April 27, 2026

U.S. Environmental Protection Agency,
EPA Docket Center,
Docket ID No. EPA–HQ–OAR–2019– 0178,
Mail Code 28221T, 1200
Pennsylvania Avenue NW,
Washington, DC 20460

Concerning: Docket No.: EPA–HQ–OAR–2019–0178

Submitted to Regulations.Gov

Dear EPA,

The Institute of Hazardous Materials Management [IHMM] is pleased to submit comments concerning the docket cited above regarding the U.S. Environmental Protection Agency's Notice of Proposed Rulemaking under Docket No. **EPA–HQ–OAR–2019–0178**

Founded in 1984, the Institute of Hazardous Materials Management® (IHMM®) is a not-for-profit organization headquartered in Rockville, Maryland, operating in all 50 states and 85 countries. IHMM has been protecting the environment and the public's health, safety, and security through the creation of credentials recognizing professionals who have demonstrated a high level of knowledge, expertise, and excellence in the management of hazardous materials, dangerous goods transportation, environmental protection, health, and workplace safety.

It is primarily through five [5] of IHMM's professional credentials that we provide comments in this submission: the Certified Hazardous Materials Manager® [CHMM®], the Certified Hazardous Materials Practitioner® [CHMP®], the Associate Hazardous Materials Manager® [AHMM®], the Certified Safety and Health Manager® [CSHM®], and the Certified Safety Management Practitioner™ [CSMP™].

The CHMM and CHMP credentials are accredited by the ANSI National Accreditation Board [ANAB], under the international ISO/IEC 17024-2012 standard, containing principles and requirements for a body certifying persons against specific requirements, and include the development and maintenance of a certification scheme for persons.

ANSI/ANAB accreditation of IHMM's credentials is the strongest and highest level of accreditation of professional credentials and serves as the indicator of the vigorous ANSI annual surveillance process.

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ANSI accreditation is recognized both nationally and internationally and has become the hallmark of a quality certification program.

The IHMM CHMM, CHMP, CSHM, and CSMP certification programs are also accredited by The Council of Engineering & Scientific Specialty Boards (CESB). CESB is an independent, voluntary membership body for organizations that recognize, through specialty certification, the expertise of individuals practicing in engineering and related fields. Accreditation is earned by demonstrating adherence to the CESB Accreditation Guidelines, including a robust review program of compliance with those standards.

Executive summary

The Institute of Hazardous Materials Management ("IHMM") appreciates the opportunity to comment on the Environmental Protection Agency's proposed reconsideration of the 2024 National Emission Standards for Hazardous Air Pollutants governing ethylene oxide ("EtO") emissions from commercial sterilization facilities. IHMM represents credentialed professionals working across hazardous materials management, environmental compliance, process safety, workplace safety and health, and safety management systems, including Associate Hazardous Materials Managers (AHMMs), Certified Hazardous Materials Managers (CHMMs), Certified Hazardous Materials Practitioners (CHMPs), Certified Safety and Health Managers (CSHMs), and Certified Safety Management Practitioners (CSMPs). These professionals play direct and indispensable roles in designing, implementing, documenting, auditing, and improving compliance systems at regulated facilities.

IHMM supports a health-protective, science-based, and implementation-realistic regulatory framework for EtO sterilization facilities. We recognize the essential role these facilities play in the medical-device supply chain, and we also recognize EPA's own acknowledgment that the proposed reconsideration would increase EtO emissions relative to the 2024 final rule and would result in non-monetized health disbenefits, including risks that may disproportionately affect children because EtO is mutagenic. For that reason, IHMM does not support an undifferentiated rollback of the 2024 rule. Instead, IHMM supports a middle course: technical corrections and practical compliance flexibility should proceed, but any withdrawal of health-protective standards should be accompanied by legally durable and scientifically justified replacement protections.

Comments of the Institute of Hazardous Materials Management

IHMM supports EPA's efforts to correct drafting errors, clarify ambiguities, and adopt implementation mechanisms that are workable in actual facility operations. We also support regulatory approaches that preserve the continuity of medical-device sterilization capacity where such approaches do not materially compromise public health protection. At the same time, IHMM is concerned that the proposal, as drafted, would rescind the 2024 rule's risk-based standards under Clean Air Act section

112(f)(2), relax certain control requirements, remove the permanent total enclosure ("PTE") requirement, and replace mandatory CEMS for many facilities with optional compliance pathways, all while EPA expressly projects an increase of approximately 7.8 tons per year of EtO emissions compared with the 2024 final rule. That projected increase, standing alone, warrants caution.

Accordingly, IHMM's position is as follows:

(1) EPA should not rescind the 2024 section 112(f)(2) protections unless and until it establishes a legally sound and technically supported replacement framework that preserves meaningful protection for nearby communities and workers;
(2) EPA should pursue any reassessment of EtO toxicity through a transparent, science-driven process rather than allowing uncertainty to become a justification for prolonged regulatory retreat;
(3) EPA may reasonably provide compliance flexibility on monitoring and enclosure methods where equivalent performance can be demonstrated and enforced;
(4) EPA should retain robust testing, operating-limit, corrective-action, and reporting requirements; and
(5) EPA should expressly recognize the critical role of qualified credentialed professionals in facility compliance, emissions management, worker protection, and community-risk reduction.

II. EPA Should Not Rescind the 2024 Section 112(f)(2) Risk-Based Standards Without Replacement Safeguards

EPA's proposal is driven principally by a new statutory interpretation: namely, that Clean Air Act section 112(f)(2) authorizes only a one-time residual-risk review within eight years after promulgation of MACT standards and does not authorize a later discretionary second residual-risk review. IHMM recognizes that EPA has presented a serious legal argument grounded in statutory structure and recent administrative-law doctrine. But even if EPA ultimately adheres to that interpretation, the public-health consequence of simply removing the 2024 risk-based standards without prompt substitute safeguards is deeply concerning. EPA acknowledges that the proposal would increase EtO emissions and produce health disbenefits. EPA further acknowledges that children may face disproportionate environmental health risks from EtO exposure. Those admissions make clear that the issue is not whether risk exists, but whether EPA has selected the correct legal vehicle for addressing it.

For that reason, IHMM urges EPA not to treat the proposed rescission of section 112(f)(2) standards as the end of the Agency's protective obligation. If EPA concludes that section 112(f)(2) is unavailable, EPA should promptly identify and employ whatever lawful authorities remain available under section 112(d)(6), section 112(d)(2)-(3), permitting authorities, or other applicable provisions to preserve meaningful emissions reductions where the record supports them. In IHMM's view, a legal reassessment should not become a practical vacuum.

III. EPA Should Use a Science-First Process for EtO Toxicity Rather Than Indefinite Regulatory Paralysis

EPA also proposes, as an alternative rationale, that uncertainties in the 2016 IRIS EtO value support reconsideration of the 2024 rule. IHMM agrees that where EPA believes the toxicity record is materially uncertain, the proper course is a transparent and rigorous scientific reassessment.

But IHMM does not support using scientific uncertainty as a substitute for decision-making or as a basis for indefinite weakening of controls without a clear path forward. EPA itself notes that new evidence may warrant reevaluation of toxicity values, yet the Agency also acknowledges that the D.C. Circuit previously upheld EPA's reliance on the 2016 IRIS value in other EtO rulemaking. On this record, the prudent course is not inertia; it is disciplined scientific review with a defined timetable.

IHMM therefore urges EPA to commit to a transparent, peer-supported review of the EtO toxicity record and, if necessary, to update its value or range promptly. Pending that reassessment, EPA should avoid creating a regulatory gap that leaves nearby communities with fewer protections and regulated entities with less certainty. The regulated community benefits from clarity; the public benefits from rigor; and both suffer from prolonged uncertainty.

IV. Monitoring Flexibility Can Be Appropriate, but Only With Strong Enforceability

IHMM supports allowing facilities to choose between annual performance testing with parametric monitoring and CEMS, provided EPA preserves strong enforceability. EPA is correct that parametric monitoring has long been used effectively in many settings, and flexibility may reduce unnecessary burden where the control technology is well understood and robust operating limits can be established. But monitoring flexibility is not synonymous with weakened accountability. If EPA finalizes an optional monitoring pathway, the Agency should retain rigorous requirements for initial testing, annual testing, continuous parameter monitoring, deviation reporting, corrective action, and revalidation where operating limits are no longer representative.

