



# HSS Hire Services Group Ltd

Tool Maintenance

David Wilson

Group HSEQ Manager

- Why maintain?
- All the good you do with risk assessment, medical surveillance, selecting the right tools early on etc. drops into disrepute if you don't maintain the kit and especially the cutting blades.
- Blunt tools can set up extra vibration frequency as well as being less efficient so the job takes longer.
- Either way, your team is exposed to more HAV levels

- Efficiency relies on:
- Starting with good tools that are sharp
- Correctly sharpened then hardened / tempered
- Good quality diamond / carbide tipped drills etc.
- Good quality cutting discs

- It then relies on regular maintenance of the tools and particularly the appendages (chisels, drills etc).
- Re-sharpening to the correct angles etc.
- Re-Hardening and Tempering the tool steel breaker appendages etc.

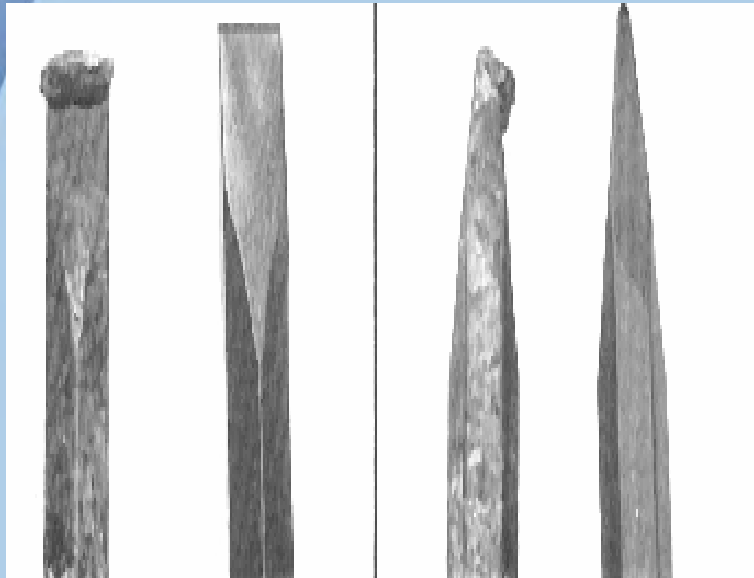


# HSS Method for Maintenance

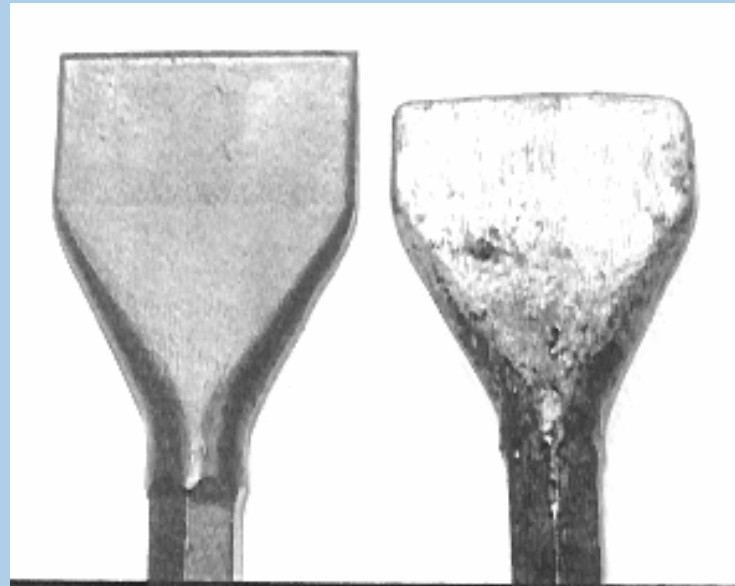
- When tools come back from hire, we set them aside in a sharpening box.
- When we gather enough, we organise a visit from our approved supplier "Arrow Tools" who pick them up.
- The process that follows brings them back to virtual new state.

- Heat and re-forged the tools back to original spec.
- Heated in coal fire (to add carbon)
- Forged back to shape (drop forge)
- Only the tips re-ground.
- Hardened and tempered in oil quench bath.
- Aim for 56 Rockwell C hardness through the tool.
  
