

This document and all supporting material has been written or compiled by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety, and is being distributed only for the exclusive use by the intended recipients and may contain information that may be privileged, confidential or copyrighted under applicable law. If you are not the intended recipient, you are hereby formally notified that any use, copying or distribution of this material, in whole or in part, is strictly prohibited.

<b>Morenci Safe Production Standard</b>	<b>Standard 2.14</b>	
	OHSAS 18001:2007	4.4.6
<b>Hand Tools</b>	Revision #	02
	Revision Date	06/24/2013
	Effective Date	04/30/2012
	Document Owner	Health and Safety
<b>Approvals:</b>		
<i>Senior VP Morenci Operations: 11/22/2011</i>		<i>Safety Steering Committee: Approved 11/22/2011</i>

**1.0 PURPOSE:**

Hand tools in poor condition or misused are a major cause of accidents in the workplace. Proper maintenance and necessary replacement of hand tools are critical to reducing accidents and injuries. To prevent injuries it is necessary that each individual ensure that their tools are safe to use, in good repair, adequate for the job, and free of defects.

**2.0 SCOPE:**

This standard addresses the minimum requirements of occupational safety and health (OH&S) matters in regard with managing the use of hand tools. All employees, contractors, and vendors on Morenci Operations property will comply with all elements of this standard. Divisions, Departments and Contractors may implement their own procedure that meets or exceeds this document’s requirements.

**3.0 TERMS, DEFINITIONS AND ABBREVIATIONS**

Terms and definitions which apply to this standard are:

**3.1. Hand Tool:** A tool that is portable, both electrically and non-electrically powered, such as hammers, chisels, trolleys, etc. used by a worker to perform assigned tasks such as maintenance, installations, repairs and adjustments on equipment or property.

**3.2. Qualified person:** one with extensive knowledge, training, or experience who is capable of designing, analyzing and evaluating hand tools to the extent required by this standard.

**3.3. Tool Modification:** any change of the components, size, configuration or function of a tool beyond that originally designed by the manufacturer or qualified individual. Replacement of same in kind tool components or the addition of manufacturer approved attachments or accessories is not considered modification under this standard.

**4.0 RESPONSIBILITIES:**

This material has been prepared by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety - Distribution and Use of this material is limited to Authorized Recipients only.

This document and all supporting material has been written or compiled by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety, and is being distributed only for the exclusive use by the intended recipients and may contain information that may be privileged, confidential or copyrighted under applicable law. If you are not the intended recipient, you are hereby formally notified that any use, copying or distribution of this material, in whole or in part, is strictly prohibited.

**4.1 Supervisors** will ensure that their employees understand and follow this standard, including training on the use and care of hand tools applicable to their areas and work duties. **Employees will be provided with the specialized tools and P.P.E. necessary to complete all work in compliance with this standard (refer to departmental equipment and tooling process for FMMO allowances).** Supervisor's duties include evaluation of the work to be performed, determination of the means of protection that will be used, and adherence to this standard.

**4.2 Employees** will follow this standard and notify their supervisor of any situations that do not comply with this standard. Employees will be responsible for learning how to use their hammering tools and P.P.E. properly, conduct a pre-use inspection.

**4.3 Management** will provide resources for supervisors and employees to comply with this standard. Resources may include information, training, time, money and equipment.

**4.4 Health and Safety Manager** will provide or make available annual training for all employees who might reasonably be affected by this standard. All training shall be documented, including course content.

**4.5 Project Managers** will ensure that contractors are informed of the standard and that contractors understand the requirement for compliance with the standard, including day to day oversight.

## **5.0 STANDARDS OF PERFORMANCE**

### **GENERAL REQUIREMENTS**

5.1 Workers must inspect their hand tools before their use to ensure that they are in proper working order. Damaged or defective tools must be reported to the supervisor and must be repaired or removed from service.

**5.2 Supervisors should conduct a spot inspection of tools used by his/her employees at least once per year to determine if tools are being maintained in proper working condition and meet requirements.**

5.3 Tools fabricated internally for a specific purpose shall be designed and constructed by a qualified individual to ensure that they will not create a hazard through their use. Tool modifications shall be done in accordance with manufacturer specifications. All new tools and tool modifications shall undergo a management of change review.