IHMM also supports EPA's effort to modernize the parametric-monitoring provisions so they better reflect current control-device design and actual sterilization operations. Revising parameters for acid-water scrubbers, oxidizers, and gas-solid reactors may improve real-world compliance if the final rule clearly defines measurable operating limits and the consequences of excursions. In practice, the success of this approach will depend heavily on competent implementation by qualified environmental, hazardous materials, and safety professionals at the facility level.

V. EPA May Reconsider a Blanket PTE Requirement, but Should Not Abandon Capture Assurance

IHMM supports EPA's reconsideration of a categorical, one-size-fits-all PTE requirement. Sterilization facilities vary widely in age, layout, process flow, and engineering configuration. A rigid national enclosure mandate may be infeasible or disproportionately costly at some sites, and EPA is correct to recognize that states and permitting authorities may often be better positioned to evaluate capture methods case by case.

That said, IHMM does not support the proposition that capture assurance is unimportant. If EPA removes the blanket PTE requirement, the final rule should still require facilities to demonstrate, through engineering analysis, testing, permitting conditions, or equivalent site-specific means, that emissions are effectively captured and routed to control devices. In other words, the Agency may rationally reconsider the means, but it should not disregard the end.

VI. EPA's Proposed ARV Revision May Be Acceptable if Paired With Strong Demonstration Requirements

IHMM understands EPA's rationale for revising the new-source aeration room vent standard for facilities using at least 10 tons per year of EtO from 99.9 percent reduction to 99.6 percent reduction, particularly where new vents at existing facilities may share infrastructure with existing controls. If EPA's updated cost and engineering analysis supports that conclusion, the revision may be reasonable. But EPA should not treat a lower numeric standard as self-executing. The final rule should require clear demonstration that the revised standard remains achievable, representative of well-controlled practice, and protective when combined with testing, operating limits, and corrective-action requirements.

VII. Relevant Judicial Precedents to Discuss

a. **Huntsman Petrochemical LLC v. EPA, 114 F.4th 727 (D.C. Cir. 2024)**. That case directly addressed EPA's use of the 2016 EtO cancer-risk assessment in another EtO rulemaking, and the D.C. Circuit held that EPA had adequately explained its modeling choices and was not arbitrary or capricious in relying on the 2016 IRIS value instead of TCEQ's alternative. The EPA cannot lightly discount the 2016 IRIS value without a comparably rigorous scientific record.

b. **Louisiana Environmental Action Network v. EPA, 955 F.3d 1088 (D.C. Cir. 2020)**. There, the D.C. Circuit held that during a section 112(d)(6) review, EPA must address all listed hazardous air pollutants that a source category is known to emit, not just the pollutants EPA previously chose to regulate. That case is highly relevant to EPA's attempt here to loosen certain implementation mechanisms while still claiming to satisfy section 112(d)(6).

c. **NRDC v. EPA, 529 F.3d 1077 (D.C. Cir. 2008)**. This is one of the key residual-risk cases under section 112(f)(2). It supports the proposition that if EPA finds existing standards provide an "ample margin of safety," it may readopt them, but it also underscores that section 112(f)(2) is a structured residual-risk inquiry, not an open-ended policy choice. This case matters because EPA's current proposal turns heavily on how section 112(f)(2) should be read.

d. **Association of Battery Recyclers v. EPA, 716 F.3d 667 (D.C. Cir. 2013)**. That case is useful on the section 112(d)(6) side. It held that EPA does not have to recalculate MACT floors every time it conducts a technology review under section 112(d)(6). EPA relies on that line of authority in many RTR rules. Frames the point that EPA does have continuing authority to revise standards "as necessary" under section 112(d)(6), even if EPA now believes section 112(f)(2) cannot support a second residual-risk round.

e. EPA's proposal explicitly frames its section 112(f)(2) theory as a "best reading of the statute" argument in the post-*Loper Bright* environment, and it cites reversal-of-position authorities. That means **Loper Bright Enterprises v. Raimondo** and the familiar APA reversal cases, such as **FCC v. Fox Television Stations** and **Motor Vehicle Manufacturers Ass'n v. State Farm,** are of concern. If EPA is reversing course, it needs a fully reasoned explanation that grapples with science, public-health consequences, and reliance interests.

f. The **2024 commercial sterilizer rule is already in litigation**, and EPA states in this proposal that the separate challenges were consolidated and are being held in abeyance pending reconsideration. Any final action here is almost certain to be tested in court, so EPA should build the strongest possible scientific and legal record now.

VIII. IHMM Supports Technical Corrections and Clarifications

IHMM supports EPA's proposed technical corrections, definitional clarifications, cross-reference fixes, and other amendments intended to make the rule text accurate, coherent, and administrable. Regulatory text should be enforceable, understandable, and technically correct. That objective is particularly important here because facility compliance turns on detailed definitions, monitoring provisions, testing protocols, and reporting requirements. These are the provisions that credentialed practitioners must interpret and implement in real operations.

IX. IHMM certificant implications and recommended professional practices

The issues raised by this rulemaking directly affect IHMM credential holders in distinct ways.

AHMMs often serve in early-career environmental, health, and safety roles that support emissions inventories, hazardous materials tracking, SDS and container-management programs, document control, training coordination, and compliance recordkeeping. In the EtO sterilization context, AHMMs are frequently involved in collecting operational data, maintaining compliance logs, assisting with inspection readiness, supporting performance-test documentation, and helping translate rule text into day-to-day procedures. A rule that is internally coherent and practically implementable is

especially important for these professionals, who often form the backbone of facility compliance administration.

CHMMs typically lead enterprise-level hazardous materials and environmental compliance programs. They are often responsible for facility permitting strategy, hazardous materials management systems, emissions-control planning, waste and residuals oversight, emergency planning interface, community right-to-know coordination, and the integration of air, waste, occupational, and transportation requirements into a defensible compliance architecture. Changes to EtO standards, monitoring methods, and enclosure requirements fall squarely within the CHMM role because those changes affect capital planning, compliance strategy, auditing, and executive risk management.

CHMPs are commonly positioned closer to hazardous materials operations and implementation. They help translate regulatory requirements into operating procedures governing storage, handling, process controls, chemical transfers, labeling, spill prevention, and incident response. In EtO-regulated facilities, CHMPs are among the professionals most likely to identify where emissions can occur in practice, how procedures must change to reduce releases, and how operator conduct, housekeeping, and process discipline affect compliance. Their role becomes more important, not less, when rules move toward parameter-based compliance and site-specific engineering controls.

CSHMs focus on worker safety and health and are central to implementing exposure-control measures, ventilation protocols, confined-space and line-breaking precautions where applicable, training, hazard communication, incident investigation, and coordination with industrial hygiene and occupational health functions. Although this rule is an air-toxics rule, its practical consequences extend directly to the workplace. The same systems that capture and control EtO emissions also influence worker exposure potential. CSHMs therefore have a direct stake in ensuring that regulatory flexibility does not weaken operational safeguards for employees.

CSMPs play a unique role in building and maintaining the management systems that make compliance sustainable. They develop procedures, training systems, audit structures, management-of-change processes, accountability mechanisms, and corrective-action programs. In a rulemaking such as this, where EPA is proposing to allow more facility choice in monitoring and enclosure methods, the CSMP function becomes critical. Regulatory flexibility can succeed only where management systems are disciplined, documented, and auditable.

For all of these reasons, IHMM urges EPA to recognize that effective implementation of any final EtO rule will depend not only on the text of the regulation, but also on the competence of the professionals charged with carrying it out. EPA should preserve a framework that rewards sound engineering, disciplined monitoring, defensible documentation, and accountable safety and environmental management.

