Welding – overview assessment & control

Gordon Smith – HSE Specialist Inspector
HSE’s new strategy - #HelpGBWorkWell

Key themes

- **Acting together**
  Promoting broader ownership of health and safety in Great Britain

- **Supporting small employers**
  Giving SMEs simple advice so they know what they have to do

- **Tackling ill health**
  Highlighting and tackling the costs of work-related ill health

- **Keeping pace with change**
  Anticipating and tackling new health and safety challenges

- **Managing risk well**
  Simplifying risk management and helping business to grow

- **Sharing our success**
  Promoting the benefits of Great Britain’s world-class health and safety system
HSE concerns

• Health initiative
  – Workplan 2015 – 2017……

• Health effects
  – Cr/Ni/Co
  – Asthma/Cancer/COPD/EAA

• Poor 3\textsuperscript{rd} party providers

• Poor controls

• Poor management
What is welding?

- Fabrication of two metal objects using fusion
- Types:
  - MMA (stick)
  - MIG/MAG
  - TIG
  - Cutting
  - Gouging
Hazards

• Safety
  – Heat
  – uV

• Health
  – Fume
  – Gases
  – Noise
# Noise & welding processes

<table>
<thead>
<tr>
<th>Process</th>
<th>Typical noise levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIG</td>
<td>up to 75 dB(A)</td>
</tr>
<tr>
<td>MMA</td>
<td>85 - 95 dB(A)</td>
</tr>
<tr>
<td>MIG</td>
<td>92 – 97 dB(A)*</td>
</tr>
<tr>
<td>Plasma cutting</td>
<td>98 – 105 dB(A)</td>
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<tr>
<td>Flame gouging</td>
<td>95 dB(A)</td>
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<td>Flame cutting</td>
<td>Up</td>
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<tr>
<td>Air arc gouging</td>
<td>100 – 115 dB(A)</td>
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<tr>
<td>“Deslagging”/chipping</td>
<td>105 dB(A)</td>
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<tr>
<td>Grinding</td>
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Advise for the Occ Hygienist

- Ask – HSE enforcement?
- Sampling strategy
- Sampling methodology
- Analysis
- Interpretation
- Recommendations
- Reporting
<table>
<thead>
<tr>
<th>Consumable type</th>
<th>Principle components</th>
<th>Other components</th>
<th>Key components</th>
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<td>Be Cl F</td>
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<td>Cast iron</td>
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<td>Cr Cr(VI) or Ni</td>
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Exposure reduction

- Process change
- Process adjustments
- Automation
- Extract ventilation
- Operator practices
Controls - General Ventilation

- Natural ventilation
- Roof fans
- Wall fans
- Push-pull
Push-Pull system in place

North side of factory

South side of factory
... & RPE

- Last resort
- If deemed necessary
- Managed
Health Surveillance

- Appropriate
- Respiratory questionnaire
- Occ Health provider
Myths & old-wives tales

• On-gun extraction & weld quality
• All weld fume is carcinogenic
• Background [general] ventilation is enough to control weld fume
• Weld fume causes pneumonia
Any questions

Or contact me at:

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