5.4 Proper and appropriate personnel protective equipment must be worn when using all tools.

**5.5 All tools must be cleaned after use and stored in a manner that prevents damage to the tool and minimizes housekeeping hazards.**

This material has been prepared by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety - Distribution and Use of this material is limited to Authorized Recipients only.

This document and all supporting material has been written or compiled by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety, and is being distributed only for the exclusive use by the intended recipients and may contain information that may be privileged, confidential or copyrighted under applicable law. If you are not the intended recipient, you are hereby formally notified that any use, copying or distribution of this material, in whole or in part, is strictly prohibited.

- 5.6 Tools must not be used beyond their manufacturer's designed capacity since such use may create a personal hazard. Tools must be used solely for their intended purpose. The designed capacity of tools must not be exceeded by unauthorized attachments. Where equipped, guards and handles shall be used and maintained in a functional condition.
- 5.7 Where appropriate power and specialized tools should be engineered and used in lieu of hand tools to reduce the risk of injury stemming from ergonomic hazards.**
- 5.8 Power drills, disc sanders, grinders, and circular saws (when used in the hand-held mode) must be operated with controls that require constant hand pressure.
- 5.9 Circular saws must not be equipped with devices that lock onto the operating controls.
- 5.10 Power saws, grinders, and other power tools must have proper guards in place at all times and must be properly grounded or equipped with dual insulating properties. Those with automatically adjusting guards must be inspected for proper movement.
- 5.11 Power tools must be hoisted or lowered by hand line and never by the cord or hose.
- 5.12 All fuel-powered tools must be shut down while being refueled. Smoking is prohibited during refueling operations. Other nearby sources of ignition, such as burning and welding, also must be halted during refueling operations.
- 5.13 **Chisels, screwdrivers, and pointed tools should never be carried edge or point up. They should be carried in a toolbox, cart, carrying belt, tool pouch, in the hand with points and cutting edges away from the body or using another method which minimizes exposure to puncture injuries.**
- 5.14 Inspect and check the following common hand tools:
  - A. Screwdrivers: Ensure that handles are smooth and clean and that bits are sharp and square. A sharp square-edged bit will not slip as easily as a dull rounded one and requires less pressure. When working around electrical-current-bearing equipment, use an insulated screwdriver as a secondary precaution.
  - B. Hammers: Ensure that handles are unbroken and clean and that the face of the head is smooth and clean. Hammers are made in various types and sizes, with varying degrees of hardness, and different configurations for specific purposes. Use the correct hammer for the correct purpose. Inspect hammer head before use. Mushroomed edges shall be dressed before use. Utilize a grinder or saw to dress. Do not use torch to dress hammer head.
    - 1. Common Nail Hammers: These are designed for driving unhardened common nails, finishing nails, and nail sets by using the center of the hammer face. They are made with a curved, straight, or ripping claw.

This material has been prepared by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety - Distribution and Use of this material is limited to Authorized Recipients only.

This document and all supporting material has been written or compiled by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety, and is being distributed only for the exclusive use by the intended recipients and may contain information that may be privileged, confidential or copyrighted under applicable law. If you are not the intended recipient, you are hereby formally notified that any use, copying or distribution of this material, in whole or in part, is strictly prohibited.

2. Ball-Peen Hammers: These are designed for striking chisels and punches and for riveting, shaping, and straightening unhardened metal.
3. Sledge Hammers: Sledge hammers are designed for general sledging operations in striking wood, metal, concrete, or stone.
4. Air Hammers:
  - Employees shall inspect air hammer and bits before use.
  - Employees shall ensure that the bit is at a straight angle when using air hammer.
  - Do not use air hammer to drive metal on or off.

**WARNING: Always wear safety glasses when using a hammer. A hammer blow should always be struck squarely. Avoid glancing blows.**

#### SPECIFIC REQUIREMENTS

**5.15 METAL to Metal Contact (Striking Tools)** - The following information regarding Metal-to- Metal work is intended to address the safety aspects associated with performing tasks where Metal-to-Metal chipping may occur.

5.15.1 When at all possible, hard surface metals shall not be struck with a metal hammer. Use of wooden blocks, Teflon paddles, brass or dead blow hammers should be utilized.