IHMM Professional Credentials

The **Certified Hazardous Materials Manager® (CHMM®)** is an environmental professional who has demonstrated, through education, experience, and examination, the ability to identify and assess the risks of hazardous materials, mitigate or eliminate those risks, and manage their impact on human health and the environment. A CHMM provides proper controls for material handling, transportation, and security throughout the life cycle of hazardous materials, from design and production through storage, recycling, and ultimate disposal. They apply scientific knowledge, engineering technologies, and best management practices in compliance with U.S. regulatory requirements. We illustrate the hazardous materials compliance under 49 CFR and the risk management knowledge, skills, and abilities of the CHMM by including the CHMM blueprint in **Attachment One**.

The CHMM is accredited by the Council on Engineering and Scientific Specialty Boards [CESB] and by the American National Standards Institute [ANSI]. The measure of the quality and strength of a certification program is to evaluate its accreditation status. Accreditation is a form of certification for the certifying organization, requiring conformance with strict standards of validity, reliability, and impartiality. A key feature of IHMM credentialing programs, accreditation is essential because of the nature of work performed by IHMM certificants. The handling and management of hazardous materials and the transport of dangerous goods are governed by model regulations published by the US Environmental Protection Agency, US Department of Transportation, the U.S. Department of Labor, the Occupational Safety and Health Administration, as well as by the safety industry best practices regulations. Accredited credentials allow professionals to gain knowledge to use and implement these regulations, but to be recognized for their competency to properly manage and perform the functions of the profession.

The **Certified Hazardous Materials Practitioner® (CHMP®)** is a professional who has demonstrated, through education, experience, and examination, the ability to identify and assess the risks of hazardous materials, mitigate or eliminate those risks, and manage their impact on human health and the environment. A CHMP provides proper controls for material handling, transportation, and security throughout the life cycle of hazardous materials, from design and production through storage, recycling, and ultimate disposal. They apply scientific knowledge, engineering technologies, and best management practices in compliance with U.S. regulatory requirements. We illustrate the hazardous materials compliance under 49 CFR and risk management knowledge, skills, and abilities of the CHMP by including the CHMP blueprint in **Attachment Two**.

The CHMP is accredited by the Council on Engineering and Scientific Specialty Boards [CESB] and by the American National Standards Institute [ANSI]. The measure of the quality and strength of a certification program is to evaluate its accreditation status. Accreditation is a form of certification for the certifying organization, requiring conformance with strict standards of validity, reliability, and impartiality. A key feature of IHMM credentialing programs, accreditation is essential because of the nature of work performed by IHMM certificants. The handling and management of hazardous

materials and the transport of dangerous goods are governed by model regulations published by the US Environmental Protection Agency, US Department of Transportation, the U.S. Department of Labor, the Occupational Safety and Health Administration, as well as by the safety industry best practices regulations. Accredited credentials allow professionals to not only gain knowledge to use and implement these regulations but to be recognized for their competency to properly manage and perform the functions of the profession.

The Associate Hazardous Materials Manager® [AHMM®] An Associate Hazardous Materials Manager (AHMM) is an early-career professional who has demonstrated experience in handling hazardous materials in a wide variety of specialties, such as safety, environmental protection, compliance, or basic dangerous goods transportation. The AHMM professional focuses on technical knowledge and expertise in handling hazardous materials gained from some experience in the United States military, from time in a military occupation specialty code [MOS] or Air Force Specialty Codes [AFSC], or formal education in undergraduate or graduate degree studies in applied science, environmental science, environmental engineering, chemistry, biology, physics, or geology. We illustrate the background of an AHMM by including the AHMM blueprint as **Attachment Three**.

The **Certified Safety and Health Manager® (CSHM®)** demonstrates the knowledge and skills necessary to understand general and business management principles; apply management systems; apply occupational health and safety, security, and environmental knowledge, principles, and standards; apply to utilize risk identification, management, and controls; and set related goals, objectives, and targets. Safety and health managers are responsible for ensuring environmental compliance and promoting workplace safety through proper and ongoing leadership. Critical decision-making skills and expertise are needed to effectively address safety, health, and environmental hazards associated with operations and activities. We illustrate the workplace safety and risk management knowledge, skills, and abilities of the CSHM by including the CSHM blueprint in **Attachment Four**.

The CSHM is accredited by the Council on Engineering and Scientific Specialty Boards [CESB], and IHMM is now preparing to submit the new blueprint of the CSHM for accreditation by the American National Standards Institute [ANSI]. The measure of the quality and strength of a certification program is to evaluate its accreditation status. Accreditation is a form of certification for the certifying organization, requiring conformance with strict standards of validity, reliability, and impartiality. A key feature of IHMM credentialing programs is that accreditation is essential because of the nature of work performed by IHMM certificants. The management of environmental, health, and safety issues in the workplace is governed by model regulations from the U.S. Department of Labor, the Occupational Safety and Health Administration, as well as by safety industry best practices regulations. Accredited credentials allow professionals not only to gain knowledge to use and implement these regulations but also to be recognized for their competency to properly manage and perform the functions of the profession.

The **Certified Safety Management Practitioner® (CSMP®)** demonstrates the knowledge, skills, and competencies necessary to understand general and business management principles, safety management methods and systems, safety management systems of ISO standards, and utilize risk identification, management, and hierarchy controls. Safety professionals are responsible for ensuring that employers' safety management systems remain compliant in the workplace and follow all applicable legislation for the worker and the workplace. We illustrate the workplace safety and risk management knowledge, skills, and abilities of the CSMP by including the CSMP blueprint in **Attachment Five.**

The CSMP is accredited by the Council on Engineering and Scientific Specialty Boards [CESB]. The measure of the quality and strength of a certification program is to evaluate its accreditation status. Accreditation is a form of certification for the certifying organization, requiring conformance with strict standards of validity, reliability, and impartiality. A key feature of IHMM credentialing programs is that accreditation is essential because of the nature of work performed by IHMM certificants. The management of environmental, health, and safety issues in the workplace is governed by model regulations from the U.S. Department of Labor, the Occupational Safety and Health Administration, as well as by safety industry best practices regulations. Accredited credentials allow professionals not only to gain knowledge to use and implement these regulations but also to be recognized for their competency to properly manage and perform the functions of the profession.

Recertification of Credentials. After recognizing the strength of the content of the credential, and then its accreditation comes the requirements imposed by the certification body [IHMM] for the periodic recertification of the credential. IHMM requires that the AHMM, CHMM, CHMP, CSHM, and CSMP holders recertify their competency to continue to hold the credential every 5 years based on the contents of the certification blueprint. This ensures EPA and every public and private sector entity that relies on the professionals who hold these credentials, who are constantly upgrading their skills, knowledge, and abilities in their communities of practice.

Training. IHMM's commitment to the excellence of its professional credentials, and throughout EPA's work with employers, is the emphasis on the necessity of receiving training, and IHMM applauds the dedication to training and education as we stand behind and support our credential holders. IHMM has the IHMM Foundation https://hazmatsociety.org/ whose reason to exist is principally a focus on the education and training of IHMM's certificants.

Here https://hazmatsociety.org/education-training/, our certificants can easily find and take an extraordinary range of courses to upgrade and expand their knowledge, skills, and abilities.

IHMM respectfully urges EPA to finalize a rule that preserves practical flexibility while maintaining meaningful protection of human health and the environment. EPA should proceed with technical corrections and reasonable implementation clarifications. EPA may also provide carefully structured flexibility on monitoring and enclosure methods where equivalent performance can be demonstrated. But EPA should not rescind the 2024 rule's health-protective standards without a legally durable and

scientifically supported replacement approach that addresses the very risks EPA acknowledges remain significant.

IHMM appreciates the opportunity to comment on this important rulemaking.

Respectfully submitted,

Eugene A. Guilford, Jr., CAE
Executive Director

About the Institute of Hazardous Materials Management - https://ihmm.org/

Founded in 1984, the Institute of Hazardous Materials Management (IHMM), is a not-for-profit organization. IHMM has been protecting the environment and the public's health, safety, and security through the creation of credentials recognizing professionals who have demonstrated a high level of knowledge, expertise, and excellence in the management of hazardous materials, dangerous goods transportation, environmental protection, health, and workplace safety.

