

Administrative Procedure

CPCC-PRO-SH-40463

PRC-PRO-SH-40463

Ergonomics

Revision 1, Change 2

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Program: Occupational Safety and Industrial Hygiene

Topic: Occupational Safety and Industrial Health

Technical Authority: Asmus, Jennifer A

Functional Manager: Foster, Andrew L

Use Type: Administrative



| USQ Facility | USQ Review | Screeners |
|--|--|-----------|
| Solid Waste Operations Complex | Exclusion Reason: <i>N/A per CPCC-PRO-NS-53097 Table 1</i> | |
| Canister Storage Building/Interim Storage Area | Exclusion Reason: <i>N/A per CPCC-PRO-NS-53097 Table 1</i> | |
| Central Plateau Surveillance and Maintenance | Exclusion Reason: <i>N/A per CPCC-PRO-NS-53097 Table 1</i> | |
| Waste Encapsulation Storage Facility | Exclusion Reason: <i>N/A per CPCC-PRO-NS-53097 Table 1</i> | |
| Plutonium Finishing Plant | Exclusion Reason: <i>N/A per CPCC-PRO-NS-53097 Table 1</i> | |
| Transportation | Exclusion Reason: <i>N/A per CPCC-PRO-NS-53097 Table 1</i> | |
| Capsule Storage Area | Exclusion Reason: <i>N/A per CPCC-PRO-NS-53097 Table 1</i> | |
| 105 KW Facility | Exclusion Reason: <i>N/A per CPCC-PRO-NS-53097 Table 1</i> | |
| 324 Building | Exclusion Reason: <i>N/A per CPCC-PRO-NS-53097 Table 1</i> | |

JHA: Administrative

Periodic Review Due Date:04/14/2027

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Change Summary

Description of Change

Incorporated minor editorial changes to Section 3.1 requested by Facilities & Property Management. Updated PPS template.

Ergonomics**Published Date: 03/14/23****PRC-PRO-SH-40463****Effective Date: 03/14/23****1.0 INTRODUCTION****1.1 Purpose**

This procedure provides a process for conducting and documenting ergonomic hazard evaluation and mitigation to support Central Plateau Cleanup Company (CPCCo)-directed work activities. This procedure provides direction to identify, evaluate, and control workplace conditions that present potential ergonomic hazards, in efforts to prevent musculoskeletal disorders (MSD). Some common MSDs are:

- Carpal tunnel syndrome
- Tendinitis
- Rotator cuff injuries
- Epicondylitis
- Trigger finger
- Muscle strains and low back injuries

The American Conference of Governmental Industrial Hygienists (ACGIH) recognizes work-related MSDs as “an important occupational health problem that can be managed using an ergonomics health and safety program.” The ACGIH provides guidance on assessing and controlling work activities associated with hand activity level, lifting, hand-arm vibration, and whole-body vibration.

1.2 Scope

This procedure addresses MSDs associated with occupational factors, both in the office and in the field. The MSDs associated with non-occupational factors are outside the scope of this procedure.

1.3 Applicability

This procedure applies to CPCCo-directed office and field work activities.

1.4 Implementation

This procedure is effective upon publication.

2.0 RESPONSIBILITIES

The Industrial Hygienist (IH) and/or the Ergonomics Technical Authority (TA) are responsible for performance of this procedure.

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3.0 PROCESS

Ergonomic assessments are one of the hazard evaluations that are addressed in the Industrial Hygiene Exposure Assessment (IHEA) process. In accordance with CPCC-PRO-SH-17916, *Industrial Hygiene Exposure Assessment*, the industrial hygienist performs two types of ergonomic evaluations: office and field. However, office ergonomics are outside the scope of the IHEA process.

