall and OSHRC, 595 F.2d 309, 7 OSH Cases 1343 (Fifth Cir. 1979); Empire-Detroit Steel Div., Detroit Steel Corp. v. OSHRC and Marshall, 579 F.2d 378, 6 OSH Cases 1693 (Sixth Cir. 1978); Western Waterproofing Co., Inc. v. Marshall and OSHRC, 576 F.2d 139, 6 OSH Cases 1550 (Eighth Cir.), *cert. denied*, 439 U.S. 965 (1978); National Steel & Shipbuilding Co. v. OSHRC; Kent Nowlin Construction Co. v. OSHRC and Marshall, 593 F.2d 368, 7 OSH Cases 1105 (Tenth Cir. 1979), *aff'g in relevant part* 5 OSH Cases 1051 (Rev. Comm'n 1977).

[403] 587 F.2d 1303, 6 OSH Cases 2010, 2012 (D.C. Cir. 1978).

[404] 622 F.2d 1160, 8 OSH Cases 1317 (Third Cir. 1980).

[405] OSHA, *Field Operations Manual*, ch. 4, VII.

[406] 29 U.S.C. § 658(a). In determining a reasonable abatement period, OSHA's *Field Inspection Reference Manual* advises consideration of the following factors: (*1*) the gravity of the alleged violation; (*2*) the availability of needed equipment, material and/or personnel; (*3*) the time required for delivery, installation, modification, or construction; and (*4*) training of personnel.

[407] 29 U.S.C. § 659(b).

[408] OSHA Instruction CPL 02-00-112 – CPL 2.112 (August 2, 1996). *See* http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1588.

[409] 62 Fed. Reg. 15,324 (March 31, 1997).

[410] 5 U.S.C. § 553(b)(3)(B).

[411] 81 Fed. Reg. 43,430 (July 1, 2016).

[412] 82 Fed. Reg. 5373 (January 18, 2017).

[413] The new monetary civil penalty maximums take effect after August 1, 2016. Any citation issued after August 1, 2016 will be subject to the new penalties if the related violations occurred after November 2, 2015. *See* https://www.osha.gov/Publications/OSHA3879.pdf.

[414] 82 Fed. Reg. 5373, 5385 and 5386.

[415] *Id*. at 5386.

[416] *Id*.

[417] 29 U.S.C. § 666(e). A general duty clause violation cannot serve as the basis of a criminal charge because criminal liability is limited to a violation of a standard, rule or order.

[418] *Id*.

[419] United States v. Dye Constr. Co., 510 F.2d 78, 81, 2 OSH Cases 1510 (Tenth Cir. 1975).

[420] United States v. Pitt-Des Moines, Inc., 168 F.3d 976, 18 OSH Cases 1609 (Seventh Cir. 1999) (where employer's failure to install the proper number of bolts in a structure resulted in the death of two ironworkers).

[421] OSHA, *Field Operations Manual*, Chapter 4, VI.

[422] David M. Uhlmann, Prosecuting Worker Endangerment: The Need for Stronger Criminal Penalties for Violations of the Occupational Safety and Health Act, September 2008, Issue Brief of the American Constitution Society, Available at http://www.acslaw.org/node/6986.

[423] 29 U.S.C. § 666(e).

[424] *See* 18 U.S.C. § 1001.

[425] *See* 18 U.S.C. § 3571.

[426] United States v. Atlantic States Cast Iron Pipe Co., No. 3:03-cr-00852 (D.N.J. Apr. 26, 2007) (verdict, *reported in* 36 OSH Rep. 424 (May 4, 2006)); *aff'd* 2007 WL 2282514 (D.N.J. Aug. 2, 2007) (upholding jury's verdict), *reported in* 37 OSH Rep. 734 (Aug. 16, 2007), *aff'd,* 695 F.3d 227 (Third Cir. 2012), *petition for cert*. filed, No. 12-976, 81 USLW (Jan. 16, 2013).

[427] 18 U.S.C. § 1001.

[428] 18 U.S.C. §§ 1503, 1505, 1512, and 1519.

[429] 18 U.S.C. § 371.