Over 18,000 homeland security, environmental protection, engineering, health sciences, transportation, and public safety professionals have earned IHMM's accredited ***Certified Hazardous Materials Manager®*** *(CHMM®) credential. IHMM also administers the* ***Certified Hazardous Materials Practitioner®*** *(CHMP®), the* ***Certified Dangerous Goods Professional®*** *(CDGP®), the* ***Associate Hazardous Materials Manager®*** *[AHMM®], and the* ***Certified Dangerous Goods Trainer®*** *(CDGT®) credentials. IHMM also works with colleges and universities throughout the United States and, to that end, offers the* ***Student Certified Hazardous Materials Manager®*** *(ST/CHMM®) and* ***Student Associate Safety and Health Manager®*** *[ST/ASHM®] credentials. In 2019, IHMM acquired ISHM and now manages the* ***Certified Safety and Health Manager®*** *[CSHM®],* ***Certified Safety Management Practitioner®*** *[CSMP®],* ***Associate Safety and Health Manager®*** *[ASHM®],* ***Certified School Safety Specialist®*** *[CSSS®], and* ***Certified School Safety Manager®*** *[CSSM®] credentials.*

Attachment One

Certified Hazardous Materials Manager® [CHMM®]

Certification Blueprint

INSTITUTE OF HAZARDOUS MATERIALS MANAGEMENT

CERTIFIED HAZARDOUS MATERIALS MANAGER (CHMM®) EXAM SPECIFICATIONS (BLUEPRINT)

Effective 2021

A Certified Hazardous Materials Manager (CHMM) is a professional who has demonstrated, through education, experience and examination, the ability to identify and assess the risks of hazardous materials, mitigate, or eliminate those risks, and manage their impact on human health and the environment.

A CHMM provides proper controls for material handling, transportation, and security throughout the life cycle of hazardous materials, from design and production through storage, recycling, and ultimate disposal. They apply scientific knowledge, engineering technologies, and best management practices in compliance with U.S. regulatory requirements.

The CHMM examination is a testing instrument designed to evaluate candidate's minimal competency in the field of hazardous materials management. This Specification Blueprint is intended to offer guidance to candidates by outlining the domains and tasks that will be covered on the examination. The blueprint reflects the consensus of the profession validated via a survey of what hazardous materials managers do in practice. The Blueprint below describes the subject matter covered by the examination. All test items will be drawn from among the domain areas of the Specification Blueprint.

This Specification Blueprint lists below each domain and competencies with tasks given under each domain. A percentage label accompanies each domain in this Specification Blueprint. This percentage represents the proportion of the actual CHMM examination devoted to that domain. Tasks provide reference for activities conducted under each domain.

DOMAINS AND COMPETENCIES/TASKS	% of Exams
1 Planning for Materials with Hazards	**9.35**
1.1 Identify hazardous materials by name.	
1.2 Given four SDS, identify the hazardous material.	
1.3 Given a laboratory report (boiling point, classification, PH), identify the constituent that makes this mixture hazardous.	
1.4 Given a scenario about pollution prevention, identify the preferred strategy that should be used.	
1.5 Identify examples of effective recycling.	
1.6 Given a scenario involving pollution, identify the pollution impacts and the related regulations.	
1.7 Given a scenario about a Pollution Prevention Opportunity Assessment (PPOA), identify the elements and sequence of events.	
1.8 Given a scenario about hazardous materials and process, identify the impact to air.	
1.9 Given a scenario hazardous materials and process, identify the impact to water resources.	
1.10 Given a scenario hazardous materials and process, identify the impact to soil.	
1.11 Identify the characteristics of minor and major permits.	
1.12 Identify the characteristics of the permit application and permit review.	
1.13 Identify the characteristics of inspection, training, and waste requirements of permitting.	

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1.14 Determine the threshold quantity of a regulated substance in a process required to comply with EPA's risk management program regulation.	
1.15 Identify the components of Standard Operating Procedures (SOP).	
2 Shipping and Transporting Hazardous Waste and Hazardous Materials	**10.34**
2.1 Given a scenario about hazmat transportation, identify requirements.	
2.2 Given a scenario about packaging, identify the appropriate container.	
2.3 Given a scenario about transporting hazardous waste or hazardous materials and the method of transportation, identify the required labeling.	
2.4 Given a scenario about shipping domestically or internationally, determine how hazardous materials should marked.	
2.5 Given a scenario, identify what information needs to be included in the shipping documents, and the proper shipping description format, and order of information.	
2.6 Given a shipment scenario, identify the required placarding.	
2.7 Identify conditions under which shipments, or portions of shipments, can be accepted or rejected.	
3 Store Materials with Hazard	**9.22**
3.1 Identify storage location site requirements for property containing hazardous materials/waste.	
3.2 Given a scenario about controlling inventory, identify the regulations that apply to that inventory.	
3.3 Given a scenario about storage of hazardous waste/material, identify the facility signage requirements.	
3.4 Given a scenario about storing a hazardous waste/material, identify proper container labeling requirements.	
3.5 Given a scenario about controlling access to hazardous materials/waste, identify how to control access.	
3.6 Given a scenario, identify how storage meets requirements.	
4 Facility Operations Involving Materials with Hazards	**9.12**
4.1 Given a type of hazardous material/waste, identify the engineering control that should be used to treat the material/waste.	
4.2 Given a type of hazardous material/waste, identify the engineering control that should be used to store of the material/waste.	
4.3 Given a type of hazardous material/waste, identify the engineering control that should be used to dispose of the waste.	
4.4 Given a scenario about a process, identify regulatory training record requirements.	
4.5 Given an SDS, identify the hazardous communication requirements that are needed for that material.	
4.6 Given a hazardous material, identify the PPE that should be used when sampling, handling, i.e., sweeping, shoveling, etc., the material.	
4.7 Given a scenario, identify the testing procedures needed to determine the hazard associated with the material.	
4.8 Given a hazardous material, determine health, safety, and security requirements.	
5 Disposition of Materials with Hazards	**8.46**
5.1 Identify typical components of a waste profile.	
5.2 Given a scenario about a waste material, identify the disposition options.	
5.3 Identify what a generator uses to quality/disqualify a disposal facility.	
5.4 Given a scenario about a material (soil, chemical product, construction waste, etc.), identify the disposition requirements for the material.	

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5.5 Given a scenario about the final disposition of a hazardous waste under RCRA, identify how final disposition is confirmed and documented.	
5.6 Given a scenario where there is a release from a container, identify how the release should be managed.	
5.7 Given a waste disposition scenario, identify how emissions (air) should be managed.	
5.8 Given a waste disposition scenario, identify how discharges (water) should be managed.	
6 Record Keeping and Reporting	**7.49**
6.1 Given a scenario about a spill of a hazardous material, identify the reporting requirements (timeframe, threshold reporting quantities, who receives the reports.)	
6.2 Given a scenario, identify the record keeping requirements for the relevant regulatory program (RCRA, EPCRA, TSCA, UST, CWA, CAA, CERCLA, HMTA, and SARA).	
7 Training Personnel	**8.07**
7.1 Given a scenario, identify the training requirements for the relevant regulatory program (RCRA, EPCRA, TSCA, UST, CWA, CAA, CERCLA, HMTA, SARA, and OSHA.)	
7.2 Given an activity involving materials with hazard, identify the competencies that would be needed for that activity (could include identifying hazards, determine if respiratory protection is needed, determine PPE needed, decontamination sequences, site worker needs a physical).	
7.3 Given a scenario about a job, identify the types of training that are required.	
7.4 Given a scenario about training, identify the assessment that should be used.	
7.5 Given a scenario about a Hazmat event when conducting drills and exercises, identify which types of agencies should be involved.	
7.6 Given a regulatory requirement, determine the adequacy of the training content and duration.	
8 Response and Recovery	**7.95**
8.1 Given a scenario about a spill or release, identify the chemical and physical hazards of the material, the quantity of material, and the location of the spill /release.	
8.2 Given a scenario about a spill or release, identify the amount of material that has been spilled or released.	
8.3 Identify the conditions that require the incident to be reported to the National Response Center.	
8.4 Given a scenario about a spill or release, identify how to mitigate the impact to receptors.	
8.5 Identify the steps to develop a recovery or incident action plan.	
8.6 Given an accident situation, identify data needed to investigate the cause of the incident.	
9 Remediation	**6.5**
9.1 Given a scenario about a spill or release, determine how to identify the constituents of concern, the vertical and horizontal extent of the constituents of concern, and the characteristics of the receiving media.	
9.2 Given a release scenario, determine the appropriate remedial objectives.	
9.3 Given a scenario about physical characteristics of a contaminant and a situation involving the contaminant, identify the treatment option that should be used to remediate the contaminant.	
9.4 Given a scenario about a remedial technology that was selected, identify the tools that should be used to ensure remedial action objectives are achieved.	
9.5 Identify capital and recurring costs (O&M costs) associated with a selected remedial action.	
9.6 Given a scenario and remediation technology, identify redevelopment considerations and pitfalls.	
9.7 Given soil analytical results, determine if the clean-up standard has been achieved.	

