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| <i>Title:</i> EHS Management System Policy | <i>Supersedes:</i> | <i>Total Pages:</i> 13 |
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1.0 INTRODUCTION - Compliance is one of Thermo Fisher Scientific's core values. The company is committed to conducting its business in an ethical manner and in full compliance with the laws of those countries where we operate as well as internal policies, procedures and standards of practice we adopt and endorse.

2.0 PURPOSE - This document establishes minimum Environmental, Health and Safety (EHS) management system requirements and performance expectations for Thermo Fisher Scientific operating entities. It also provides a means to ensure that commitments and expectations contained in the corporate EHS Policy are implemented throughout our global operations in an efficient, effective and consistent manner.

3.0 APPLICABILITY - All Thermo Fisher Scientific (TFS) manufacturing facilities, distribution/warehouse operations, and laboratory entities are required to incorporate the principals and requirements of this policy into their operations and activities. Individual locations have flexibility to address each requirement within the context of their own unique business culture and operating philosophy as long as all performance expectations are met. Guidance that clarifies performance expectations is highlighted in the shaded call-out boxes. A self-assessment checklist to help guide program development is included as Appendix 1.

4.0 DEFINITIONS

4.1 EHS Management System (EHS-MS) - The collection of people, processes, leadership, technology and documentation an organization uses to manage compliance with TFS EHS policies and related laws and regulations as well as ensure a safe and healthy workplace and reduce environmental impacts. An EHS-MS is intended to provide a systematic methodology to ensure compliance and manage EHS related hazards, risks and associated liabilities.

4.2 Hazard - A set of conditions which creates the potential for harm or injury to an individual, community or the environment. It is important to emphasize that with regard to this EHS-MS policy the term includes environmental hazards as well as worker health and safety hazards.

4.3 Risk - The probability and likelihood that an identified hazard will lead to an adverse impact or unacceptable consequence.

5.0 REQUIREMENTS

5.1 Management Support and Leadership

5.1.1 EHS Policy - The corporate EHS policy must be implemented and actively communicated and understood by all employees as well as contractors and visitors.

- The policy should be posted in the lobbies of all buildings, on relevant bulletin boards, and where workers tend to congregate (e.g., lunch and break rooms) and where visitors enter the facilities.*

5.1.2 EHS Goals - Short and long-term EHS goals must be established to ensure compliance is maintained. Goals must be documented and periodically reviewed with the organization's top management.

- *Goals should be written and subsequently reviewed, updated and/or revised at least once per year. For example, goals could be established for developing the basic compliance infrastructure necessary to fully implement this EHS-MS policy. Other common goals might include the development and deployment of programs or projects to reduce safety incidents or environmental footprint.*
- *Responsibility and authority for achieving goals should be clear and documented.*
- *Plans and procedures necessary to achieve goals should be developed, documented and effectively communicated to relevant employees, contractors and temporary employees.*
- *Goals should have established target dates for key milestones and ultimate completion.*
- *Suitable metrics should be established and monitoring activities conducted to determine whether goals are being achieved.*

5.1.3 Resource Allocation - Adequate resources including funding, training, and personnel must be provided to implement and operate the EHS management system and achieve identified goals and allied commitments.

- *Resources should be identified and allocated through a formal planning and budgeting process.*
- *Adequate resources should be provided to ensure all employees with injuries and work-related illnesses have reasonable access to needed first aid and medical treatment.*
- *Resources should be made available to address unanticipated and emergency situations and to correct uncontrolled hazards identified through periodic inspections and internal reviews.*

5.1.4 Management Expectations - Management is expected to lead by example and must establish the culture necessary to ensure a safe and healthy work environment and minimize adverse impacts to the environment. This includes taking necessary steps to ensure that compliance with applicable EHS related laws and regulations is achieved and maintained, and the EHS-MS operates effectively.