This assessment process takes into consideration the:

- Requirements laid out in 10 CFR 851, *Worker Safety and Health*
- Guidelines set forth in the ACGIH *Threshold Limit Values (TLV) and Biological Exposure Indices (BEI)*
- Recommendations provided by the Centers for Disease Control-National Institute for Occupational Safety and Health (CDC-NIOSH)

3.1 Office Ergonomic Evaluation and Control

CPCCo provides mitigations to prevent MSD, as identified by workers and/or Industrial Hygiene (IH). The need for special equipment used for ergonomic hazard mitigation is typically identified during an office ergonomic evaluation performed by IH. Equipment is then provided by the worker's management and/or Facilities and Property Management, if supplies are available. Commonly used office ergonomic equipment and accessories used to mitigate hazards include, but are not limited to, the following:

NOTE: *Managers may elect to procure ergonomic chairs, furnishings, and equipment from their budget without requiring an office ergonomic evaluation by IH.*

- Foot rests
- Foot stools
- Standing mats
- Chair mats (for ease of rolling)
- Wrist rests (keyboard and/or mouse)
- Keyboard trays
- Document holders
- Task lights
- Monitor stands
- Variable-height sit/stand desks
- Adjustable office chairs and chair fit sessions
- Mice and input devices
- Keyboards
- Telephone headsets
- Computer monitors
- Workstation furniture

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3.2 Office Ergonomic Self-Assessment

The self-assessment process provides the worker an opportunity to self-identify areas of discomfort in the office environment. It is a useful assessment tool, even when the worker is not experiencing discomfort.

| Actionee | Step | Action |
|----------|------|---|
| IH/TA | 1. | <u>IF</u> office worker is experiencing discomfort or symptoms of soft tissue injury in the office workstation, <u>THEN</u> HAVE office worker complete <i>Office Ergonomic Self-Assessment</i> (Site Form A-6006-145), <u>AND</u> FORWARD to the project IH or IH (Ergonomics) TA. |
| | 2. | REVIEW the completed <i>Office Ergonomic Self-Assessment</i> <u>AND</u> DETERMINE if the worker needs an office ergonomic evaluation. |
| | 3. | As needed, RECOMMEND equipment and accessories identified during the self-assessment. |
| | 4. | SCHEDULE office ergonomic evaluation if needed. |
| | 5. | GENERATE new Site Wide Industrial Hygiene Database (SWIHD) survey for each assessment, using information from the <i>Office Ergonomic Self-Evaluation</i> , and communication with worker, as needed. |
| | 6. | <u>IF</u> office ergonomic evaluation is not needed, <u>THEN</u> ATTACH employee's <i>Office Ergonomic Self-Assessment</i> to SWIHD survey <u>AND</u> DOCUMENT actions taken or recommended. |
| | 7. | CHANGE SWIHD survey to "Ready" status for review/concurrence by assigned IH. |

3.2.1 Office Ergonomic Assessment

Employees whose work scopes require them to spend most of their time in an office environment are at increased risk of office ergonomic hazards compared to those who spend less time in static, or nearly static, postures. Changing posture is key to preventing MSD.

| Actionee | Step | Action |
|----------|------|--|
| IH/TA | 1. | <u>IF</u> office ergonomic evaluation is needed, <u>THEN</u> COMPLETE the <i>Office Ergonomic Evaluation</i> (Site Form A-6006-185) with the office worker's assistance. |
| | 2. | IDENTIFY items that are adjusted and/or are needed to mitigate office ergonomic hazards. |

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| Actionee | Step | Action |
|----------|------|--|
| IH/TA | 3. | <p>ADD information from the <i>Office Ergonomic Self-Assessment</i> (Site Form A-6006-145) and the <i>Office Ergonomic Evaluation</i> (Site Form A-6006-185) to the SWIHD survey.</p> |
| | 4. | <p>SEND letter to worker and worker's manager/supervisor summarizing the following, as applicable:</p> <ul style="list-style-type: none"> • Date of completed <i>Office Ergonomic Self-Assessment</i> • Date of completed workstation evaluation/assessment • SWIHD survey number • Performed/recommended adjustments to workstation • Equipment identified during evaluation/assessment to be obtained for worker • Responsibility of employee's manager to procure recommended equipment • Follow-on actions to be taken by worker and/or IH/TA |
| | 5. | <p>ATTACH pdf of letter and other related documentation (<i>Office Ergonomic Self-Assessment</i>, <i>Office Ergonomic Evaluation</i>, photographs, etc.) to the SWIHD survey.</p> |

NOTE: Chair quotes are emailed from manufacturer's representative to Procurement & Supply Chain P-Card holder and/or IH/TA.