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10 Management Systems	**6.58**
10.1 Given a scenario, identify which regulations would apply to a multi-media program.	
10.2 Given a scenario, identify the requirements for the maintenance and retention of records.	
10.3 Given a scenario, identify how the investigator can determine if a regulation is current.	
10.4 Given a scenario, identify knowledge needed to participate in regulation development.	
10.5 Given a scenario, identify the required interested parties and the process for the interested parties to communicate.	
10.6 Given a scenario, what are the required public outreach mechanisms?	
10.7 Identify elements of a management system audit and difference(s) from a compliance audit.	
10.8 Identify variables in a financial analysis.	
10.9 Given a scenario, describe operations that require a program.	
11 Environmental Studies	**6.35**
11.1 Given a scenario about a property transfer (sales or purchase of property), describe the required environmental due diligence.	
11.2 Given a scenario where lead-based paint, asbestos, and other regulated materials are thought to be present, describe how a building survey should be conducted.	
11.3 Given a regulatory framework, describe the required process and output.	
11.4 Given a scenario of analytical data, identify contaminants of concern.	
11.5 Given a scenario of a source of contamination, describe likely exposure routes.	
12 Health and Safety	**10.57**
12.1 Given a concentration of a contaminant of concern, identify exposure routes and susceptible populations that may be affected.	
12.2 Given screening thresholds, identify potential hazardous material exposure routes.	
12.3 Given a scenario, identify tasks to complete a job, the hazards of those tasks, and the control of those hazards.	
12.4 Determine process safety management.	
12.5 Identify recommended basic elements of an OSHA-compliant site safety plan.	
12.6 Identify recommended elements of an emergency response plan.	
12.7 Given the presence of hazardous materials, identify the appropriate containment.	
12.8 Identify labeling requirements for products.	

For more information about the Certified Hazardous Materials Manager certification program, including eligibility requirements and application procedures, see the IHMM Candidate Handbook available at www.ihmm.org. If you have questions about the CHMM Blueprint, please contact M. Patricia Buley at pbuley@ihmm.org.

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Attachment Two

Certified Hazardous Materials Practitioner® [CHMP®]

Certification Blueprint

INSTITUTE OF HAZARDOUS MATERIALS MANAGEMENT

CERTIFIED HAZARDOUS MATERIALS PRACTITIONER (CHMP®) EXAM SPECIFICATIONS (BLUEPRINT)

Effective Q4/2022

A Certified Hazardous Materials Practitioner (CHMP) is a professional experienced in handling hazardous materials in a wide variety of specialties, such as safety, environmental protection and compliance, and transportation. The CHMP professional focuses on technical knowledge and expertise in handling hazardous materials.

A CHMP provides proper controls for material handling, transportation, and security throughout the life cycle of hazardous materials, from design and production through storage, recycling, and ultimate disposal. They apply scientific knowledge, engineering technologies, and best management practices in compliance with U.S. regulatory requirements.

The CHMP examination is a testing instrument designed to evaluate a candidate's minimal competency in the field of hazardous materials management. This Specification Blueprint offers guidance to candidates by outlining the Domains and Tasks covered in the examination. The Blueprint reflects the consensus of the profession validated via a survey of what hazardous materials managers do in practice. The Blueprint below describes the subject matter covered by the examination. All test items come from the Domain areas of the Specification Blueprint.

This Specification Blueprint lists each Domain and Competencies with Tasks given under each Domain. A percentage of the exam accompanies each Domain in this Specification Blueprint. This percentage represents the proportion of the actual CHMP examination devoted to that Domain. The Tasks provide a reference for activities conducted under each Domain.

DOMAINS AND COMPETENCIES/TASKS		% of Exams
1	**Identification, Handling, and Transport of Hazardous Materials**	**35.58%**
1.1	Declarative -- Identify management, transport, treatment, and disposal regulations for hazardous materials	
1.2	Declarative -- Identify mandated training (Example: HAZWOPER training.)	
1.3	Declarative -- Identify the difference(s) between DOT hazardous material, EPA/RCRA hazardous waste, and OSHA hazardous substance	
1.4	Declarative -- Identify generator, transporter, and TSDF standards	
1.5	Declarative -- State criteria for identifying the characteristics of hazardous waste and for listing hazardous waste	
1.6	Declarative -- Identify standards for VSQG, SQG, LQG, and generators of Universal Waste	
1.7	Declarative -- Identify shipping papers, labels, markings, placarding, packaging, and record keeping requirements	

1.8	Declarative -- Identify standards for managing specific hazardous waste, standards for owners and operators of TSDF, land disposal restrictions (LDR), and standards for universal waste management
1.9	Declarative -- Identify waste minimization activities
1.1	Declarative -- Identify waste record and reporting requirements
2	**Management of Emergencies & Incidents (E&I) 18.46%**
2.1	Procedural - Given a scenario, determine resources needed to provide an HSP and emergency planning and training; include an employee right to know (RTK) and access to safety data sheets (SDS)
2.2	Procedural -- Given a scenario about an incident, determine the size and role and responsibilities of the incident command system (ICS)
2.3	Procedural -- Given a scenario, determine if record keeping and reporting are necessary according to state and federal regulations and requirements
3	**Sampling and Analysis of Hazardous Materials/Waste 15%**
3.1	Declarative - Identify requirements of a Waste Analysis and Sampling Plan (WASP)
3.2	Declarative - Identify how and when to use different types of direct-reading instruments, such as Draeger Tubes, OVA = Organic Volatile Analyzer, CGM = Combustible Gas Meter, FLID = Flame Ionization Detector, PID = Photoionization Detector
3.3	Application - Given a scenario for a specific waste matrix, describe the sampling methods, sampling equipment, and sample preservation methods.
3.4	Declarative - Identify how specific analytical results correlate to waste characterization and specific treatment standards
3.5	Declarative - Identify standardized test methods used in waste characterization and/or determining DOT hazard class
3.6	Declarative - Identify proper sampling procedures and pertinent sampling media for the establishment of appropriate administrative and engineering controls
4	**Site Investigation and Remediation 14.04%**
4.1	Declarative - Identify potential physical or chemical hazards that may arise when a task is being performed and determine the engineering controls, administrative controls, and PPE requirements
4.2	Declarative - Identify procedures to conduct a site investigation/assessment
4.3	Declarative - Identify appropriate abatement methods based on investigation and risk assessment data
4.4	Declarative - Identify site hazard characteristics and select appropriate administrative and engineering controls including PPE
4.5	Declarative - Identify steps for long-term monitoring of hazardous waste
5	**Program and Project Management 16.92%**
5.1	Declarative - Identify hazardous waste programs scope including managing cradle-to-grave responsibility

5.2	Declarative - Identify requirements of the Hazard Communication Standard (HCS)
5.3	Declarative - Identify training requirements for hazardous materials for OSHA, RCRA, and DOT
5.4	Declarative - Identify OSHA training requirements for general requirements and respiratory protection

For more information about the Certified Hazardous Materials Practitioner certification program, including eligibility requirements and application procedures, see the IHMM Candidate Handbook at www.ihmm.org. If you have questions about the CHMP Blueprint, please contact M. Patricia Buley at pbuley@ihmm.org.