- *Management should provide adequate and clearly defined (preferably written) authority and responsibility to all employees having formal roles in implementing and maintaining the EHS-MS.*
- *Management should communicate regularly with employees about EHS issues, concerns and expectations.*
- *Management should establish an effective process that employees can use to communicate, address and adequately resolve EHS issues and concerns.*
- *Management should evaluate and hold itself and employees accountable through formal performance appraisals that incorporate EHS related goals and expectations.*

5.2 Employee Participation

5.2.1 Encourage Employee Participation - Employee input must be solicited and considered during all phases of the EHS-MS development and implementation

process. At a minimum, employees must be actively involved in identifying and assessing EHS hazards and helping develop effective risk management strategies.

- *Risk management strategies that employees should be involved in include:*
 - *Participation in safety committee activities;*
 - *Programs for assessing, controlling and preventing hazards;*
 - *Developing and evaluating the effectiveness of training programs;*
 - *Conducting EHS-MS inspections and compliance audits; and*
 - *Taking corrective or preventive actions.*

5.2.2 Access to EHS Information - Employees must have quick and ready access to relevant EHS related information during working hours.

- *Relevant EHS Information includes but is not limited to:*
 - *EHS procedures and associated documentation.*
 - *Hazardous material inventories and Safety Data Sheets (SDSs),*
 - *Exposure monitoring results,*
 - *Results of occupational health screenings,*
 - *Injury and illness data and trends,*
 - *Equipment manufacturers safety recommendations,*
 - *Accident and incident investigations, and*
 - *Results of past internal inspections and EHS-MS evaluations.*

5.2.3 Reporting of EHS Related Concerns - A process must be established that allows employees to report EHS related concerns to management (e.g., incidents, injuries, illnesses, hazards, deficiencies in the EHS-MS, and suggestions for improvement).

- *The process should encourage employee reporting and require management to provide timely and direct feedback to employees reporting EHS related concerns.*
- *The process should require documenting all reported concerns and tracking issues through final resolution.*

5.2.4 Removing Barriers to Employee Participation - Management must take measures to ensure employees are free to report environmental, safety and health concerns and other critical information without fear of retaliation from management, supervisors and peers.

- *Incentive, drug testing and disciplinary programs should be designed to ensure that employees are not discouraged from reporting.*
- *Care should be taken when crafting incentive programs to ensure that they do not unintentionally suppress reporting. For example, providing rewards or gifts to managers or departments that achieve certain injury/illness rate reduction goals can create reporting disincentives.*
- *Other potential barriers to employee participation should be identified and actions taken to remove and mitigate them. Examples of other barriers may include language differences, literacy problems, disabilities or issues related to discrimination.*

5.3 Regulatory Compliance

5.3.1 Identify EHS Compliance Obligations - All locations must determine and document their EHS compliance obligations. This includes all relevant and

applicable EHS laws, regulations, industry standards as well as company-established compliance requirements (including this EHS-MS specification).

- *A comprehensive inventory of compliance requirements should be maintained at the site-level. This should include a detailed summary of each compliance requirement and steps the operations will take to maintain compliance. It should be reviewed and updated at least annually.*
- *The inventory should also include, but not be limited to, all EHS related permits and licenses issued by regulatory agencies.*

5.3.2 Maintain Compliance - Measures necessary to achieve and maintain compliance with all identified compliance obligations must be established, implemented and maintained.

- *To the extent necessary (by law or as a good management practice) these measures should be documented.*
- *An EHS compliance calendar should be maintained at each location that includes timeframes and dates when key routine compliance requirements will be implemented. Examples may include:*
 - *Reports to EHS related regulatory agencies and authorities;*
 - *Testing and sampling of employee exposures, waste streams, water quality and air emissions;*
 - *Hazardous material inventory, storage and release reporting;*
 - *EHS training offerings and expectations;*
 - *Review of internal EHS operating procedures and work instructions;*
 - *Permit renewal dates;*
 - *Medical surveillance evaluations;*
 - *Instrument calibration;*
 - *Emergency evacuation and fire drills; and*
 - *Internal EHS inspections and audits.*

5.4 Hazard Identification and Risk Management

5.4.1 Collect Information About Workplace EHS Hazards - An analysis must be conducted that identifies and documents routine and potential non-routine workplace hazards that could impact the safety and health of employees, contractors and temporary employees or the environment.