[430] OSHA, CPL 02-00-080 - CPL 2.80, (October 1, 1990), *Handling of Cases to Be Proposed for Violation-by-Violation Penalties*, H.2., Available at http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1657.

[431] 20 OSH cases 1361 (Rev. Comm'n 2003), *rev'd*, 401 F3d 355 (Fifth Cir. 2005).

[432] 73 Fed. Reg. 75,568 (December 12, 2008).

[433] 602 F.3d 464, 23 OSH Cases 1033 (D.C. Cir. 2010).

[434] 22 OSH Cases 1553 (Rev. Comm'n 2009).

[435] Harvey Workover Inc., 7 OSH Cases 1687, 1689 (Rev. Comm'n 1979).

[436] Grossman Steel & Alum. Corp., 4 OSH Cases 1185, 1188 (Rev. Comm'n 1976).

[437] OSHA, Multi-Employer Citation Policy, CPL 02-00-124 (December 10, 1999), at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=2024. *See also,* the multi-employer worksite provisions in 29 C.F.R. § 1915.12(f) and 29 C.F.R. § 1915.501.

[438] Secretary of Labor v. Trinity Indus., 504 F.3d 397 (3d Cir. 2007); Universal Constr. Co. v. OSHRC, 182 F.3d 726, 728-31, 18 OSH Cases 1789 (Tenth Cir. 1999); United States v. Pitt-Des Moines Inc., 168 F.3d 976, 18 OSH Cases 1609 (Seventh Cir. 1999); Carbone Constr. Co. v. OSHRC, 166 F.3d 815, 18 OSH Cases 1551 (Sixth Cir. 1998); New England Tel. & Tel. Co. v Secretary of Labor, 589 F.2d 81, 81-82 (First Cir. 1978); Beatty Equip. Leasing Inc. v. Secretary of Labor, 577 F.2d 534, 6 OSH Cases1699 (Ninth Cir. 1978); Marshall v. Knutson Constr. Co., 566 F.2d 596, 6 OSH Cases 1077 (Eighth Cir 1977).

[439] Melerine v. Avondale Shipyards, Inc., 659 F.2d 706, 711, 10 OSH Cases 1075 (Fifth Cir. 1981).

[440] Acosta v. Hensel Phelps Constr. Co., No. 17-60543 (Fifth Cir. Filed Aug. 4, 2017).

[441] 29 U.S.C. § 659(a).

[442] The Review Commission's Rules of Procedure can be found at 29 C.F.R. §§ 2200.1 through 2200.212. In an area of procedure where the Commission has not promulgated a rule, the Federal Rule of Civil Procedure applies. *See* 19 C.F.R. § 2200.2(b).

[443] Despite the requirements of OSH Act Section 10(a), the Review Commission may (in limited circumstances) entertain a late notice of contest pursuant to Federal Rule of Civil Procedure 60(b). This rule permits a federal court to grant relief from a final order for a number of reasons, including a party's mistake, surprise or excusable neglect, the presence of newly discovered evidence, and the fraud or misconduct of an adverse party. Rule 60(b), which was held applicable

to the Review Commission by the Third Circuit in J. I. Hass Co. v. OSHRC, 648 F.2d 190, 9 OSH Cases 1712 (Third Cir. 1981), has been viewed by the Review Commission as affording a possible basis for considering an untimely notice of contest.

444 29 C.F.R. § 1903.17.

445 Brennan v. OSHRC and Bill Echols Trucking Co., 487 F.2d 230, 1 OSH Cases 1398 (Fifth Cir. 1973); Dan J. Sheehan Co. v. OSHRC and Dunlop, 520 F.2d 1036, 3 OSH Cases 1573 (Fifth Cir. 1975), *cert. denied*, 424 U.S. 956 (1976).

446 Dan J. Sheehan, 520 F.2d at 1038–1039, 3 OSH Cases at 1575.

447 Turnbull Millwork Co., 3 OSH Cases 1781 (Rev. Comm'n 1975); State Home Improvement Co., 6 OSH Cases 1249 (Rev. Comm'n 1977).

448 29 U.S.C. § 659.