Attachment Three

Associate Hazardous Materials Manager® [AHMM®]

Certification Blueprint

INSTITUTE OF HAZARDOUS MATERIALS MANAGEMENT

Associate Hazardous Materials Manager (AHMM) Exam Specifications (Blueprint)

Effective May 29, 2023

An Associate Hazardous Materials Manager (AHMM) is an early career professional with experience in handling hazardous materials in a wide variety of specialties, such as safety, environmental protection, compliance, or basic dangerous goods transportation. The AHMM professional focuses on technical knowledge and expertise in handling hazardous materials gained from some experience in the United States military from time in a military occupation specialty code [MOS] or Air Force Specialty Codes [AFSC], or formal education in undergraduate or graduate degree studies in applied science, environmental science, environmental engineering, chemistry, biology, physics, or geology.

For military applicants, IHMM is providing a comprehensive list of MOS and AFSC codes most closely associated with the domains of this AHMM blueprint. Military applicants may view this material at ***https://ihmm.org/wp-content/uploads/2023/05/U.S.-Branches-of-the-Armed-Forces-Job-Codes-Alignment-with-the-AHMM-Blueprint-Domains-Final-6.14.2022.pdf***

An AHMM works with those who provide proper controls for material handling, transportation, and security throughout the life cycle of hazardous materials, from design and production through storage, recycling, and ultimate disposal. They apply scientific knowledge, engineering technologies, and best management practices in compliance with appropriate regulatory requirements.

The AHMM examination is a testing instrument designed to evaluate a candidate's minimal competency in the field of hazardous materials management. This Specification Blueprint is intended to offer guidance to candidates by outlining the domains and tasks that will be covered on the examination. The blueprint reflects the consensus of the profession validated via a survey of what hazardous materials specialists do in practice. The Blueprint below describes the subject matter covered by the examination. All test items will be drawn from among the domain areas of the Specification Blueprint.

This Specification Blueprint lists below each domain and competencies with tasks given under each domain. A percentage label accompanies each domain in this Specification Blueprint. This percentage represents the proportion of the actual AHMM examination devoted to that domain. Tasks provide a reference for activities conducted under each domain. Applicants must not be

convicted of a felony within five years of application for the AHMM examination.

AHMM Eligibility Requirements:

Option 1:

Education		Professional Experience
Associate degree (or higher) from an accredited college or university (i.e., in applied science, environmental science, environmental engineering, chemistry, biology, physics, or geology).	AND	No experience is required.

Or

Option 2:

Education		Professional Experience
High school graduate (or GED).	AND	180 days or more of continuous active military service OR 6 months of experience in handling hazardous materials in a wide variety of specialties, such as safety, environmental protection, compliance, or basic dangerous goods transportation. *Specialized experience may include but is not limited to: Safety Managers, Directors, Fire, Rescue/EMS, Hazardous Materials Response Team Members (Fire Rescue, State, Federal, Commercial, Industrial), Lab Workers, Transportation Specialists, Police Assigned to Specialty Teams (ESU, SERT, CERT, SWAT, ERT, Bomb Squad), Wastewater Treatment Operators, State and Federal Environmental Compliance Officers Abatement Workers, Sanitation (Solid Waste Worker)*

Or

Option 3:

Education	Professional Experience

Student CHMM upon completion of their degree (i.e., environmental studies, environmental engineering, chemistry, biology, or geology).	AND	No experience is required.

IHMM AHMM 2023 Blueprint		
ID	DOMAINS AND COMPETENCIES/TASKS	% of Exam
1.0	**Hazardous Material Identification/Classification**	26%
1.1	Declarative: Identify basic chemicals (acids, bases, oxidizers, organics, metals, halogens).	
1.2	Declarative: Identify the Periodic Table of Elements.	
1.3	Application: Given a Scenario, differentiate between chemical elements, such as organics and inorganics, acids, and bases.	
1.4	Declarative: Understanding of Chemical compatibilities (acids/bases, oxidizers/organics..	
1.5	Declarative: Understands the differences, changes, and results between states of matter and the mechanisms driving them.	
1.6	Declarative: Know how and where to obtain chemical information (Safety Data Sheets, CHEMTREC, United Nations Globally Harmonized System of Classification and Labeling of Chemicals (UN GHS; NIOSH).	
1.7	Declarative: Identify the difference between hazardous materials and hazardous waste.	
2.0	**Safety and Personal Protection**	23%
2.1	Declarative: Identify the four exposure pathways of hazardous materials; inhalation (respiratory), ingestion, contact (eyes, skin), and injection needlestick..	
2.2	Application: Given a scenario, identify exposure and be able to identify the potential pathway. A clear understanding of hazardous chemicals and how they might create exposure.	
2.3	Application: Given a scenario, identify symptoms and be able to determine the likely exposure pathway, and understands the basic relationship between exposure and symptoms. For example, understands the signs of respiratory exposure which could include wheezing, wet cough, heavy breathing, shallow breathing.	

2.4	Declarative: Know the definition of each level for elimination, substitution, engineering controls, administrative controls, and PPE.	
2.5	Declarative: Identify the levels of PPE and a basic understanding of when they are needed based on the situation.	
2.6	Application: Given a scenario, identify and choose the proper PPE given an industrial/construction situation.	
3.0	**Facility Operations Involving Materials with Hazards**	19%
3.1	Application: Given a scenario, evaluate and recommend chemical compatibility and materials segregation principles for safe storage.	
3.2	Application: Given a scenario, recognize and communicate signage (National Fire Protection Association [NFPA], Hazardous Materials Identification System [HMIS], Globally Harmonized System of Classification and Labeling of Chemicals [GHS], Department of Transportation [DOT]) for Facility Operations.	
3.3	Declarative: Recognize basic fire safety principles and elements included in the Life Safety Code.	
3.4	Declarative: Identify fire suppression systems and communicate alarm notifications.	
3.5	Declarative: Recommend facility and materials security.	
3.6	Application: Given a scenario, review and use facility, product, or mechanical drawings and diagrams.	
3.7	Application: Given a scenario, evaluate mobile equipment and recognize the use and limitations of Powered Industrial Trucks (PIT).	
3.8	Declarative: Recognize or evaluate wastewater treatment and wastewater management principles.	
3.9	Declarative: Recognize and evaluate stormwater management practices.	
3.10	Declarative: Recommend or evaluate preventative maintenance and mechanical integrity practices.	
3.11	Declarative: Recognize and recommend waste management, recycling, and reuse practices.	
4.0	**Emergencies, Response, and Recovery**	18%
4.1	Declarative: Know appropriate response requirements and notifications if a chemical release involves a TPQ being exceeded.	

4.2	Declarative: Know the key elements such as incident command, basic command structure, emergency action plan, and contingency plan. Know how to coordinate with local agencies and emergency responders.	
4.3	Declarative: Know the key elements of a debriefing and lessons learned document. Know how to set up a decon line for different levels of isolation based on hazards like hot zone, warm zone, and cold zone.	
5.0	**Standards, Rules, and Regulations**	14%
5.1	Application: Given a scenario, develop a safety plan and identify the appropriate regulations. What is the overarching regulation (OSHA, CERCLA, and DOT)	
5.2	Application: Given a scenario, use statutes and regulations to make a hazard determination on a substance or product.. (e.g., RCRA).	
5.3	Declarative: Able to review and communicate international agreements (e.g., United Nations Conference on Environment and Development Agenda 21, Basel Convention).	
5.4	Declarative: Recognize international environmental standards, rules, and regulations (e.g., Globally Harmonized System of Classification and Labeling of Chemicals, ISO 14001 Environmental Management Systems.	

If you have questions about the AHMM Blueprint, please contact M. Patricia Buley at pbuley@ihmm.org.

Attachment Four

Certified Safety and Health Manager® [CSHM®]

Certification Blueprint

INSTITUTE OF HAZARDOUS MATERIALS MANAGEMENT

CERTIFIED SAFETY AND HEALTH MANAGER® (CSHM®)
EXAMINATION SPECIFICATION (BLUEPRINT)
Effective 2023

The Certified Safety and Health Manager (CSHM) demonstrates knowledge and skills necessary to understand general and business management principles; apply management systems; apply occupational health and safety, security, and environmental knowledge, principles, and standards; apply to utilize risk identification, management, and controls; and set related goals, objectives, and targets.

