

Ergonomics

MSC-RD-8471

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Approved for Public Release;
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1.0 PURPOSE AND SCOPE

This Level 1 requirements document is applicable to Hanford Mission Support Contract (MSC) employees and establishes requirements to ensure that conditions presenting potential ergonomic-related hazards to employees are identified and controlled. The general requirements approach used in this document recognizes the varied work activities associated with each of the MSC Projects/Functions. This variety necessitates flexibility in addressing ergonomic-related conditions.

MSC Projects/Functions performing MSC work scope shall make ergonomics a consideration in their overall safety program. In line with Voluntary Protection Program (VPP) and Integrated Safety Management Systems (ISMS) principles, efforts will focus on: Management commitment and leadership, Employee involvement, Hazard identification and analysis, Hazard elimination, reduction or control, Training, and Continuous improvement achieved by sharing of lessons learned.

2.0 REQUIREMENTS

NOTE: For the tables in this section under the requirement "type" column, "V" means verbatim and "I" means interpreted.

#	REQUIREMENT	TYPE V or I	SOURCE
1.	Work areas and tasks shall be evaluated to identify those with potential ergonomic-related hazards including repetition, awkward posture, force, vibration, and contact stress. Physical strength and conditioning of the involved personnel will also be considered. MSC-GD-53524, Ergonomics, provides further guidance on how ergonomic-related hazards are to be identified and controlled.	I	10CFR851.21(a) (1)-(8)
2.	The Job Hazard Analysis (JHA) process (MSC-PRO-079) shall be used to identify, evaluate, control, and communicate potential hazards relative to discrete work activities/tasks to be performed, and establish an appropriate level of controls.	I	10CFR851.21(a) (1)-(8)
3.	Measures shall be implemented that prevent or control to the extent possible ergonomic-related hazards specific to the involved work area and activities. Hazard controls must be selected based on the following hierarchy: <ol style="list-style-type: none"> Elimination or substitution of the hazards where feasible and appropriate; Engineering controls where feasible and appropriate; Work practices and administrative controls that limit worker exposures; and Personal protective equipment. 	I	10CFR851.22(a)

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	NOTE: Refer to Appendix A for examples.		
4.	<p>Mechanical lifting devices shall be used for lifting or moving heavy objects when possible.</p> <p>NOTE: When engaged in mandatory training, qualification testing or responses to emergency events, Requirement 2.0.4 will not apply to Hanford Patrol or Hanford Fire personnel. Job Hazard Analyses shall be performed for training and qualification activities as well as anticipated emergency response activities. Controls shall be implemented to eliminate or minimize to the extent possible hazards associated with these activities.</p>	I	10CFR851.22(a) (2) (i)
5.	<p>Employees shall not attempt to singularly lift objects that exceed physical capabilities or are greater than 55 pounds (24.95 kgs) without a hazards analysis.</p> <p>NOTE: When engaged in mandatory training, qualification testing or responses to emergency events, Requirement 2.0.5 will not apply to Hanford Patrol or Hanford Fire personnel. Job Hazard Analyses shall be performed for training and qualification activities as well as anticipated emergency response activities. Controls shall be implemented to eliminate or minimize to the extent possible hazards associated with these activities.</p>	I	10CFR851.22(b) (3)
6.	<p>The handling of material-containing drums shall be conducted as follows:</p> <ol style="list-style-type: none"> a. Mechanical and/or powered assist devices will be used when possible. b. Single person unassisted manual lift(s) of a drum are limited to 55 pounds (24.95 kgs) or less. c. Two-person manual lifts of a drum are limited to 55 pounds (24.95 kgs) or less per person. d. Single person unassisted manual push (tipping) of a drum in an upright position is limited to 240 pounds (108.86 kgs) or less. e. Two-person manual push (tipping) of a drum in an upright position is limited to 240 pounds (108.86 kgs) per person. f. Single person unassisted manual pull (tipping) of a drum in an upright position is limited to 220 pounds (99.79 kgs) or less. g. Two-person manual pull (tipping) of a drum in an upright position is limited to 220 pounds (99.79 kgs) per person. 	I	10CFR851.22(b)

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	<p>h. Single person manual raising from a horizontal position to a vertical position or lowering from an upright to horizontal position of a drum is not permitted due to the awkward body positioning needed to complete the task.</p> <p>i. Two-Person manual raising from a horizontal position to a vertical position or lowering from an upright to horizontal position of a drum is limited to 220 pounds (99.79 kgs).</p> <p>NOTE: <i>The above practices assume a good coefficient of friction between the employee's footwear and the walking surface, average male weight and strength, one push, pull lift every 30 minutes. Drum handling activities outside these assumptions require further evaluation with support from Project Safety staff as needed.</i></p>		
7.	Employees experiencing discomfort resulting from ergonomic-related sources such as computer workstation use, material handling, or other equipment use, will report the discomfort to line management. Line management will notify a Qualified Person in accordance with MSC-GD-53524, Ergonomics, to perform an evaluation of the workstation/activity.	I	10CFR851.20(a) (6)
8.	The overall effectiveness of controls implemented for ergonomic-related hazards must be periodically assessed using Project/Function developed measures and modified as necessary for continuous improvement.	I	10CFR851.21(a)(7)
9.	Project/Function Safety managers will provide the S&H Leadership team feedback on Lessons Learned, Ergonomic-related assessment summaries, results of ergonomic-related injury/illness investigations, etc. to facilitate continuous improvement.	I	10CFR851.26(b) (1)-(2)

3.0 REFERENCES

3.1 Source References

10 CFR 851, *Worker Safety and Health Program*

3.2 Working References

[MSC-PRO-079](#), *Job Hazard Analysis*

[MSC-GD-53524](#), *Ergonomics*

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APPENDIX A Material Handling Controls

Control Type	Examples
Engineering Controls	Changing the shape of items or handles to allow easier grasp; using counterbalances to stabilize loads; decreasing the distance, height, or weight of objects; providing mechanical devices such as handcarts, hand trucks, fork trucks, cranes, or hoists; reducing the weight manually handled.
Work Practices	Optimizing the load location between knee and shoulder level whenever possible; distributing a load evenly while keeping it close to the body; providing assistance/help; maintaining good physical condition; not exceeding physical or mental abilities; avoiding twisting, pushing, pulling or sliding objects instead of lifting; avoid fatigue from repeated forceful activities.
Administrative Controls	Establishing limits for handling heavy, bulky, or awkward-shaped objects; providing adequate recovery time.
Personal Protective Equipment	Use personal protective equipment to reduce or eliminate ergonomic hazards such as gloves to enhance grip stability on slippery surfaces, hearing protection in high noise areas and clothing appropriate for the prevailing environmental conditions.