

# SAFETY AND HEALTH STANDARDS

## Ergonomics

<b>Effective Date:</b> 02/2008	<b>Standard:</b> 10.4	<b>Document Number:</b> KUCSH00005	<b>Rev:</b> 04
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### 10.4.1 **INTRODUCTION**

10.4.1.1 This standard provides guidance in identifying ergonomic-related problems in the workplace, determining the nature and location of those problems, and implementing measures to reduce or eliminate them. The Standard covers muscular-skeletal hazard evaluation, control program design and control program evaluation, to ensure that employees and contractors will not suffer adverse health effects from poor task and equipment design, or from inappropriate behavioral practices. Additionally, the standard provides guidance in adapting the job and the workplace to the worker by designing tasks and tools that are within the worker's capabilities and limitations.

### 10.4.2 **REQUIREMENTS**

10.4.2.1 A risk assessment will be periodically conducted to recognize, identify and correct ergonomic hazards. To aid in prioritizing the scope of the risk assessment, the Health, Safety, and Environmental Department (HSE) will review injury and illness records to identify patterns of trauma or strains that may indicate the development of cumulative trauma disorders.

10.4.2.2 The risk assessment must be conducted by an appropriately experienced person for compliance with good design, layout, and practice to minimize adverse health consequences due to manual handling and vibration issues. The assessment will be a joint effort involving the HSE Department and plant personnel and be performed with a checklist (Exhibit 10.4.1). The checklist may be tailored to the specific needs and conditions of the workplace to identify relevant risk factors.

10.2.2.3 In addition to analyzing current workplace conditions, planned changes to existing and new facilities and equipment shall also be analyzed to ensure the changes made will reduce or eliminate the ergonomic risk factors.

10.4.2.4 Where the risk assessment indicates the need, a documented program must be in place that includes:

- Compliance with all relevant requirements in the Safety and Health Standards.
- Identification and description of workplace vibration sources that contribute to the exposure.

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- Assessment of workplace manual / materials handling tasks to include biomechanical factors (eg. posture, bending, twisting, repetitive motions, working overhead, exerting force away from the body).
- Identification and description of manual handling tasks having potential to cause an injury (i.e. with potential for impact on worker musculo-skeletal fitness).
- Control measures to minimize exposures and protect employees and contractors from adverse exposure, machines, and working equipment; tasks evaluation for possible modification or replacement, where necessary; and training provided to employees to address behavior issues.
- Training must include elements to encourage operators to keep fit and healthy (keep body weight down), recognize unsafe manual handling and vibration conditions, adopt good posture, lift everything twice (mentally then physically), use correct lifting methods, use a team lift or mechanical lifting aids whenever possible, and employ other preventative measures as appropriate.

10.4.2.5 Jobs, operations or workstations that have multiple risk factors have a higher probability of causing cumulative trauma disorders. Determining risk factors may be somewhat subjective, but should be quantified where possible.

- The quantitative evaluation of vibration produced by specific equipment must include the following measurement parameters: direction of movement, frequency, intensity, and variation with time and duration.

10.4.2.6 Engineering controls are the preferred method of controlling ergonomic risk factors that are identified in the risk assessment. Designing or modifying the workstation, work methods, or tools to eliminate excessive exertion and awkward postures and to reduce repetitive motions can accomplish this. There must be documented procedures for inspection, assessment and maintenance of the engineering controls.

- Design criteria that address ergonomic requirements, and the minimization of vibration where appropriate must be available for the purchase or fabrication of all new workplace equipment and furniture.
- Where possible, machines or equipment, or alternative systems of work, must be employed to conduct heavy, awkward or repetitive tasks.

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- Workstations should be easily adjustable and either designed or selected to fit a specific task. The workspace should be large enough to allow the full range of required movements.
- The proper type and size tool should be available for the job. Tools and handles should be selected to eliminate or minimize chronic muscle contraction or steady force, extreme or awkward finger / hand / arm positions, repetitive forceful motions, vibration, and excessive gripping, pinching, pressing with hand and finger. Only tools that exhibit ergonomic design and minimize vibration and noise may be purchased.

10.4.2.7 Ergonomic assessment of work processes must be incorporated into planning activities. Proper work procedures that are understood and followed are also an important part of an effective program. This includes proper training, maintenance of tools and equipment, and regular monitoring of employees to ensure proper work practices are followed. This monitoring should be included in the "Safety Interaction" program (See Safety and Health Standard 5.1).

10.4.2.8 Administrative control methods that may be used to reduce the duration, frequency and/or severity of exposure includes:

- Reducing the total number of repetitions per employee by reducing the time spent on the activity.
- Providing rest pauses to relieve fatigued muscle-tendon groups.
- Increasing the number of employees assigned to a task to alleviate severe conditions, especially in lifting heavy objects.
- Using job rotation to alleviate physical fatigue and stress by rotating employees among other jobs.
- Implementing a preventative maintenance program for mechanical and power tools and equipment to verify that they are in proper working order and within original manufacturer's specification.
- Effective housekeeping to minimize slippery or cluttered work surfaces and related hazards such as slip and falls.
- Install automatic or mechanical equipment to eliminate manual work.

10.4.2.9 Proper medical management is necessary to eliminate or reduce symptoms through early detection and conservative treatment, and to prevent future problems through development of information sources.

- Upon the employee's presentation of symptoms, the medical personnel should obtain a history from the employee to identify the

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location, duration and onset of the symptoms. Clinic personnel will define appropriate follow-up.

- Health care personnel will periodically participate in worksite analysis as part of the ergonomics team and should participate in the training and education of all employees, on the causes, means of prevention, early symptoms, and conservative treatment of cumulative trauma disorders.

10.4.2.10 Employees who are potentially exposed to ergonomic risk factors shall be given instruction on those factors associated with their job. Employees must be informed of the results of ergonomic risk assessments, trained to recognize potentially hazardous manual handling and vibration issues, and instructed in appropriate manual handling techniques. This includes information on how to prevent the risk factors that contribute to cumulative trauma disorders.

- New employees and reassigned workers should receive an initial orientation and hands-on task training. Each new employee should receive a demonstration on the proper use of all tools and equipment.

### 10.4.3 **RESPONSIBILITIES**

10.4.3.1 **Area Managers** are accountable to ensure that risk assessments are periodically conducted to recognize, identify and correct ergonomic hazards.

- Where the risk assessment indicates the need, a documented program must be in place.

10.4.3.2 **Supervisors** are responsible to ensure employees who are potentially exposed to ergonomic risk factors are informed of the potential hazard associated with their job.

10.4.3.3 **HSE Department** is responsible for reviewing injury and illness records to identify patterns of trauma or strains that may indicate the development of cumulative trauma disorders. Trends relating to a particular department, process, job occupation or workstation will be communicated to the area management.

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- 10.4.3.4 **Medical Department** is responsible for obtaining a history from the employee to identify the location, duration and onset of the symptoms, defining a program of conservative treatment and appropriate follow-up.
- Health care personnel will periodically participate in worksite analysis as part of the ergonomics team and should participate in the training and education of all employees, on the causes, means of prevention, early symptoms, and conservative treatment of cumulative trauma disorders.

### **REFERENCE**

Safety and Health Standard 5.1 Safe Work Audits

Rio Tinto Occupational Health Standard B3 Manual Handling and Vibration

### **REVISION HISTORY:**

MOC#	Description of Change	Prepared By	Date
7961	General review and revision of standard Updated format and Document number added.	KUCC Safety and Health Standards Committee	02/2008