5.15.2 Where tasks are identified that require Metal to Metal contact area management in conjunction with the health and safety department shall use risk management techniques and the hierarchy of controls to reduce the likelihood of injuries stemming from flying debris

**5.15.3 Only those involved in the task shall be in the immediate vicinity (within 6ft of the striking area or other established boundary) of the work when Metal-to-Metal contact is being made. When work requires Metal to Metal contact near travelways, work platforms or operator stations; barriers shall be installed that help to mitigate the likelihood of stray material contact.**

5.15.4 All employees involved in the task shall wear the following PPE when Metal-to-Metal contact is occurring:

- i. Safety glasses and/or goggles
- ii. Face shield
- iii. Leather work gloves
- iv. Leather sleeves, apron and/or leggings or Kevlar clothing covering entire torso, arms, and legs

5.15 Punches: Punches are designed to mark metal and other materials softer than the point end, to drive and remove pins, and to align holes. Never use a punch with a mushroomed struck face or

This material has been prepared by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety - Distribution and Use of this material is limited to Authorized Recipients only.

This document and all supporting material has been written or compiled by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety, and is being distributed only for the exclusive use by the intended recipients and may contain information that may be privileged, confidential or copyrighted under applicable law. If you are not the intended recipient, you are hereby formally notified that any use, copying or distribution of this material, in whole or in part, is strictly prohibited.

with a dull, chipped, or deformed point. Any bent, cracked, or chipped punch must be removed from service.

- 5.17 Chisels: Cold chisels have a cutting edge for cutting, shaping, and removing metal softer than the cutting edge. Factors determining the selection of a cold chisel are the material to be cut, the size and shape of the tool, and the depth of the cut to be made. Ball chisels held by one person and struck by another require the use of tongs or a chisel holder to guide the chisel.
- 5.18 Files: Ensure that tangs are protected by handles and that teeth are sharp and clean. The correct way to hold a file is to grasp the handle firmly in one hand and use the thumb and forefinger of the other to guide the point. Push the file forward while bearing down on it. Release the pressure and bring the file back to its original position. Never use a file without a smooth, crack-free handle. Select the proper file for the job.
- 5.19 Knives: Ensure that the handle is guarded and that the blade is sharp. The cutting stroke should be away from the body. Avoid jerky motions. Keep knives and other sharp hand tools separated from other tools. Wipe the blade with a towel or cloth, with the knife's sharp edge turned away from the hand. Do not substitute knives for can openers, screwdrivers, or ice picks.
- 5.20 Shovels: Keep shovel edges trimmed, and check handles for splinters. When not in use, hang up shovels, stand them against walls, or keep them in racks or boxes. Only wooden or plastic handles are permitted on shovels, hoes, and similar tools.
- 5.22 Wrenches: Safe use of all wrenches requires that the user always be alert and prepared for the possibility that the wrench may slip, the fastener may suddenly turn free, or the wrench or fastener may break. The user must always inspect the wrench for flaws.
- 5.22.1 Open-End Wrenches: Open-end wrenches have strong jaws and are satisfactory for medium-duty turning.
- 5.22.2 Box and Socket Wrenches: These wrenches are necessary for a heavy pull. Never overload the capacity of a wrench by using a pipe extension on the handle or by striking the handle with a hammer. For extra stubborn bolts and nuts, use a heavy duty, sledge-type box wrench. When possible, use penetrating oil to loosen tight nuts.
- 5.22.3 Socket wrenches should be free of physical material (i.e. dirt, grease, grime and build-up) inside the socket to ensure that the tool fits securely on the bolt or nut. The intent is to reduce the likelihood of the tool slipping off the nut/bolt and resulting in injury to the hand.**
- 5.22.4 Adjustable Wrenches: Adjustable wrenches are generally recommended for light-duty jobs. Place the adjustable wrench on the nut with the open jaws facing the user; wrenches

This material has been prepared by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety - Distribution and Use of this material is limited to Authorized Recipients only.

This document and all supporting material has been written or compiled by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety, and is being distributed only for the exclusive use by the intended recipients and may contain information that may be privileged, confidential or copyrighted under applicable law. If you are not the intended recipient, you are hereby formally notified that any use, copying or distribution of this material, in whole or in part, is strictly prohibited.

should be pulled, not pushed.

5.22.5 Pipe Wrenches: Pipe wrenches both straight and chain tong, must have sharp jaws and be kept clean to prevent their slipping. The handle of every wrench is designed to be long enough for the maximum allowable safe pressure. Do not use handle extensions to gain extra turning power unless the wrench is so designed. Never use a pipe wrench on nuts or bolts.