449 *See* 29 C.F.R. §§ 2200.1-2200.211; *See also,* 70 Fed. Reg. 22,785 (May 3, 2005).

450 29 U.S.C. § 661(g); 29 C.F.R. § 2200.2(b).

451 29 C.F.R. §§ 2200.200–2200.212.

452 *See* https://www.oshrc.gov/guides/guide-to-review-commission-procedures/.

453 29 C.F.R. §§ 2200.91 and 2200.92.

454 29 C.F.R. § 2200.90(d).

455 The Review Commission's failure to adequately consider these statutory penalty assessment factors can result in a court of appeals remanding the case to the Commission for more particularized findings regarding the penalty. Astra Pharmaceutical Products, Inc. v. OSHRC and Donovan, 681 F.2d 69, 10 OSH Cases 1697 (First Cir. 1982).

456 REA Express v. Brennan, 495 F.2d 822, 1 OSH Cases 1651 (Second Cir. 1974); Brennan v. OSHRC and Interstate Glass Co., 487 F.2d 438, 1 OSH Cases 1372 (Eighth Cir. 1973). Reduction of the Secretary's proposed penalty is also a matter within the Commission's discretion. Western Waterproofing Co., Inc. v. Marshall and OSHRC.

457 Secretary of Labor v. Hern Iron Works, Inc., 16 OSH Cases 1619 (Rev. Comm'n 1994).

458 California Stevedore & Ballast Co. v. OSHRC, 517 F.2d 986, 3 OSH Cases 1174 (Ninth Cir. 1975).

459 *See, e.g.,* Dixie Roofing and Metal Co., 2 OSH Cases 1566 (Rev. Comm'n 1975). *See also* Consolidated Rail Corp., 10 OSH Cases 1564, 1568 (Rev. Comm'n 1982), in which the Commission reduced the degree of a violation from serious to other-than-serious without specifically discussing its authority to do so. Federal appeals courts have upheld the Commission's authority to downgrade nonserious violations to *de minimis* status. *See, e.g.,* Secretary of Labor v. OSHRC and Erie Coke Corp., 16 OSH Cases 1241, 998 F.2d 134 (Third Cir. 1993) (noting that the Commission had exercised this authority for over 20 years and that ruling in favor of the Secretary would create an "undesirable intercircuit conflict"). The distinction between a "nonserious" violation and a *de minimis* one is important because a "non-serious" designation requires the employer to cease the violative practice, while a *de minimis* designation does not.

460 Commission Rule 34(b)(3), 29 C.F.R. § 2200.34(b)(3).

461 29 C.F.R. § 2200.34(b)(4).

462 Petitions for review of a Commission Order must be filed within 60 days of issuance of the Order. Review is obtained in either the court of appeals where the violation is alleged to have occurred, where the employer has its principal office, or in the D.C. Circuit Court. 29 U.S.C. § 660(a).

463 Secretary of Labor v. OSHRC and Interstate Glass, 487 F.2d at 442, 1 OSH Cases at 1375.

464 Secretary of Labor v. Sea Sprite Boat Co., 17 OSH Cases 1331, 64 F.3d 332 (Seventh Cir. 1995).

465 29 U.S.C. § 657(c)(1).

466 29 C.F.R. § 1903.2.

467 29 C.F.R. § 1915(d). In 2017, a violation of the posting requirement are subject to a maximum civil penalty of $12,675.

468 29 C.F.R. § 1904.2.

469 29 C.F.R. § 1904.5.

470 29 U.S.C. § 660(c)(1).

471 29 C.F.R. § 1977.12(b)(1)–(2).

472 *See* Usery v. Whirlpool Corp., 416 F. Supp. 30, 34, 4 OSH Cases 1391, 1392–1393 (N.D. Ohio 1976), *rev'd sub nom*. Marshall v. Whirlpool Corp., 593 F.2d 715, 7 OSH Cases 1075 (Sixth Cir. 1979), *aff'd*, 445 U.S. 1, 8 OSH Cases 1001 (1980) *on remand*, 9 OSH Cases 1038 (N.D. Ohio 1980).

