

Hand and Portable Power Tools

MSC-RD-49920

Revision 0

Effective Date: August 10, 2011

Topic: Safety and Health

**Approved for Public Release;
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Hand and Portable Power Tools

1.0 PURPOSE AND SCOPE

This Level 2 Requirements Documents identifies the requirements and provides the guidance necessary to ensure hazards associated with hand and portable power tools are properly identified, evaluated, controlled, and communicated in accordance with Occupational Safety and Health Administration (OSHA) regulations.

These requirements are applicable to Hanford Mission Support Contract (MSC) employees and subcontractors involved in MSC scope of work.

This document partially implements the ISMS Core Functions #1, Define Scope of Work, #2, Identify and Analyze the Hazards, #3, Develop and Implement Hazard and Environmental Controls; and Guiding Principles #5, Identification of Safety and Environmental Standards and Requirements, #6, Hazard Controls Tailored to Work Being Performed.

2.0 ROLES AND RESPONSIBILITIES

This document is effective upon publication.

3.0 REQUIREMENTS

3.1 General Requirements for all Hand and Portable Power tools

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

#	Requirement	Type V or I	Source
1.	Hand and portable power tools and similar equipment shall be maintained in a safe condition.	I	29 CFR 1910.243(a) 1926.300(a)
2	Employees shall examine hand and power-operated tools prior to use. Defective tools shall be removed from service for repair or replacement.	I	10 CFR 851.22(b)(1)
3.	When power operated tools are designed to accommodate blade/wheel guards, they shall be equipped with such guards when in use.	I	29 CFR 1910.243 1926.300(b)(1)
4.	Appropriate personal protective equipment shall be identified, provided, and used for the safe operation of hand and portable power tools.	I	29 CFR 1910.243 1926.300(c) 10 CFR 851.22(b)(4)
5.	Power tools shall be disconnected from their energy source when changing attachments or conducting repair/maintenance on the tool.	I	10 CFR 851.22(2)(iii)

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6.	Portable power tools shall be equipped with a constant pressure switch that will shut off power when the operator releases the pressure. EXCEPTIONS: Hand held powered grinders with the wheels two inches or less in diameter, routers, planners, laminate trimmers, nibblers, shears, scroll saws, and jig saws with blade shanks ¼ inches wide or less may be equipped with a positive “ON-OFF” switch.	I	29 CFR 1910.243(a)(2)(ii) 1926.300(d)(1) 1910.243(a)(2)(iii)(a) 1926.300(d)(2)
7.	Blades and wheels shall have the proper rating and revolutions per minute for the tool.	I	29 CFR 1910.243(c)(5)(i)
8.	Compressed air shall not be used for cleaning purposes except where reduced to less than 30 psi. Pressure can be regulated by use of items such as pressure regulators, safety nozzles, etc.	I	29 CFR 1926.302(b)(4)

3.2 Hand Tools

1.	Wrenches with sprung jaws shall not be used.	I	29 CFR 1926.301(b)
2.	Impact tools such as drift pins, wedges, and chisels shall be kept free of mushroomed heads.	I	29 CFR 1910.301(c)
3.	Wooden handles of tools shall be kept free of splinters or cracks, and shall be kept tight in the tool.	I	29 CFR 1910.301(d)

3.3 Electric Tools

1.	Electric power operated tools shall either be of the approved double-insulated type or grounded.	I	29 CFR 1926.302(a)(1)
2.	Power tools shall not be hoisted or lowered by their electric cords.	I	29 CFR 1926.302(a)(2)

3.4 Pneumatic Tools

1.	Pneumatic tools shall not be hoisted or lowered by their hoses.	I	29 CFR 1926.302(b)(6)
2.	Safety clips or retainers shall be securely installed and maintained on pneumatic impact tools to prevent attachments from being accidentally expelled.	I	29 CFR 1926.302(b)(2)
3.	All pneumatically driven nailers, staplers, and other similar equipment provided with an automatic fastener feed shall be equipped with a safety device on the muzzle to prevent the tools from ejecting fasteners when the muzzle is not in contact with the work surface.	I	29 CFR 1926.302(b)(3)

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	<p>EXCEPTION: Pneumatic nailers or staplers utilizing “fine wire” brads or staples do not require a muzzle contact safety device under the following circumstances:</p> <ul style="list-style-type: none"> The overall weight of the fastening device does not exceed the weight of 1-1/2 in. of standard 18 gauge wire. The operator and any other person within 12 ft. of the point of operation wear approved eye protection. 		
4.	All hoses exceeding ½ in. at the inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.	I	29 CFR 1926.302(b)(7)
5.	Pneumatic power tools shall be secured to the hose or whip to prevent the tool from becoming accidentally disconnected.	I	29 CFR 302(b)(1)

3.5 Fuel Powered Tools

1.	Fuel powered tools shall be stopped and allowed to cool prior to being refueled, serviced, or maintained.	I	29 CFR 1926.302(c)(1)
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3.6 Hydraulic Powered Tools

1.	Fluids used in hydraulic powered tools shall be fire resistant fluids, approved under Schedule 30 of the Bureau of Mines.	I	29 CFR 1926.302(d)(1)
2.	The manufacturer’s safe operating pressures for hoses, valves, pipes, filters, and other fittings shall not be exceeded.	I	29 CFR 1926.302(d)(2)