- *The analysis should be conducted and/or updated at least once per year, or whenever potential new hazards arise in the work environment.*
- *The analysis should consider and incorporate at least the following types of information to the extent it is available:*
 - *A systematic review of employee exposures to chemical hazards (e.g., potential hazards identified in chemical inventories, SDSs, employee exposure monitoring and aggregated results of occupational health screenings).*
 - *Periodic workplace hazard identification inspections, worksite analyses, information on facility layout and design, equipment manufacturers' literature, and information derived from insurance company safety and health reviews.*
 - *Employee reports of hazards, injury and illness data, and the results of investigations of accidents including near misses.*
 - *Reports and investigations of spills, releases, permit non-conformances and other environmental incidents.*

- *For complex sites or hazards, the workplace hazard analyses may need assistance by trained and/or otherwise qualified safety professionals (e.g., industrial hygienists for chemical and noise sampling).*
- *Common hazards include (but are not necessarily limited to):*
 - *Hazards from chemicals, biologicals and other workplace contaminants;*
 - *Electrical hazards;*
 - *Unguarded machinery;*
 - *Trip and fall hazards;*
 - *Lifting and repetitive motion hazards;*
 - *Fire hazards;*
 - *Hazardous/explosive materials and wastes;*
 - *Noise, radiation, other physical or health hazards;*
 - *Loss of containment of hazardous materials;*
 - *Proximity to sensitive ecosystems or communities; and*
 - *Resource scarcity (e.g. drought or water restrictions).*

5.4.2 Assess the Risk of Identified Hazards - A reasonable and effective method must be established to characterize the nature of routine and non-routine hazards and to rank and prioritize the potential seriousness, severity and frequency of workplace hazards.

- *The process should assess hazards in terms of their seriousness and likelihood and, as applicable, address the:*
 - *Characteristics and properties of any chemicals,*
 - *Complexity of the process involved,*
 - *Likelihood of injury or illness occurring,*
 - *Effectiveness of existing controls,*
 - *Severity of the injury or illness or environmental impact,*
 - *Number of individuals potentially impacted, and*
 - *Past incidents and near misses.*
- *The hazard analyses should be documented and incorporate appropriate tools and techniques such as:*
 - *Job hazard analysis,*
 - *Process hazard analysis,*
 - *Root cause analysis, and*
 - *Fault tree analysis.*
- *For US facilities, a written certification is required for Personal Protective Equipment (PPE) that identifies the workplace evaluated; the person certifying that the evaluation has been performed; and the date(s) of the hazard assessment.*
- *All accidents, injuries, illnesses, and near misses occurring in the workplace should be investigated. Results of investigations should be documented, and lessons learned and results should be incorporated into the workplaces analyses.*

5.4.3 Prioritize Hazards for Control - The risk assessment must be used to prioritize programs for control of the identified hazards.

- *The assessment should identify suitable control measures, including permanent controls and interim controls that can be implemented until permanent controls are in place.*
- *The process should prioritize the implementation of control measures based on the seriousness of the hazard, the relative ease of implementation of controls, the availability*

of resources, and should also factor in the need to reallocate resources as necessary to fit new and changing priorities.

5.4.4 Select Controls for Reducing Risk from Identified Hazards - A process must be established that identifies and selects controls for identified hazards.

- *The control selection process should consider and include a review of the relevant environmental, safety and health information, including government-established standards and guidance, and evaluating the effectiveness of the controls desired.*
 - *Solicit significant and meaningful input from employees on possible controls or alternative measures, including information on their likely effectiveness.*
 - *To the extent necessary, conduct or review appropriate control studies, including engineering studies, exposure monitoring assessments and occupational health screenings to determine the extent of controls needed to protect employees or the environment.*
 - *Consult with qualified professionals to determine their experience with various control approaches.*
 - *Research industry best practices to determine control effectiveness.*
- *Unless a government standard specifies a particular control method for an identified hazard, controls should be selected in conformance with the following hierarchy:*
 - *Elimination, substitution, and other engineering controls;*
 - *Work-practice controls;*
 - *Administrative controls; and*
 - *Personal protective equipment.*
- *Control programs should be documented and readily accessible to workers. Typical categories of control programs common to many facilities are included in Appendix 2.*

5.4.5 Implement Workplace Hazard Controls and Verify Effectiveness – Responsibility and authority for implementation must be included in the programs developed. In addition, a procedure must be established for conducting routine and periodic inspections of the entire work site in order to verify that controls have been implemented and remain effective, and to identify any new or potentially emerging hazards to workers or the environment.