Safety and health managers are responsible for ensuring environmental compliance and promoting workplace safety through proper and ongoing leadership. Critical decision-making skills and expertise are needed to effectively address safety, health, and environmental hazards associated with operations and activities.

The CSHM examination is a testing instrument designed to evaluate a candidate's minimal competency in the field of safety and health management. The exam is constructed with two cognitive levels.

- Declarative – requires a candidate to recall and retain knowledge.
- Application - requires a candidate to apply the knowledge to a scenario.

This Specification Blueprint offers guidance to candidates by outlining the domains and tasks covered in the examination. The blueprint reflects the consensus of the profession validated via a survey of what safety and health managers do in practice. The blueprint below describes the testing objectives covered by the examination.

The CSHM Test Specification Blueprint lists below each domain and competencies with tasks given under each domain. A percentage label accompanies each domain in this Specification Blueprint. This percentage represents the proportion of the actual CSHM examination devoted to that domain.

SECTION	DOMAINS AND COMPETENCIES/TASKS	% Of Exam
1	**Planning, Leadership, and Employee Involvement**	**22.13**
1.1	Declarative: Describe differences between policies and goals.	
1.2	Declarative: Identify safety and health resource needs including budgeting, certifications, standards, equipment, policies, procedures.	
1.3	Declarative: Identify differences between a union and non-union shop as they relate to safety and health.	
1.4	Procedural: Given a scenario, identify departments or divisions needed to cooperate in safety and health efforts.	
1.5	Procedural: Given a scenario, describe resources used to mitigate risk via policies and recommendations.	
1.6	Declarative: Identify ethical practices within safety and health.	
1.7	Declarative: Identify policies and procedures to increase safety awareness.	
1.8	Declarative: Identify quality principles that apply to safety and health.	
1.9	Declarative: Identify safety and health management systems.	
1.10	Procedural: Given a scenario, identify applicable federal environmental regulations.	
1.11	Procedural: Given a scenario, apply the applicable voluntary-consensus standard.	
1.12	Procedural: Given a scenario, describe the importance of health and safety in the context of an organization.	
2	**Communication and Resources**	**15.51**
2.1	Declarative: Identify ways to communicate corporate safety education.	
2.2	Declarative: Identify different educational and training requirements at different levels of the organization.	
2.3	Declarative: Identify barriers to participation.	
2.4	Declarative: Identify key hazards and risks, their categories, and the differences between them.	
2.5	Declarative: Identify core OH&S objectives and key documents.	
2.6	Procedural: Given a scenario, analyze different ways that work gets done to communicate requirements across the enterprise.	
3	**Risk Assessment and Control**	**19.48**
3.1	Declarative: Define, analyze, assess, and prioritize risk.	
3.2	Declarative: Identify corrective action.	
3.3	Declarative: Prioritize the effectiveness of control measures.	
3.4	Procedural: Given a scenario, apply the appropriate rating or approval (e.g., UL, ANSI, FM, NIOSH).	
3.5	Declarative: Identify the core components of an effective policy.	
4	**Operations and Programs**	**15.02**
4.1	Procedural: Given a scenario, identify the appropriate consensus standard (e.g., ISO, ANSI, ASTM, NFPA).	

4.2	Procedural: Given a scenario, identify compliance management operations and programs (e.g., ISO 45001, ANSI Z10, OHSAS 18001).	
4.3	Procedural: Given a scenario, identify fire prevention and emergency safety preparedness principles and practices.	
4.4	Procedural: Given a scenario, identify crisis management and business continuity principles and practices in the event of an emergency.	
4.5	Declarative: Identify data storage security principles and practices.	
4.6	Declarative: Identify requirements to manage and keep confidential employee data and documentation.	
4.7	Declarative: Identify soil classifications and the application to work in an excavation.	
4.8	Declarative: Identify control measures for blood-borne pathogens.	
4.9	Procedural: Given a scenario, classify waste according to the hazard(s).	
4.10	Procedural: Given a scenario, determine appropriate air sampling methodologies.	
4.11	Procedural: Given a scenario, determine whether exposure is excessive.	
4.12	Declarative: Identify elements of a process safety management program.	
4.13	Procedural: Given a multi-employer worksite, identify elements of a control program.	
4.14	Procedural: Given a scenario, identify risk factors and controls.	
5	**Monitoring and Measurement**	**11.98**
5.1	Declarative: Identify techniques for prioritization of control.	
5.2	Procedural: Given a specific standard, identify the regulatory agency responsible for the standard.	
5.3	Procedural: Given a specific standard, identify whether the standard is mandatory or voluntary.	
5.4	Procedural: Given an initial assessment of existing hazards, identify the most urgent hazard.	
5.5	Procedural: Given safety statistical data, identify unsafe behaviors.	
5.6	Procedural: Given a scenario, determine effective ways to communicate preventive action.	
5.7	Procedural: Given a scenario that utilizes new regulatory information, determine an effective methodology to promote safety for a specific industry.	
5.8	Procedural: Given an audit or different inspections, recommend changes.	
5.9	Procedural: Given a scenario, determine whether a metric is a leading or lagging indicator.	
6	**Incident Investigation and Analysis**	**15.88**
6.1	Procedural: Given a scenario, identify causal factors.	
6.2	Procedural: Given an incident investigation scenario, identify corrective action.	
6.3	Procedural: Given a set of injury data, determine priorities.	
6.4	Procedural: Given a scenario, determine whether an incident is recordable or reportable.	

Domains 1,2,3,4,5 and 6 incorporate the use of the ASSP/ANSI standard Z10.0

For more information about the Certified Safety and Health Manager (CSHM) certification program, including eligibility requirements and application procedures, see the IHMM Candidate Handbook available at www.ihmm.org. If you have questions about the CSHM Blueprint, please contact M. Patricia Buley at pbuley@ihmm.org.

Attachment Five

Certified Safety Management Practitioner™ [CSMP™]

Certification Blueprint

INSTITUTE OF HAZARDOUS MATERIALS MANAGEMENT

CERTIFIED SAFETY MANAGEMENT PRACTITIONER® (CSMP®) EXAM SPECIFICATION (BLUEPRINT)

Effective Fourth Quarter of 2022

The Certified Safety Management Practitioner (CSMP) demonstrates knowledge, skills, and competencies necessary to understand general and business management principles, safety management methods and systems, safety management systems of ISO standards, and utilize risk identification management and hierarchy controls.

Safety professionals are responsible for ensuring that employers' safety management systems remain compliant in the workplace, and follow all applicable legislation for the worker and the workplace.

The CSMP examination is a testing instrument designed to evaluate a candidate's minimal competency in the areas of the blueprint. The exam is constructed with two cognitive levels.

- Declarative – requires a candidate to recall and retain knowledge.
- Application - requires a candidate to apply the knowledge to a scenario.

This Specification Blueprint offers guidance to candidates by outlining the domains and tasks covered in the examination. The blueprint reflects the consensus of the profession validated via a survey of what safety managers do in practice. The blueprint below describes the testing objectives covered by the examination.

The CSMP Specification Blueprint lists below each domain and competencies with tasks given under each domain. A percentage label accompanies each domain in this Specification Blueprint. This percentage represents the proportion of the actual CSMP examination devoted to that domain.

