MIOSHA

General Industry Safety and Health Division
Michigan Occupational Safety and Health Administration (MIOSHA)
Department of Labor and Economic Opportunity (LEO)

DIVISION INSTRUCTION

DOCUMENT IDENTIFIER:	DATE:
GISHD-GEN-05-1R3	December 2, 2019

SUBJECT: Ergonomics

I. Purpose. This instruction provides policies and procedures for conducting inspections of ergonomic hazards.

II. Scope. This instruction applies to the General Industry Safety and Health Division (GISHD).

III. References.

A. Agency Instruction Michigan Occupational Safety and Health Administration (MIOSHA), MIOSHA-COM-08-02, Access to Employee Medical Records, as amended.

B. MIOSHA Field Operations Manual (FOM), as amended.

C. Michigan Occupational Safety and Health Act, R408.1001 et seq., P.A. 154 of 1974, as amended.

D. MIOSHA Strategic Plan for Fiscal Years 2019-2023.

E. Occupational Safety & Health Administration (OSHA) Memorandum dated June 25, 2015, Inspection Guidance for Inpatient Healthcare Settings.

F. OSHA Memorandum dated October 28, 2015, Inspection Guidance for Poultry Slaughtering and Poultry Processing Establishments.

G. OSHA Publication 3213, (2013), Prevention of Musculoskeletal Injuries in Poultry Processing. Also available in Spanish, Prevención de lesiones musculoesqueléticas en el procesamiento avícola.

H. OSHA Publication 3123, (1993), Ergonomics Program Management Guidelines for Meatpacking Plants.

I. OSHA Alert Letter dated August 18, 2011, Beverage Distribution Hazard.

J. OSHA Publication 3465, (2012), Solutions for the Prevention of Musculoskeletal Injuries in Foundries.

K. OSHA Publication 3182, (2003, Revised March 2009), Guidelines for Nursing Homes: Ergonomics for the Prevention of Musculoskeletal Disorders.

L. OSHA Publication 3341, (2008), Guidelines for Shipyards: Ergonomics for the Prevention of Musculoskeletal Disorders.

M. OSHA Publication 3192, (2004), Guidelines for Retail Grocery Stores: Ergonomics for the Prevention of Musculoskeletal Disorders.

IV. Distribution. MIOSHA Staff; Federal OSHA; S-drive Accessible; MIOSHA Messenger; and Internet Accessible.

V. Cancellations. All previous versions of this division instruction.

VI. History. History of previous versions include:

GISHD-GEN-05-1R2, April 6, 2016.
GISHD-GEN-05-1R1, January 6, 2012.
GISHD-GEN-05-1, July 11, 2005.

VII. Next Review Date. This instruction will be reviewed in five (5) years from date of issuance.

VIII. Contact. Adrian Z. Rocskay, Division Director.

IX. Originator: Adrian Z. Rocskay, Division Director.

X. Significant Changes.

A. MIOSHA Strategic Plan information was updated to reflect current plan 2019-2023.

B. Added requirement to issue recommendations on all inspections conducted at high-hazard industries in the current strategic plan when there are ergonomic - related injuries or illnesses at the establishment and the criteria for a general duty clause citation cannot be met.

XI. Background.

A. Ergonomic hazards have been identified as a major source of occupational injury and illness, as illustrated by the high incidence rate of ergonomic-related injuries and illnesses and the associated workers' compensation costs. Ergonomic hazards have been the focus of guidelines and enforcement by the U.S. Occupational Safety and Health Administration (OSHA). MIOSHA's Strategic Plan for Fiscal Years 2019-2023. Emphasis 1.1 includes efforts to continue to reduce hazards due to manual material lifting and repetitive motion.

B. Ergonomic hazards refer to workplace conditions that pose a biomechanical stress to the musculoskeletal system of a worker. Such hazardous workplace conditions include, but are not limited to, faulty workstation layout, improper work methods, improper tools and job design problems that include aspects of work flow, line speed, posture and force required, work/rest regiments, and repetition rate.

C. Cumulative trauma disorders (CTDs) are a class of musculoskeletal disorders, which arise from repeated biomechanical stress due to ergonomic hazards. CTDs involve damage to the tendon sheaths, and the related bones, muscles, and nerves of the hands, wrists, elbows, shoulders, neck and back. The more frequently occurring occupationally induced disorders in this class include carpal tunnel syndrome, epicondylitis ("tennis elbow"), tendonitis, tenosynovitis, DeQuervain's disease, and low back pain. These disorders develop as a result of chronic

exposure of a particular body part to repeated biomechanical stress which, by cumulative effect, produces a debilitating condition.