- *Inspections should address common workplace hazards, hazards unique to the workplace, and hazards associated with changes to facility operations. It is recommended that some level of inspection be completed at least once per quarter.*
- *Periods of change often create potential for errors and can lead to increased risk. A workplace risk analysis should be conducted or updated prior to introducing a new hazard into the workplace or significant change in work practices. This includes:*
 - *New equipment;*
 - *Introduction of new chemicals;*
 - *New or revised processes or operations;*
 - *New or revised work practices;*
 - *Significant changes to the organizational structure or staffing; and*
 - *Introduction of new suppliers, contractors, or temporary employees.*

5.4.6 Emergency Response Controls - A written emergency response plan must be established that addresses reasonably foreseeable emergency situations. At a minimum, this plan must address fire, violence or terrorism, loss of containment of high volume or highly hazardous materials, extreme weather common to the area,

and medical emergencies. This plan must include consideration of the impacts these emergency situations may have on high risk hazards. The plan must be periodically reviewed and tested to assess its effectiveness (not less than annually), and post-drill evaluations must be documented and the plan updated as needed.

- *The written emergency response plan should address:*
 - *The nature of the emergency situations considered;*
 - *The responsibilities of various responders (e.g., incident commander, safety officer);*
 - *Emergency communications, including contact information for the emergency responders;*
 - *Emergency response equipment needed for the response, including personal protective equipment both for the responders and evacuees;*
 - *First aid and health care services; and*
 - *Emergency evacuation plans, including exit routes and meeting places.*

5.5 Education and Training

5.5.1 Determine Education and Training Requirements - A formal assessment of EHS training needs must be conducted to determine the types and frequency of training, education, and competency requirements each employee and contractor needs to carry out their responsibilities under the EHS-MS and to ensure a safe and compliant work environment.

- *The needs assessment should be documented and summarized in a table or matrix whereby employees (or employee categories) are listed along with the type of EHS related training, education and experience which is required to perform the job function.*
- *The assessment should also identify training required as part of initial orientation, the frequency of refresher training, and required training for contractors and temporary workers.*
- *Along with all training required by government established law and regulation, relevant training should also include:*
 - *Training of employees having specific roles and responsibilities under the EHS-MS,*
 - *Training of all employees on the basic elements of the EHS-MS and how to participate effectively, and*
 - *Training all employees on the hazards to which they are exposed and the methods used to control them.*
- *Other topics that should be considered include:*
 - *Methods for participating in the EHS-MS including processes established for reporting hazards, injuries, illnesses, near misses, EHS-MS deficiencies and other concerns;*
 - *Recognizing workplace hazards, including general hazards, hazards specific to particular tasks and assignments, as well as signs and symptoms of workplace related illnesses;*
 - *Avoiding, mitigating and controlling exposures to hazards;*
 - *Hazard control procedures, methods and equipment (e.g., machine guarding, personal protective equipment, and lockout/tagout); and*
 - *Emergency response and evacuation.*
- *Education, training and competency requirements should be incorporated into employee position descriptions and standard operating procedures and work instructions as necessary.*

5.5.2 Select Training Methods, Develop Curriculum and Provide Training - Suitable methods to train employees must be identified and documented for all identified training needs. Education, training and other competency requirements must be periodically evaluated to ensure effectiveness.