473 29 U.S.C. § 657(f)(1).

474 29 U.S.C. § 657(e).

475 *Id*.

476 *See* OSHA *Field Operations Manual*, ch. 9, p. 9-3. *See also*, 29 C.F.R. § 1903.8(c).

477 29 U.S.C § 659(c).

478 *Id*.

479 29 U.S.C. § 662(c) & (d).

480 29 C.F.R. § 1954.20(a).

481 29 U.S.C. § 657(c)(3). *See also* 29 U.S.C. § 1910.20.

482 29 U.S.C. § 660(c)(1).

483 Dunlop v. Trumbull Asphalt Company, Inc., 4 OSH Cases 1847 (E.D. Mo. 1976).

484 29 U.S.C. § 660(c)(2).

485 29 U.S.C. § 660(c)(1).

486 23 OSH Cases 2079 (D. Colo. 2012).

487 *See* Powell v. Globe Industries, Inc., 431 F. Supp. 1096, 5 OSH Cases 1250 (N.D. Ohio 1977). The National Labor Relations Board (NLRB) has concurrent jurisdiction over Section 11(c) cases. In 1975, the general

counsel of the NLRB and the Secretary entered into an understanding for the procedural coordination of litigation arising under Section 11(c) of the OSH Act and Section 8 of the National Labor Relations Act, to avoid duplicate litigation.

488 Occupational Safety and Health Administration Compliance Assistance Authorization Act of 1998, Pub. L. No. 105-197 (codified at 29 U.S.C. § 670(d)). *See also*, 29 C.F.R. Part 1908.

489 65 Fed. Reg. 64,282 (Oct. 26, 2000).

490 29 C.F.R. § 1908.6.

491 29 U.S.C.§ 670(d)(3); 29 C.F.R. § 1908.6(f)(4).

492 *See* OSHA *Guidelines for Safety and Health Programs* at https://www.osha.gov/shpguidelines/.

493 *See* The OSHA Alliance Program at https://www.osha.gov/dcsp/alliances/whatis.html.

494 *See* OSHA Strategic Partnership Program at https://www.osha.gov/dcsp/partnerships/index.html.

495 *See* http://www.osha.gov/dcsp/vpp/index.html.

496 "Revisions to the Voluntary Protection Programs to Provide Safe and Healthful Working Conditions," 65 Fed. Reg. 45,649 (July 24, 2000).

497 OSHA Instruction CSP 03-01-001-TED 8-0.3 – Policies and Procedures Manual for Special Government Employee (SGE) Activity Conducted Under the Auspices of the Occupational Safety and Health Administration's (OSHA) Voluntary Protection Program, January 4, 2002.

498 *See* http://www.osha.gov/dcsp/vpp/sitebysic.html.

499 *See* http://www.vpppa.org/.

500 *See* https://www.osha.gov/dcsp/vpp/challenge.html.

501 See Ashford, *supra* note 15 at 47–51.

502 *See* Gade v. National Solid Wastes Management Ass'n, 505 U.S. 88, 15 OSH Cases 1673 (1992).

503 29 C.F.R. § 1902.3.

504 29 C.F.R. §§ 1902.3 and 1902.4.

505 29 U.S.C. § 667.

506 29 C.F.R. § 1902.2(b).

507 29 C.F.R. § 1954.3, 1954.10.

508 29 C.F.R. § 1954.3, 1954.10.

509 570 F.2d 1030, 6 OSH Cases 1257 (D.C. Cir. 1978).

510 *Id*. at 1036, 6 OSH Cases 1257.

511 AFL-CIO v. Marshall, 6 OSH Cases 2128 (D.D.C. 1978). For a history of the benchmark staffing issues, *see* 50 Fed. Reg. 2491 (1985).

512 These agencies regulate certain nuclear materials under agreements with the Nuclear Regulatory Commission.

513 29 U.S.C. § 653(b)(1).