3.7 Powder Actuated Tools

1.	A permit must be obtained from the Hanford Fire Department Fire Marshal for the actuators of powder actuated tools.	I	MSC-RD-8589 2.3 item 4
2.	Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a powder actuated tool. This training must encompass all manufactures instructions for that particular tool, the instructions in 3.1 and 3.7 of this procedure, and needs to be documented on a task specific AJHA.	I	29 CFR 1926.302(e)(1)
3.	When in use, powder actuated tools shall be tested each day before loading to ensure that safety devices are in proper working condition.	I	29 CFR 1926.302(e)(2)
4.	Tools shall not be loaded until just prior to the intended firing time. Neither loaded not empty tools shall be pointed at persons.	I	29 CFR 1926.302(e)(5)
5.	Loaded tools shall not be left unattended.	I	29 CFR 1926.302(e)(6)

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6.	Fasteners shall not be driven into very hard or brittle materials such as cast iron, glazed tile, hardened steel, glass block, live rock, face brick, or hollow tile.	I	29 CFR 1926.302(e)(7)
7.	Driving into easily penetrated materials shall be avoided, unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side.	I	29 CFR 1926.302(e)(8)
8.	Powder actuated tools shall not be used in atmospheres having a 10% or greater reading for LEL	I	29 CFR 1910.243(d)(4)(xii) 1926.302(e)(10)
9.	Tools shall always be used with the correct shield, guard, or attachment as recommended by the manufacture.	I	29 CFR 1910.243(d)(4)(xiii) 1926.302(e)(11)
10.	Powder actuated tools shall be stored in labeled, lockable containers so as to render them unavailable to unauthorized persons.	I	10 CFR 851.22(b)(3)
11.	Tools shall be operated in strict accordance with the manufacturer's instructions. Only those types of fasteners and powder loads recommended by the tool manufacturer shall be used.	I	10 CFR 851.21(a)(5)
12.	Prior to driving a fastener, the operator shall inspect the line of fire to assure safety, should the fastener penetrate completely through the work surface.	I	10 CFR 851.21(a)(5)
13.	The tool shall be held perpendicular to the work surface when fastening into any material except for specific applications recommended by the manufacturer.	I	10 CFR 851.21(a)(5)
14.	In the event of a misfire, the operator shall follow the explicit instructions set forth by the tool manufacturer.	I	10 CFR 851.21(a)(5)
15.	A sign at least 8x10 inches, using boldface type, at least 1 inch in height shall be posted in plain sight on all projects where powder actuated tools are in use. The sign shall bear wording similar to the following: " POWDER ACTUATED TOOL IN USE ".	I	10 CFR 851.22(b)(3)

3.8 Abrasive Wheels and Tools

1.	Abrasive wheels shall be handled and stored in a manner that prevents damage to wheels.	I	29 CFR 1910.243(c)(5)(i)
2.	Abrasive wheels shall be closely inspected and ring tested before mounting to ensure that they are free from cracks or defects.	I	29 CFR 1910.243(c)(5)(i) 1926.303(c)(7)
3.	Machine spindle speeds shall be checked before mounting the wheel to be certain that the wheel will not exceed the maximum operating speed marked on the wheel.	I	29 CFR 1910.243(c)(5)(i)

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4.	Abrasive wheels shall be used only on machines with safety guards except as follows: <ul style="list-style-type: none"> • Wheels used for internal work while within the work being ground. • Mounted wheels 2 inches and smaller in diameter used in portable operations. • Types 16, 17, 18, 18R and 19 cones and plugs, and threaded hole pot balls where the work offers protection. 	I	29 CFR 1910.243(c)(1)(i) a thru c
5.	Stationary grinding machines shall be equipped with a transparent spark shield, tongue guards (adjusted within ¼ inch of the wheel), and a work rest (adjusted within 1/8 inch of the wheel).	I	29 CFR 1926.303(c)(2)
6.	Stationary grinding machines used for dry grinding, at indoor locations, shall have provisions to exhaust or control dust.	I	10 CFR 851.22

3.9 Woodworking Tools

1.	All portable power driven circular saws shall be equipped with guards above and below the base plate or shoe. Lower guards shall be properly maintained to ensure that they will automatically and instantly return to the covering position when the tool is withdrawn from the work.	I	29 CFR 1926.304(d)
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3.10 Jacks-Lever and Ratchet, Screw, and Hydraulic

1.	The manufacturer's rated capacity shall be legibly marked on all jacks, and shall not be exceeded.	I	29 CFR 1926.305(a)(1)
2.	All jacks shall be provided with a positive stop to prevent over travel.	I	29 CFR 1926.305(a)(2)
3.	When it is necessary to provide a firm foundation, the base of the jack shall be blocked or cribbed.	I	29 CFR 1926.305(c)
4.	After a load is raised, it shall be immediately cribbed, blocked, or otherwise secured.	I	29 CFR 1926.305(d)(1)(i)
5.	Jacks shall be properly lubricated at regular intervals in accordance with manufacturer's instructions.	I	29 CFR 1926.305(d)(1)(iii)

4.0 REFERENCES

4.1 Source References

10 CFR 851, U.S. Department of Energy, *Worker Safety and Health Program*
29 CFR 1910, *OSHA Standards for General Industry*
29 CFR 1926, *OSHA Standards for Construction*
MSC-RD-8589, *Hanford Fire Marshal Permits*