***Note: Pliers may be used for gripping and cutting operations, but they are not a substitute for a wrench.***

**5.23 Fall of Material: where hand tools are used in elevated locations work areas and personnel below must be protected from falling material through:**

- **The design of the work platform and location of work (fully decked with toe boards and work occurs only over the work platform);**
- **Tool lanyards used;**
- **The work area below is restricted from access; or**
- **A combination of barriers and administrative protection is used**

## **6.0 USING HAMMERS AND BARS IN CLOSE QUARTERS**

6.1 SPECIAL EQUIPMENT REQUIRED - Work gloves, (Metal to Metal contact PPE if applicable)

6.2 Hammers and bars serve many purposes throughout the Job Site including:

- Unplugging Hoppers, chutes, and transfer points that have become blocked with wet or lumpy material.
- Prying open inspection doors and covers.
- Serving as levers to lift objects for easier handling or better gripping.

Using hammers and bars can be hazardous any time, but the danger greatly increases when these tools are used near other equipment, structures, or personnel. Since hammers and bars are often used in close or restricted quarters, extra care must be taken to prevent injury (e.g., being struck by the tools or caught in a pinch point).

### **SPECIFIC REQUIREMENTS**

6.3 Thoroughly examine the work area. Determine how much room there is to work, including side and overhead clearances. Clean up spills in the area, particularly oil or grease, that can cause slippery footing.

6.2 If the work is to be done in, on, or near power equipment, lock it out according to the established lock and tag standard.

This material has been prepared by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety - Distribution and Use of this material is limited to Authorized Recipients only.

This document and all supporting material has been written or compiled by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety, and is being distributed only for the exclusive use by the intended recipients and may contain information that may be privileged, confidential or copyrighted under applicable law. If you are not the intended recipient, you are hereby formally notified that any use, copying or distribution of this material, in whole or in part, is strictly prohibited.

- 6.3 Wear gloves and properly fitting safety glasses when using bars or hammers.
- 6.4 Use only bars that are in good condition; bars that are not in good condition must be removed from service. Bars must be straight, free of sharp snags, and have ends that are not badly mushroomed. If necessary, bars should be sharpened and properly shaped by the maintenance department before use.
- 6.5 Do not stand on or jerk a bar to increase the force of the leverage. Do not straddle the bar. Keep clear of the bar’s potential path of travel.
- 6.6 Keep hands and other body parts clear of striking points when using a hammer.
- 6.7 Do not hammer on any part of the bar except the end intended for that purpose.
- 6.8 Do not hammer on any part of another hammer or similar tool. The extreme hardness of these tools can cause them to splinter, sending metal fragments flying at great velocity throughout the immediate vicinity.
- 6.9 Use adequate lighting in the working area.
- 6.10 Return tools to their proper storage area when the job is completed.

**WARNING: Be careful and know personal limits! Avoid personal injury and injury to others while working in close quarters. Failure to remain outside of the Line of Fire may result in significant injuries stemming from the inadvertent release of hand tools or pieces of material being struck.**

## 7.0 REFERENCE DOCUMENTS

7.1 None

## 8.0 RECORDS

Name of the Document	Responsible for Control	Records Retention
Original Document of this Standard	Health and Safety	Permanent
Hand Tool Inspection Records	Division / Area	10 Years

## 9.0 APPENDICES

9.1 None

## 10.0 REVIEW AND CHANGE

This material has been prepared by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety - Distribution and Use of this material is limited to Authorized Recipients only.

This document and all supporting material has been written or compiled by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety, and is being distributed only for the exclusive use by the intended recipients and may contain information that may be privileged, confidential or copyrighted under applicable law. If you are not the intended recipient, you are hereby formally notified that any use, copying or distribution of this material, in whole or in part, is strictly prohibited.

**All changes, modifications and/or revisions must be documented on the table below:**

<b><i>Description of Changes to this Document</i></b>
See referenced feedback and changes from Mine Maintenance personnel stored on the H&S common drive folder (updates made to the standard are depicted in Red & will remain highlighted for a period of 6 months). Brian Lamanna 4/16/2013
Updated records table – S. Elias Rev. 02 – 06/24/2013

This material has been prepared by the Freeport McMoRan Copper & Gold Department of Occupational Health and Safety - Distribution and Use of this material is limited to Authorized Recipients only.