



Devices and Tools for Sulfur Railcar Unloading

EHSS-Phos Program – Railroads, Appendix H2

These tools can help reduce exposure to sulfur emissions and contact with molten sulfur.

Warning: All tools shall be non-sparking

Tool	Specification and required use
Impact wrench	<ul style="list-style-type: none">Used to open and close the railcar dome
Torque extension	<ul style="list-style-type: none">¾ inch drive 250 ft-lb Torque extension10-inch long torque socket, prevent damage to nuts and bolts. When 250 ft-lb of torque is reached the extension will flex and absorb additional impacts instead of continuing to tighten.Used to close the railcar dome
Steam trap	<ul style="list-style-type: none">Trap or other designUse on the steam outlet of the railcar <p>Note: Steaming process shall be designed to provide the correct pressure needed to fully convert the car content to a molten state.</p>
Valve Extension device	<ul style="list-style-type: none">Designated and management approvedUsed for opening railcar bottom outlet valves <p>Note: See Figure 1 and 2</p>
Unplug Tool – Top	<ul style="list-style-type: none">13-foot long, 3/4" thick rod with 16-inch T-handleUsed for unplugging through the top dome lid <p>Note: See figure 3</p>
Unplug Tool Bottom	<ul style="list-style-type: none">7-foot long, 5/8" thick rod with 22" pickused for unplugging through the bottom dump valve (BOV) <p>Note: See Figure 4 for bottom unplugging tool options.</p>
Non-Spark Shovels	<ul style="list-style-type: none">Non spark shovel makes it safer to handle loose, powder sulfur.Used for housekeeping

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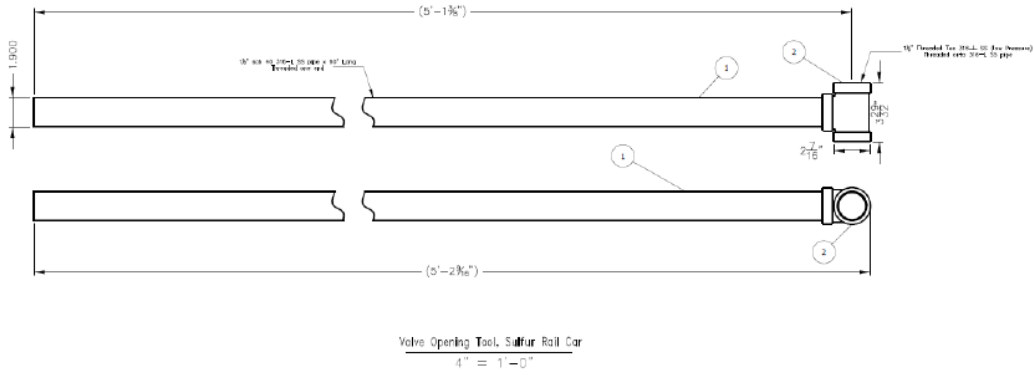


Figure 1 Valve Extension Device



Figure 2 - Valve Handle extension - Aluminum



Figure 3 Top Unplugging Tool

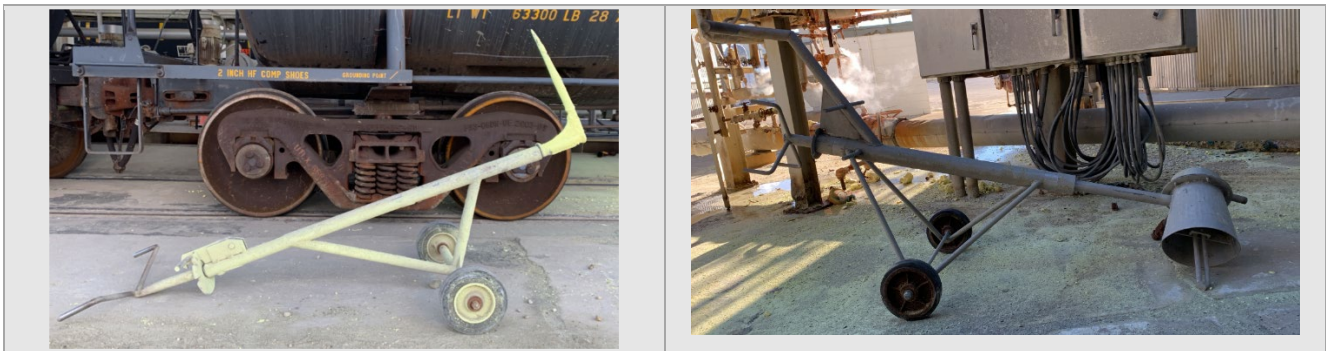


Figure 4 - Bottom Unplugging Tools




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Non-routine Operations: Unplugging

The following controls are required for unplugging the railcar bottom outlet or dump valve.

If	And	Then
Unplugging through the railcar dome lid	Engineered guardrail systems are used as falls protection	Dome fall protection cover must be used 
Unplugging through the railcar dome lid	Personal fall arrest system is used	Dome fall protection cover not required
Unplugging through the bottom unloading valve		<ul style="list-style-type: none">• Maintain minimum 3-foot distance from dump valve• Tools used for unplugging the bottom unload valve must be approved for use by area management.• Employee must be trained and follow approved TRA specific to unplugging the bottom unload valve• PPE must be used – See PPE requirements on Section 9 of the Sulfur Unloading Procedure to prevent contact with molten sulfur