- *Suitable and effective training materials should be developed and/or procured to assure that employees understand the material and that required training is scheduled and provided for all employees needing training prior to being assigned to new job functions as well as periodic refresher training needed to maintain skills and competency.*
- *Training methods could include a mixture of classroom, on-the-job, self-directed and computer-based training.*
- *Trainee input should be solicited and analyzed after each training session to identify ways to make training more effective and relevant.*
- *Training curriculum, content and media should be updated as opportunities to improve effectiveness and relevancy are identified.*

5.6 System Evaluation and Improvement

5.6.1 Monitor EHS-MS Performance - A process must be established whereby key measures of EHS performance are monitored, measured and reviewed at least annually.

- *Common indicators may include:*
 - *Progress toward EHS-MS goals;*
 - *Effectiveness of the EHS-MS;*
 - *Effectiveness of hazard controls;*
 - *Occurrence of occupational injury and illnesses;*
 - *Changes in workers' compensation;*
 - *Feedback from managers and employees;*
 - *Reduction in frequency or magnitude of hazards, including exposure levels;*
 - *Rate and timeliness of completion of corrective actions;*
 - *Completion of required equipment maintenance; and*
 - *Completion of required training, and tests of training effectiveness.*

5.6.2 Verify EHS-MS Implementation and Take Corrective Action - Methods to verify the effectiveness and ongoing suitability of the EHS-MS must be established and results reviewed. In addition, a formal internal auditing and corrective and preventive action system must be established and documented.

- *All "hazard control measures" should be systematically and periodically inspected to determine if they are operational and effective (see also Section 5.4.5 of this policy).*
- *Periodic evaluations (or internal audits) of compliance with applicable EHS laws, regulations and company requirements should be conducted. At minimum, this should occur at least once per year.*
- *Periodic "systems-level" evaluations of the entire EHS-MS should be conducted to determine if all requirements are being followed and they are effective in reducing EHS related hazards and risks.*
- *A corrective and preventive action system should be developed and implemented to resolve EHS-MS deficiencies and implement identified opportunities for improvement.*

5.6.3 Assess EHS-MS and Make Improvements - Top management at the operation must perform a comprehensive EHS-MS review each year based on the results of performance monitoring, verification activities, compliance reviews, and other information helpful in evaluating suitability and effectiveness.

- *The review, its results and recommended improvements should be documented and communicated to all relevant parties. This systems level review often results in identification of:*
 - *Opportunities to refine, fortify and improve the EHS-MS;*
 - *New and revised EHS-MS goals;*
 - *Types and quantity of resources needed to effectively implement the EHS-MS; and*
 - *New and revised roles and responsibilities for implementing the EHS-MS.*
- *All identified recommendations for improving the EHS-MS should be implemented.*

6.0 CONTACT INFORMATION

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7.0 RELATED DOCUMENTS

- Environmental, Health and Safety Policy (August 2015)
- Code of Business Conduct and Ethics (March 2015)

Available on the “Risk Management” iConnect webpage and “Corporate Policies and Procedures” iConnect webpage at:

<http://org.icconnect.thermofisher.net/sites/legal/riskmanagement/Pages/Home.aspx>
<http://icconnect.thermofisher.net/sites/companyinformation/Pages/PoliciesandProcedures.aspx>

Revision History

| Issue No. | Issue Date | Author(s) | Description of Change |
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| 1 | 10/11/2016 | R. Fetter – VP of Risk Management B. Martinson – Director, EHS and Regulatory Compliance | Initial issue |
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Appendix 1

Self-Assessment Checklist

| Requirement Reference | Verify that the following Requirements are satisfied... | Applicable documents | Briefly describe how the site meets this requirement | Briefly describe identified gaps |
|-----------------------|--|----------------------|--|----------------------------------|
| 5.1 | Has the site identified an EHS Leader/ Manager(s)? Are they sufficiently empowered with the time, budget and authority needed to fulfill this role? | | | |
| 5.1.1 | Is the Corporate EHS policy posted in the lobbies and where workers congregate (e.g., lunch and break rooms) and otherwise communicated to employees and visitors? | | | |
| 5.1.2 | Are goals established for the continuous improvement of EHS activities? Are metrics in place to measure progress toward these goals? How are they posted or otherwise communicated through the organization? | | | |
| 5.2.1 | What measures are in place to ensure that employees are encouraged to participate in the development of programs to identify and control hazards? Perform inspections? Develop or improve training programs? | | | |
| 5.2.2 | Do all employees have ready access to pertinent EHS information? | | | |