6. IF employee is fitted with an ergonomic chair, THEN FORWARD chair quote to employee and employee's manager.
7. As needed, FOLLOW UP with individuals identified as needing further evaluation or adjustment.
8. WHEN the modification recommendations fail to reduce the employee's discomfort, THEN REFER worker to Site Occupational Medical Contractor (SOMC) for additional evaluation and recommendations in accordance with CPCC-PRO-SH-077, *Reporting, Investigating and Managing Health and Safety Events*.
9. CHANGE SWIHD survey to "Ready" status for review/concurrence by assigned IH.

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3.3 Field Ergonomic Evaluation and Control

| Actionee | Step | Action |
|----------|------|---|
| IH/TA | 1. | IF worker reports a work-related discomfort, illness, or injury, THEN EVALUATE work areas and activities to identify potential ergonomic hazards including, but not limited to, repetition, awkward posture, force, vibration, and contact stress |
| | 2. | RESPOND to employee's report of injury in accordance with CPCC-PRO-SH-077. |
| | 3. | EVALUATE work activities using appropriate assessment tool(s) (per the list of tools in Appendix B). |
| | 4. | INTERVIEW the employee(s) performing the task for feedback regarding task ergonomic stress. |
| | 5. | <p>EVALUATE AND DOCUMENT work postures that could present an increased risk of MSD such as:</p> <ul style="list-style-type: none"> • Neck flexion or extension (e.g., forward/backward bending) of the greater than 20 degrees • Forward/backward bending of the torso greater than 20 degrees • Twisting of the torso • Arm abduction (e.g., lifting arm away from the torso midline) • Arm adduction (e.g., crossing arm over torso midline) • Bending/flexing the forearm greater than 90 degrees • Raising the elbow above the shoulder • Raising the forearms above the shoulder • Reaching, with forward extension of the torso • Wrist flexion or extension • Lateral wrist deviation (e.g., from the midline of the arm) • Pinch grip • Deep bending of the knee, or kneeling (constrained lower body posture) • Uneven footing • Movements that combine one or more of the above awkward postures |

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| Actionee | Step | Action |
|----------|---|--------|
| IH/TA | 6. DOCUMENT task-related factors such as: <ul style="list-style-type: none"> • Repetition • Awkward posture • Work area temperature • Weight of the load • Stability of the load • Stability of objects within containers • Mechanical advantages (e.g., carts, dollies, hoists) • Size and shape of a load (e.g., grasping points) • Personal protective equipment/respiratory protection equipment • Time allotted for the task • Vibration • Contact stress 7. START new SWIHD survey. 8. RECORD the ergonomic assessment in SWIHD under the <i>Ergo</i> "Field" tab. <ul style="list-style-type: none"> • SELECT applicable Ergonomic Evaluation Tools to be used in evaluation. • SUMMARIZE results of ergonomic evaluation. • ATTACH evaluation documentation (e.g., photographs, notes, manufacturer documentation). 9. ENGAGE users and management to identify controls following the hierarchy of controls with the goal of reducing the risk of MSD. 10. COMMUNICATE the results of the ergonomic assessment to management, the project Occupational Safety & Industrial Hygiene (OS&IH) manager, or the Ergonomics TA. 11. MAKE recommendations to management for long-range goals such as equipment and process changes that may require budget and planning considerations. 12. ASSESS the effectiveness of implemented ergonomic hazard controls <u>AND</u> MAKE modification recommendations to controls as needed for continuous improvement. | |

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| <i>Actionee</i> | <i>Step</i> | <i>Action</i> |
|-----------------|-------------|---|
| IH/TA | 13. | WHEN the modification recommendations fail to reduce the employee's discomfort, <u>THEN</u> REFER the employee to the SOMC for evaluation and recommendations. |
| | 14. | CHANGE SWIHD survey to "Ready" status for review/concurrence by assigned IH. |