- Arrow then return the tools

# Some Faults Found by Arrow.

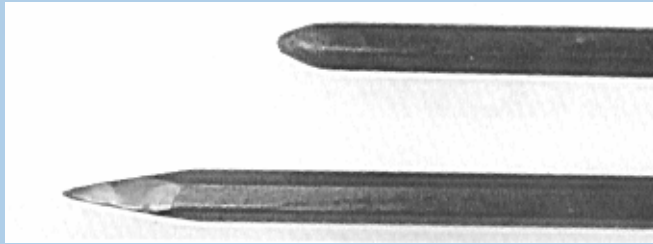


Mushrooming of chisel tips



Severely Worn Chisels

# Some Faults Found by Arrow.



Very blunt chisel tips



Severely Worn Chisels

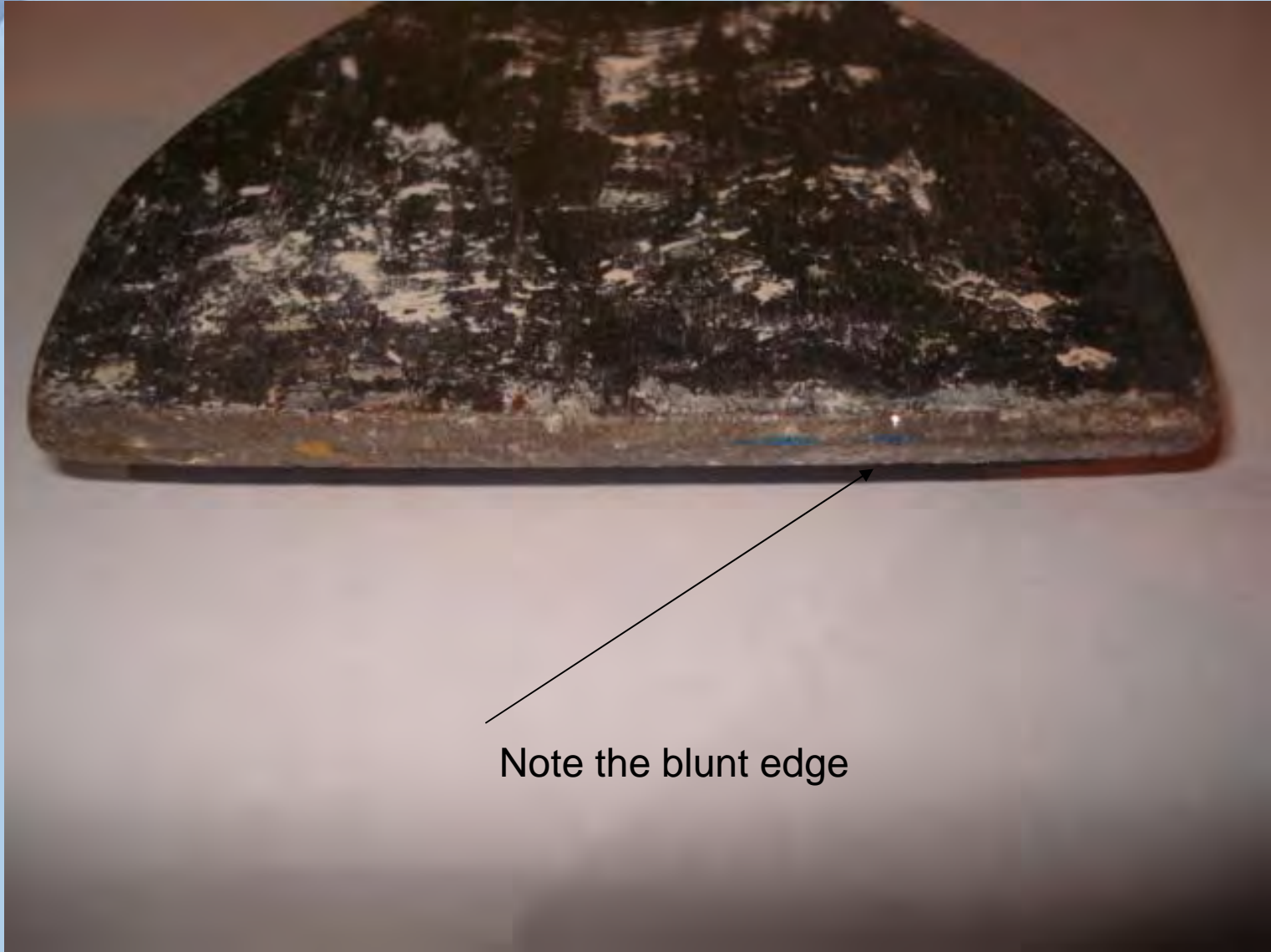


# Issues with Blunt Tools

- More vibration is caused by
- Blades and drills bits that are not sharp (ground correctly)
- Cutting and breaking chisels not sharp or correctly hardened and tempered.
- The tools can also get hotter in the core and stresses can cause cracking in the tool.