| Requirement Reference | Verify that the following Requirements are satisfied... | Applicable documents | Briefly describe how the site meets this requirement | Briefly describe identified gaps |
|-----------------------|--|----------------------|--|----------------------------------|
| 5.2.3 / 5.2.4 | What programs are in place which encourage employee reporting of EHS related concerns? Are there any barriers to reporting EHS concerns or incidents? | | | |
| 5.3.1 | Is there a documented inventory of applicable EHS regulations and other compliance obligations? Is there a summary of how compliance is achieved and maintained for each of these obligations? | | | |
| 5.3.2 | Is there a compliance calendar? What other measures does the site take to ensure timely compliance with applicable EHS obligations? | | | |
| 5.4.1 | What measures has the site used to identify hazards which may exist in the workplace? Do they include a review of environmental hazards? | | | |
| 5.4.2 / 5.4.3 | Has an assessment of the risk of these hazards been documented? | | | |
| 5.4.4 / 5.4.5 | Are there documented hazard control programs in place for all identified hazards? For example, PPE, control of hazardous energy, hazardous materials or waste. | | | |
| 5.4.6 | Does the site have a written emergency response program? Is it effective? Does it include drills and their review? | | | |

| Requirement Reference | Verify that the following Requirements are satisfied... | Applicable documents | Briefly describe how the site meets this requirement | Briefly describe identified gaps |
|-----------------------|--|----------------------|--|----------------------------------|
| 5.5.1 | What measures has the site used to assess EHS training or educational needs? | | | |
| 5.5.2 | Are measures to ensure that employee training is provided on a timely basis adequate? Do the training programs include contractors and temporary workers? | | | |
| 5.6 | Does the site conduct regular internal EHS inspections of all operations? Is there an SOP that describes the scope, frequency, and methodology of Inspections? | | | |
| 5.6 | Does the inspection include recommendations for improvements, documented follow-up, including accountability and anticipated completion dates? | | | |
| 5.6.2 | Is there a documented and formal corrective action program? | | | |
| 5.6.3 | What measures or programs are in place to ensure that site management reviews the EHS MS periodically? Does the review include progress towards goals and a review of incidents? | | | |

Appendix 2

Common Categories of EHS Hazard Control Programs

- **Environment**
 - Air Quality
 - Drinking Water
 - Hazardous Materials
 - Hazardous Waste
 - Oil and Petroleum
 - Pesticides, Herbicides, and Fungicides
 - Radiation Protection
 - Solid Waste
 - Special Pollutants
 - Toxic Substances Control Act
 - Storage Tanks
 - Wastewater
- **Health and Safety**
 - Biosafety
 - Bloodborne Pathogens
 - Chemical, Biological, and Physical Exposure Control
 - Compressed Gases
 - Confined Spaces
 - Control of Hazardous Energy (Lockout and Tagout)
 - Electrical Safety
 - Emergency Planning and Response
 - Ergonomics
 - Fire Protection
 - Handheld Tools
 - Hazard Communication
 - Hazardous Materials
 - Hearing Conservation
 - Incident Reporting and Investigation
 - Job Hazard Analysis
 - Laboratory Safety/Chemical Hygiene
 - Laser Safety
 - Machinery and Machine Guarding
 - Materials Handling
 - Medical and First Aid
 - Occupational Health
 - Personal Protective Equipment
 - Powered Industrial Trucks and Platforms
 - Process Safety of Highly Hazardous Materials
 - Recordkeeping
 - Walking and Working Surfaces
 - Welding, Cutting, and Brazing
- **Hazardous Materials Transportation**
 - Training and Materials Classification
 - Shipping Papers
 - Packing and Packaging
 - Marking, Labelling and Placarding
 - Emergency Response Information and Incident Notification