SECTION	DOMAINS AND COMPETENCIES/TASKS	% Of Exam
1	**Workplace Safety**	**24.86**
1.1	Declarative: Identify the elements of a written safety policy.	
1.2	Declarative: Identify the elements of the SMART model for setting goals.	
1.3	Declarative: Identify the applicable health and safety resources.	
1.4	Application: Given a scenario or table, describe the differences between leading and lagging indicators.	
1.5	Application: Given a scenario, describe the impacts, either negative or positive, upon worker participation.	
1.6	Application: Given a scenario, determine the need for hazard reporting.	
1.7	Declarative: Describe ways to access safety and health information.	
1.8	Declarative: Identify the positional responsibilities for safety.	
1.9	Application: Given a statistical measure, identify the correct formula.	
1.10	Declarative: Describe different inspectors or inspection personnel who inspect the workplace for safety hazards.	
1.11	Declarative: Identify health hazards.	
1.12	Declarative: Identify safety hazards.	
1.13	Declarative: Identify the correct order of steps to conduct an incident investigation.	
1.14	Declarative: Identify the hazards associated with emergency and non-routine situations.	
1.15	Declarative: Identify workplace hazards.	
1.16	Declarative: Identify the control options and components of a hazard control plan.	
1.17	Application: Given a scenario, describe the appropriate means to confirm control effectiveness.	
1.18	Declarative: Identify the types of general orientation practice or program awareness courses for onboarding in the workplace.	
1.19	Declarative: Differentiate between employer and employee responsibilities.	
1.20	Declarative: Identify the steps needed to implement a workplace safety program.	
1.21	Application: Given a scenario about a workplace safety program shortcoming, describe the opportunities for improvement.	
1.22	Declarative: Identify the elements of effective communication.	
1.23	Declarative: Identify the basic components of drug and alcohol safety program testing (i.e., pre-hire testing, accident testing, post-incident testing; do not include random testing).	
2	**Regulatory**	**14.68**
2.1	Application: Given a scenario an injury or illness event, determine recordability	
2.2	Declarative: Identify the appropriate or required first aid kit in the workplace per legislation or hazard analysis.	

2.3	Declarative: Identify the acronyms for standard-setting bodies.	
2.4	Application: Given a regulation or standard, identify whether it is federal/state/province legislation or an industry standard.	
2.5	Application: Given a situation, identify the applicable laws and regulations (local, state/province, federal/national).	
2.6	Declarative: Identify the basic steps of an enforcement or regulatory visit.	
3	**General Health and Safety Knowledge**	**20.83**
3.1	Declarative: Identify the elements of the Hierarchy of Controls.	
3.2	Declarative: Identify the various elements of a Safety Management System (ISO, SHARP, VPP).	
3.3	Declarative: Identify the basic concepts of hazard assessment, job hazard analysis (JHA), or job safety analysis (JSA).	
3.4	Declarative: Identify the four goals of industrial hygiene (anticipate, recognize, evaluate, and control).	
3.5	Declarative: Define basic industrial hygiene terms (e.g., toxicology, absorption, dose, hearing testing, lung testing).	
3.6	Application: Given an industrial hygiene goal, identify the settings or conditions that require the use of respiratory protection, hearing conservation, or exposure to chemicals.	
3.7	Declarative: Utilize a safety data sheet to determine the hazards and precautions to be taken for a given chemical.	
3.8	Application: Given a situation, select the appropriate personal protective equipment (PPE).	
3.9	Declarative: Identify the various machine guarding standards (ANSI, ASME) and regulations (local, state, and national).	
3.10	Declarative: Identify the hazards associated with hazardous locations on machines (point of operation, power transmission, etc.) and ways to control employee exposure to the hazards.	
3.11	Application: Given a scenario, apply the lockout and tag-out regulations (local, state, and national).	
3.12	Application: Given a situation, determine the proper use of hand and power tools including minimum safety requirements (guarding, personal protective equipment, ergonomics, etc.).	
3.13	Declarative: Identify the industry standards (ASME, etc.) and regulations (local, state, and national) related to types of slings and lifting equipment.	
3.14	Application: For a given respirator, explain its proper uses and limitations.	
3.15	Declarative: Define electrical terminology. (Volts, amperage, resistance, etc.).	
3.16	Declarative: Identify the causes and effects of electrical shock.	
3.17	Declarative: Identify the appropriate personal protective equipment and tools for use around live electrical equipment.	
3.18	Declarative: Identify the steps to ensure electrical safety. (Lockout, tag out, de-energize, permit to work, barricades; focus on basic terms.)	
3.19	Declarative: Identify the basic requirements for emergency response plan elements for hazardous substances release.	

3.20	Declarative: Identify the hazards associated with compressed gases including flammable gases, LP gas, and welding and cutting gases.	
3.21	Declarative: Identify the basic concepts, safety, and industrial hygiene requirements and regulations related to welding, cutting, brazing, and electric arc welding including basic control methods.	
3.22	Declarative: Identify the various types of cranes and hoists and understands the safety requirements for operating or working around this equipment.	
3.23	Declarative: Describe the concepts of Ionizing and Non-Ionizing Radiation (effects, definitions, eliminate a source of exposure, electric magnetic PPE, signage).	
3.24	Declarative: Identify the health and safety requirements for working with and transporting propane.	
3.25	Declarative: Identify the types of fire protection systems, alarm systems, and fire prevention concepts.	
3.26	Declarative: Identify the safety and regulatory requirements for fall protection, ladder safety, barriers, and use of scaffolds.	
3.27	Declarative: Identify the safety and regulatory requirements for operations of powered industrial trucks (various types) including the requirements for operator training.	
3.28	Declarative: Identify the requirements and standards for warehouse safety including industrial trucks, stacking, walking/working surface, forklift, chocking, training PIT operators.	
3.29	Declarative: Identify the regulations for drinking and potable water and sanitation in workplace settings, i.e., break areas, work areas, lunchroom, first aid station.	
3.30	Declarative: Identify the safety and regulatory requirements for operations of mobile elevated platforms (aerial lifts, boom lifts, harness/fall arrest devices) including requirements for operator training.	
3.31	Declarative: Identify the adult first aid, CPR, and AED requirements and certification for specific industries.	
3.32	Declarative: Identify the requirements for OSHA 300 record-keeping and other employer-related records for occupational health and safety logs.	
3.33	Application: Given a GHS for a harmful substance, describe the effects of the substance on humans and apply the safety, health, and regulatory requirements for controlling exposure to the substance.	
4	**Accident Investigation and Prevention**	**16.19**
4.1	Declarative: Identify the steps to conduct an accident investigation, including who, what, where, when, how, and why.	
4.2	Declarative: Identify the types of accidents that must be reported to OSHA or local authority within a certain time frame, such as loss of eye, amputation, or other serious injury, or death.	
4.3	Declarative: Identify what is an OSHA recordable statistic.	
4.4	Declarative: Identify what is an OSHA non-recordable statistic.	
4.5	Declarative: Identify the available resources that can assist with trainings to help prevent accidents.	
4.6	Declarative: Identify the three steps of posting requirements.	

4.7	Application: Given a scenario, explain the importance of a team effort to conduct an accident investigation.	
4.8	Declarative: Identify the sources for locate previous citations.	
5	**Safety Management System Structure**	**13.69**
5.1	Declarative: Identify the safety improvements that should be implemented for the general workplace inspection.	
5.2	Declarative: Identify the elements of a health and safety management system.	
5.3	Application: Given data, calculate the incident rates.	
5.4	Application: Given incident rates, predict the highest probability of an accident occurring.	
5.5	Declarative: Identify the emergency action plans (EAP) for areas of jurisdiction and/or responsibility.	
5.6	Declarative: Identify the need for mutual aid agreements.	
5.7	Application: Given a scenario, describe the importance of management and/or leadership commitment to a safety management program.	
5.8	Declarative: Describe the effect of safety management programs on recordable accidents in the workplace.	
5.9	Declarative: Identify the steps of onboarding or orientation of new employees to the workplace related to HR and Safety and Health.	
5.10	Declarative: Identify the steps of orientation and coordination of vendors/contractors to the workplace related to HR and Safety and Health.	
5.11	Declarative: Describe the union member involvement in the specific/non-specific Health, Safety, and Environment (HSE), and safety management systems.	
6	**Professional Standards**	**9.75**
6.1	Declarative: Identify the elements of the IHMM Code of Ethics.	
6.2	Application: Given a scenario, apply the appropriate IHMM Code of Ethics.	
6.3	Declarative: Identify the consequences for violations of the IHMM Code of Ethics.	
6.4	Declarative: Describe the individual legal, moral, and ethical responsibility to the requirements of the IHMM Code of Ethics.	
6.5	Declarative: Identify the IHMM committee that is responsible for oversight of the IHMM Code of Ethics.	

Domains 1,2,3,4, and 5 incorporate the use of ISO 45001, Occupational Health and Management Systems

For more information about the Certified Safety Management Practitioner (CSMP) certification program, including eligibility requirements and application procedures, see the IHMM Candidate Handbook available at www.ihmm.org. If you have questions about the CSMP Blueprint, please contact M. Patricia Buley at pbuley@ihmm.org.