514 Association of Am. R.R. v. DOT, 38 F.3d 582, 586, 16 OSH Cases 2084 (D.C. Cir. 1994); *In re* Inspection of Norfolk Dredging Co., 783 F.2d 1526, 1530, 12 OSH Cases 1715 (Eleventh Cir.), *cert. denied*, 479 U.S. 883 (1986); Donovan v. RedStar Marine Servs., Inc. 739 F.2d 774, 778, 11 OSH Cases 2049m 2052 (2d Cir. 1984), *cert denied*, 470 U.S.1003 (1985); PBR, Inc. v. Secretary of Labor, 643 F.2d 890, 896, 9 OSH Cases 1357 (First Cir. 1981); Southern Ry.v. OSHRC, 539 F.2d 335, 336-37, 3 OSH Cases 1940 (Fourth Cir.), cert. *denied*, 429 U.S. 999 (1976).

515 Southern Pacific Transportation Co. v. Usery and OSHRC, 539 F.2d 386; 4 OSH Cases 1693 (Fifth Cir. 1976), *cert. denied*, 434 U.S. 874, 5 OSH Cases 1888 (1977); Southern Railway Company v. OSHRC and Brennan, 539 F.2d 335, 3 OSH Cases 1940 (Fourth Cir.), *cert. denied*, 429 U.S. 999, 4 OSH Cases 1936 (1976); Baltimore & Ohio Railroad Co. v. OSHRC, 548 F.2d 1052, 4 OSH Cases 1917 (D.C. Cir. 1976).

516 *See, e.g*., Southern Ry. v. OSHRC, 539 F.2d 335, 336-37, 3 OSH Cases 1940 (Fourth Cir.), cert. *denied*, 429 U.S. 999 (1976) (restating OSHA's interpretation).

517 The Third Circuit has also adopted this definition of "working conditions." *See* Columbia Gas of Pennsylvania, Inc. v. Marshall, 636 F.2d 913, 9 OSH Cases 1135 (Third Cir. 1980).

518 539 F.2d at 391, 4 OSH Cases at 1696 (Fourth Cir.).

519 Pennsuco Cement & Aggregates, 8 OSH Cases 1378 (Rev Comm'n 1980).

520 Mushroom Transportation Co., 1 OSH Cases 1390 (Rev Comm'n 1973).

521 Northwest Airlines, 8 OSH Cases 1982, 1990 (Rev. Comm'n 1980).

522 30 U.S.C. §§ 801 et seq.

523 Imminent danger is defined by Section 3(j) of the Federal Mine Safety and Health Act of 1977 as "the existence of any condition or practice in a coal or other mine that could reasonably be expected to cause death or serious physical harm before such condition or practice can be abated."

524 30 C.F.R. § 955.

525 Publ. Law 109-236.

526 42 U.S.C. § 7412(r)(6).

527 42 U.S.C. § 7412(r)(6)(G).

528 For information relating to the Chemical Safety and Hazard Investigation Board, *see* http://www.csb.gov/.

529 *See* 29 C.F.R. § 1910.120 and § 1910.1096 for general industry; § 1915.57 for shipyards; § 1926.53 and § 1926.65 for construction.

530 42 U.S.C. §2011.

531 The Atomic Energy Act is codified at 42 U.S.C. §§ 2011 et seq. The Nuclear Regulatory Commission, an independent executive commission, was created by the Energy Reorganization Act of 1974, 42 U.S.C. § 5841(a), and all licensing and related regulatory functions of the Atomic Energy Commission were then transferred to the NRC. *See* 42 U.S.C. § 5841(f) and (g). The NRC's "Standards for Protection Against Radiation" can be found at 10 C.F.R. Part 20.

[532] The permissible dosage per calendar quarter within such a "restricted area" is 1.25 rems to the whole body, head, and trunk, active blood-forming organs, lens of the eyes, or gonads; 18.75 rems to hands and forearms, feet and ankles; 7.5 rems to the skin of the whole body. Dosage standards are also set forth for the inhalation of radioactive substances. *See* 10 C.F.R. §§ 20.101–103. Detailed personnel monitoring and reporting requirements are also included in the regulations.

[533] 10 C.F.R. §§ 20.105, 20.106, and 20.303.

[534] 40 C.F.R. Part 190 et seq.