D. CTDs are caused by jobs that expose employees to ergonomic risk factors. The purpose of an ergonomic investigation is to assist employers in reducing or eliminating these risks. These risk factors include (but are not limited to):

1. Repetitive performance of the same motion, or the same pattern of motions;
2. Tasks that require employees to assume awkward postures;
3. Use of vibrating tools or equipment;
4. Tasks that require forceful exertions or frequent forceful lifting, lowering, pushing, pulling and reaching during manual material handling.

XII. Enforcement Plan.

A. The Safety Officer/Industrial Hygienist (SO/IH) will address ergonomics when it is an alleged hazard in a complaint or referral, and by performing an ergonomic assessment on all planned/programmed inspections. The goal of the ergonomic assessment is to identify establishments where employers are not managing ergonomic risk adequately. The assessment is a quick preliminary review of the employer's ergonomic program to determine the ergonomic hazards in a workplace, the ergonomic injury and illness rate, and the extent and effectiveness of the employer's control strategies. If the ergonomic hazards are significant and not being controlled, the SO/IH will investigate ergonomics more deeply towards a goal of an ergonomic recommendation or citation.

B. A citation shall be issued for serious ergonomic hazards, provided the criteria for a violation of the general duty clause are met (See Section XIII).

C. Recommendations will be issued on all inspections conducted at high-hazard industries in the current strategic plan to correct serious ergonomic hazards when the criteria for a general duty clause violation cannot be met. The establishment will be considered to have serious ergonomic hazards if the form 300 "Log of Work-Related Injuries and Illnesses" or form 301 "Injury and Illness Incident Report" shows any ergonomic-related injuries or illnesses within the previous three years.

D. For ergonomic hazards at inpatient healthcare settings, MIOSHA will follow OSHA memorandum, Inspection Guidance for Inpatient Healthcare Settings. Inpatient healthcare settings encompass NAICS 622 (hospitals) and 623 (nursing and residential care facilities).

E. For ergonomic hazards at poultry slaughtering and poultry processing facilities (NAICS 311615), MIOSHA will follow OSHA memorandum, Inspection Guidance for Poultry Slaughtering and Poultry Processing Establishments.

XIII. Federal Guidelines. Federal OSHA has, to date, issued six sets of ergonomic guidelines and a hazard alert letter for beverage distribution. The guidelines for meatpacking plants,

poultry processing, retail grocery operations, shipyards, foundries, and nursing homes are advisory documents. The guidelines can be found on the Ergonomics Safety and Health Topics Page as follows: https://www.osha.gov/SLTC/ergonomics/. These guidelines are not standards and therefore cannot be used as the sole basis for a citation, and should not be specifically referenced in a citation.

XIV. Citations. Chapters V and VI of the FOM shall be followed when issuing citations to employers. Citations for ergonomics shall be determined using the general duty clause, which is Section 11(a) of Act 154, the Michigan Occupational Safety and Health Act. According to the FOM, four elements must be established to prove a violation of the general duty clause. The SO/IH must provide proof of each of these four elements:

A. A hazard exists. The investigator should provide documentation of an excessive rate of musculoskeletal disorders among employees of a specific department, job title, or similarly exposed work group. The SO/IH is to calculate the incidence rate. The excessive rate of these disorders should correlate with the ergonomic risk factors of the job. For example, a job with awkward wrist postures and high repetition would be expected to have an inordinate number of employees with carpal tunnel syndrome. A job that requires repetitive lifting of heavy objects would be expected to have an excessive rate of lower back disorders.

B. The hazard can cause serious physical harm. Injuries should be documented and documentation collected may include but not be limited to medical records, employee interview statements, and injury and illness data. The data should establish that the risk factors associated with a task have resulted in serious health outcomes. Serious health outcomes include lost workdays, diagnosed musculoskeletal disorders, disability, surgery, and physician-directed restricted work.

C. The hazard was recognized. Employer knowledge can be established using injury and illness data, internal investigations, employee medical information or insurance audits. A written access order (WAO) may be necessary for employee medical records (See Agency Instruction, MIOSHA-COM-08-02 Access to Employee Medical Records, as amended). The investigator should determine if data such as industry studies, articles in trade journals or other objective data exists that demonstrate the industry recognized the musculoskeletal risk factors associated with a task or job description caused injury or illness. Employee or management statements that the company knew of the hazards can also be useful.

D. A feasible method of abatement exists. The investigator must show a feasible way to eliminate or significantly reduce the risk factors. The investigator should:

1. Provide the employer with multiple options to abate the citation.

2. Demonstrate that the controls suggested will eliminate or significantly reduce existing risk factors. This can be accomplished by using past successes, industry practices, studies or other objective data (e.g., showing a large reduction in biomechanical stressors).