# Photo of worn tool back from hire



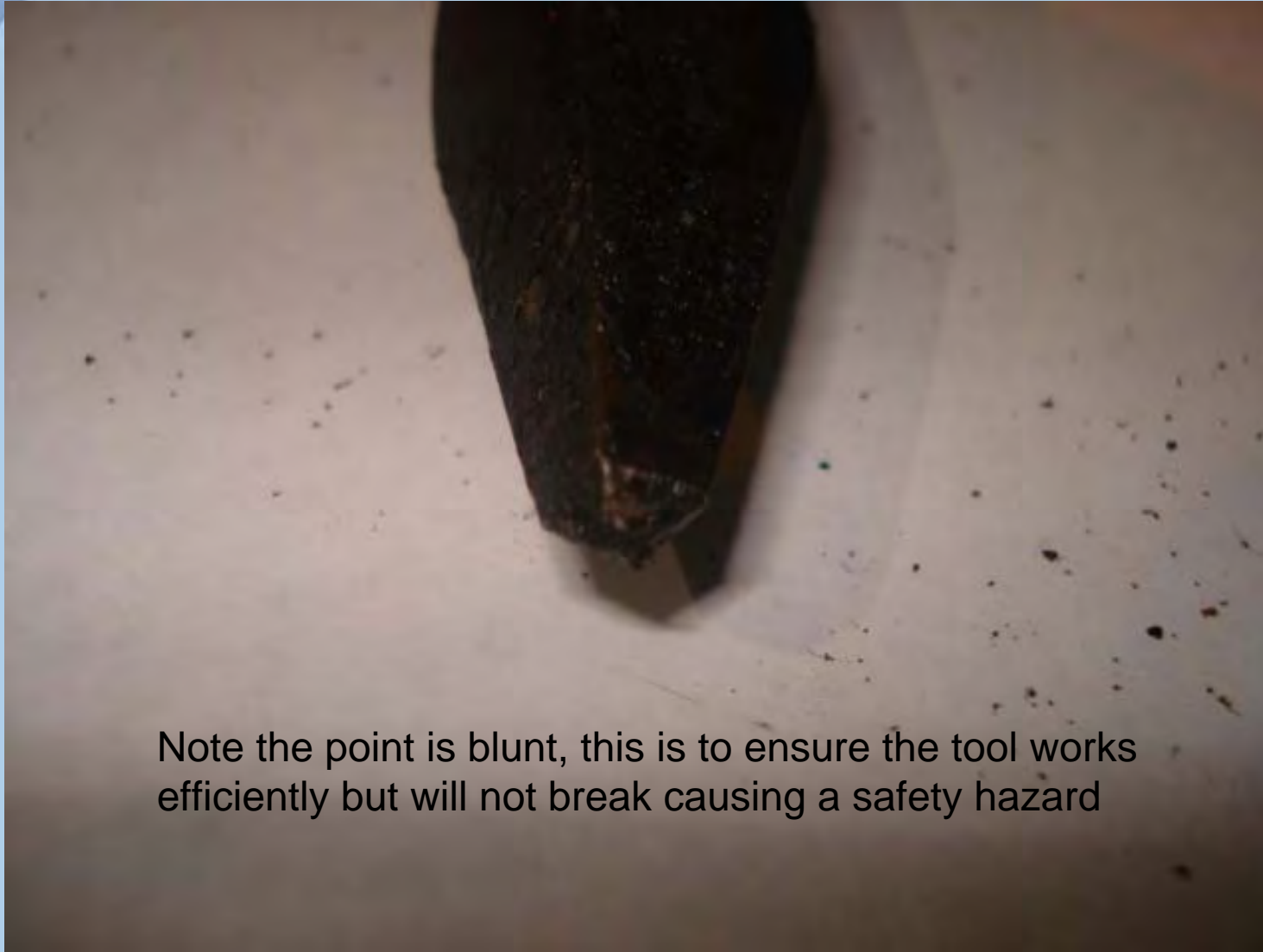
Note the blunt edge

# Photo of reconditioned tool



Similar tool after re-conditioning and sharpening

# Photo of reconditioned tool



Note the point is blunt, this is to ensure the tool works efficiently but will not break causing a safety hazard



## Some Questions

- How do you maintain your drill bits or chipping / breaking appendages now?
- How often are they checked?
- Do the operators know if they are not right?
- Do the operators maintain them or do you send out for re-grinding?
- If you do it in house, do all the staff know what to look for when grinding etc.?