[535] 30 C.F.R. Part 57 et seq. These regulations are revisions of regulations previously promulgated by the Secretary of Interior under the Metal and Non-Metallic Mine Safety Act that was repealed by the Federal Mine Safety and Health Amendments Act of 1977.

[536] The Walsh–Healey Public Contracts Act is codified at 41 U.S.C. §§ 35 et seq. The relevant regulations can be found in 41 CFR § 50-204. These standards were later promulgated by the Secretary as established federal standards under Section 6(a) of the OSH Act.

[537] The Radiation Control for Health and Safety Act amended the Public Health Service Act and is codified at 21 U.S.C. §§ 360gg-ss. The regulations promulgated by the U.S. Food and Drug Administration under this statute can be found at 21 C.F.R. Parts 1000–1050 (Radiological Health). *See also* 21 C.F.R § 1020.30, the standard applicable to diagnostic X-ray systems.

[538] *See* CPL 02-00-086 at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1658.

[539] 15 U.S.C. § 1261 et seq.

[540] Regulations published under this statute can be found at 16 CFR Subchapter C, Parts 1500 et seq.

[541] 15 U.S.C. § 2080(a).

[542] *See, e.g.,* 15 U.S.C. § 2608(c) pertaining to the *Frank Lautenberg Chemical Safety for the 21st Century Act*.

[543] The FEPCA is codified at 7 U.S.C. §§ 136 et seq. It is a comprehensive revision of the Federal Insecticide, Fungicide and Rodenticide Act of 1970, 7 U.S.C. §§ 135 et seq. (1970).

[544] Organized Migrants in Community Action v. Brennan, 520 F.2d 1161, 3 OSH Cases 1566 (D.C. Cir. 1975). *But see* Public Citizen Health Research Group v. Auchter, 702 F.2d 1150, 1157 n.23, 11 OSH Cases 1209 (D.C. Cir. 1983) (EPA's labeling requirements for ethylene oxide do not preempt OSHA's Ethylene Oxide regulation because EPA has exercised minimal, if any, regulatory authority.).

[545] Regulations promulgated by EPA to protect farm workers from toxic exposure to pesticides are found in 40 C.F.R. §§ 170.1 et seq.

[546] 20 C.F.R. Part 170.

[547] The Clean Air Act is codified at 42 U.S.C. §§ 7401 et seq. National primary and secondary ambient air quality standards are published at 40 CFR Part 50.

[548] 61 Fed. Reg. 31,668 (June 20, 1996)(codified at 40 C.F.R. Part 68).

[549] 42 U.S.C. § 11001 et seq. (1986).

[550] 29 C.F.R. § 1910.120.

[551] 29 C.F.R. § 1910.120, app. E.

[552] 42 U.S.C. § 11041.

[553] The Toxic Substances Control Act of 1976 is codified at 15 U.S.C. §§ 2601 et seq.

[554] 15 U.S.C. § 2608(c) states "In exercising any authority under this chapter, the Administrator shall not, for purposes of section 653(b)(1) of title 29, be deemed to be exercising statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health."

[555] Pub. L. 114-182 (June 22, 2016) (codified at 15 U.S.C. ch. 53).

[556] 15 U.S.C. § 2602(12). "The term "potentially exposed or susceptible subpopulation" means a group of individuals within the general population identified by the Administrator who, due to either greater susceptibility or greater exposure, may be at greater risk than the general population of adverse health effects from exposure to a chemical substance or mixture, such as infants, children, pregnant women, workers, or the elderly."

[557] 49 U.S.C. § 40101.

[558] 49 U.S.C. § 20101.

[559] 49 U.S.C. § 30101.

[560] 49 U.S.C. § 60101.

[561] 49 U.S.C. § 1432(a).

[562] 49 U.S.C. § 1432(a).

[563] 49 U.S.C. 31136.

[564] 49 C.F.R. Part 399.

[565] *See, e.g.,* Lee Way Motor Freight, 4 OSH Cases 1968 (Rev. Comm'n 1977).

[566] 3 OSH Cases 1601 (Rev. Comm'n 1975).

[567] *Id*.

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