3.4 Post Evaluation Follow-on Actions (Optional)

| <i>Actionee</i> | <i>Step</i> | <i>Action</i> |
|-----------------|-------------|--|
| TA | 1. | REQUEST periodic ergonomic-related injury reports and statistics from Case Management/Worker Compensation to identify occupational groups at risk for repetitive motion and MSD. |
| | 2. | ANALYZE <u>AND</u> COMMUNICATE results of injury statistics to OS&IH managers regarding field ergonomic assessment activities. |
| | 3. | As needed, COMMUNICATE with SOMC when risk factors on Employee Job Task Analysis (EJTA) change. |
| | 4. | As needed, REQUEST the SOMC perform an ergonomic evaluation of a field activity <u>AND</u> IMPLEMENT their recommendations. |
| | 5. | Periodically REVIEW ergonomic injury information and trends for the projects. |

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4.0 FORMS*A-6006-145, Office Ergonomic Self-Assessment**A-6006-185, Office Ergonomic Evaluation***5.0 RECORD IDENTIFICATION**

None

6.0 SOURCES**6.1 Requirements***10 CFR 851, Worker Safety and Health Program**29 CFR 1910, Occupational Safety and Health Standards**American Conference of Governmental Industrial Hygienists (ACGIH®) Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices, 2016, ACGIH Worldwide Signature Publications, Cincinnati, OH***6.2 References***CPCC-PRO-SH-077, Reporting, Investigating and Managing Health and Safety Events**CPCC-PRO-SH-17916, Industrial Hygiene Exposure Assessments***6.3 Bases***American Industrial Hygiene Association Ergonomic Committee Ergonomic Assessment Toolkit, 2011, American Industrial Hygiene Association (AIHA) Press, Fairfax, VA**CPCC-PRO-SH-409, Industrial Hygiene Monitoring, Reporting and Records Management**CPCC-PRO-WKM-079, Job Hazard Analysis*

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Appendix A - Field Ergonomic Risks and Assessment Tools

The major field ergonomic risk factors are high task repetition, forceful exertions, and repetitive/sustained awkward postures. Other risk factors include, but are not limited to:

- Duration of exposure (i.e., number of hours, or percent of the work day)
- Duration of sustained exposure (e.g., percent of the duty cycle)
- Amount of force required to perform the task
- Number of impacts experienced during the task
- Amount of weight lifted during the task
- Number of repetitions performed
- Type of grip or hand coupling
- Range of postures during movement
- Constrained posture (e.g., whether the work is performed kneeling or sitting)
- Distance an object is lifted or carried
- Reach distance of the worker
- Size and shape of a load
- Vibration and noise
- Contact stresses
- Time allotted for the task
- Lighting, temperature and humidity of the environment
- Surface on which the worker works (e.g., uneven or slippery)

The following tools are available to assist in ergonomic exposure assessment:

Qualitative Screening Tools--Whole Body

WISHA Caution Zone Checklist

WISHA Hazard Zone Checklist

OSHA Screening Tool (Table W-1)

OSHA Video Display Terminal Checklist

Semi-Quantitative—Whole Body

Quick Exposure Checklist (QEC)

Rodger's Muscle Fatigue Assessment

Rapid Entire Body Assessment (REBA)

WISHA Ergonomic Hazard Evaluation Checklist

Semi-Quantitative—Upper Limb

Rapid Upper Body Assessment (RULA)

Quantitative—Whole Body

ACGIH TLV for Whole Body Vibration

Quantitative—Upper Limb

ACGIH TLV for Hand Activity (For Mono-Tasks only)

ACGIH TLV for Hand-Arm Vibration

ACGIH TLV for Upper Limb Localized Fatigue

Quantitative—Lifting

ACGIH TLV for Lifting (For Mono-Lifting Tasks only)

WISHA Calculator for Analyzing Lifting Operations

NIOSH Revised Lifting Equation (Recommended Weight Limit or RWL)

NIOSH Lifting Index