3. Demonstrate that the suggested abatement will not have a negative impact on the product or process.

The abatement process may be incremental and include a significant trial and error period where different strategies for mitigating hazards are evaluated. The process can take some time and the investigator should evaluate the control strategies to see if the risk factors cited have been eliminated in order to abate the citation in a timely fashion instead of waiting for injury and illness data to develop.

In the abatement, a target incidence rate will not be set. Abatement of ergonomic hazards shall normally be stated and documented in terms of the evaluation, testing, and implementation of engineering and administrative controls.

XV. Inspection Resources. Ergonomic investigations require specialized expertise and can be very time and resource intensive. To ensure that inspections are conducted appropriately, ergonomic investigations shall be coordinated with the assigned investigator's supervisor and the 13-Level Specialist who deals with ergonomics. Maximum effort should be used to identify likely case outcomes as early as possible in the inspection process, in order to allocate resources efficiently. MIOSHA will place special emphasis on industries where ergonomic hazards exist and employers are not making good faith efforts to prevent injuries. See Appendix A for additional resources.

XVI. Expert Services. Should a case involve complex technical issues that are beyond the agency's in-house capabilities, outside expertise will be considered. OSHA Region V has ergonomic expertise available for these types of cases and can be brought in to assist. In addition, use of OSHA's health response team may be used, to support a case. If additional resources or expertise is required, the investigator shall consult with management and obtain approval before proceeding.

XVII. Inspections.

A. Ergonomic inspections shall be conducted in such a manner that the four elements of a general duty citation are evaluated.

1. Does a hazard exist?
2. Can the hazard cause serious physical harm?
3. Does the employer or industry recognize the hazard?
4. Is there a feasible means of abatement that will reduce or eliminate employee exposure?

B. In order to document a hazard the inspector shall review three (3) years of injury and illness data (MIOSHA 300 logs). Supporting documentation such as the MIOSHA 301 or equivalent should be reviewed to ensure that the entries on the log are related to musculoskeletal disorders. Insurance records and medical department information may also be valuable during this stage. Care should be taken at this point to identify jobs, workstations, or processes that require closer

scrutiny. Limiting the scope or area that is investigated in detail will allow the investigator to focus resources appropriately.

XVIII. Evaluation. Both ongoing and periodic evaluation of ergonomic investigations is essential.

A. Citation follow-up. Policies and procedures already in place to assure that adequate case file documentation of abatement is procured shall be used.

B. The incidence rate for ergonomic injuries/illnesses shall be calculated. The incidence rate shall be calculated using the following equation:

Incidence Rate (IR) =

(Total number of recordable cases with lost or restricted work days in the past 12 months x 200,000) ÷ (#Employee Hours Worked)

Where:

#Recordable Cases = Sum of recordable cases with or without lost workdays in the reference year (only those which are ergonomic in nature when calculating that rate).

#Employee Hours Worked = Sum of employee hours in the reference year (who were exposed to the ergonomic hazard when calculating that rate). If this data is not available use: Number of employees x 2,000

DART = Days away, restricted, or transferred.

The DART rate is calculated using the following formula:

N/EH x 200,000

Where:

N = number of injuries and/or illnesses with days away, restricted work, or job transfer

EH = total hours worked by all employees during calendar year. 200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

XIX. OSHA Information System (OIS).

A. On the Inspection tab, Inspection Type tab, Inspection Emphasis Programs, State Emphasis Program field, the SO/IH will select the following codes from the drop-down menu:

ERGOREC When written recommendations on ergonomics are made

ERGOINSP* For all ergonomic inspections

*Use this code only when more than just injury/illness logs are reviewed during an inspection (e.g., the ergonomics program or work stations are reviewed).

B. For inspections meeting the definitions of Inspection Guidance for Inpatient Healthcare Settings (for NAICS 622 and 623), code in OIS as "N-03-Nursing Hosp." The code is entered on the Inspection tab, Inspection Type tab, Additional Codes.

C. For inspections meeting the definitions of Inspection Guidance for Poultry Slaughtering and Poultry Processing Establishments (for NAICS 311615), code in OIS as "N-02-Poultry." The code is entered on the Inspection tab, Inspection Type tab, Additional Codes.

Appendix A

ADDITIONAL ERGONOMIC RESOURCES (Assessment tools and guidelines for specific industries):

OSHA:

https://www.osha.gov/SLTC/ergonomics/

https://www.osha.gov/SLTC/etools/hospital/hazards/ergo/ergo.html

IOSH/CDC:

http://www.cdc.gov/niosh/topics/ergonomics/

Washington State Department of Labor & Industries:

http://www.lni.wa.gov/Safety/Topics/Ergonomics/IndGuide/default.asp

Incident Rate Calculator and comparison tool:

http://data.bls.gov/iirc/