Safety Bulletin

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Flame cutting or welding in tunnels

Issued to:	**All Network Rail line managers, safety professionals and accredited contractors**
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Location:	Sevenoaks Tunnel, Kent, Southern region
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Overview

A team of contractors working for Capital Delivery went into Sevenoaks tunnel intending to use oxy-propane cutting equipment to cut some metal work out of one of the ventilation shafts. A welding team from maintenance told the contractor team they could not use propane in the tunnel. The oxy-propane equipment was removed.

The contractors were cutting at a high level in and around the ventilation shaft in the tunnel. The contractor had assessed the risks and identified that a leak or release of acetylene, an alternative fuel gas that is lighter than air, may collect in the vicinity. Application of a flame may then ignite it.

For that reason, the work planning had rejected the use of acetylene and chose propane as a safer alternative for this specific task. Network Rail's company standard for welding the track (i.e. at ground level) only recognises use of acetylene because propane could gather at a low level creating a fire or explosion risk.

An investigation is underway and there is a planned review of fire prevention/precautions in the company standards for cutting and welding in tunnels.

Discussion Points

- Using any flammable gases in tunnels or ventilation shafts involves increased risk and alternative methods should always be considered.
- All confined space welding or cutting tasks that plan to involve either propane or acetylene must be thoroughly risk assessed in advance.
- Appropriate control measures should be recorded in the risk assessment and used on site.
- The two fuel gases have different properties:
    - Acetylene is lighter than air so any leaks will rise, including up ventilation shafts.
    - Propane is heavier, so any leaks will gather at low level, including possibly in drains.
- Using acetylene involves specific hazards in the event of a fire and requirements for how cylinders must be handled.
- Whichever gas is selected, equipment must be checked to prevent leaks and the amount of cylinders in the confined space kept to a minimum.
- Accurate information about the location and amount of fuel gases should be readily available to the emergency services if an incident does occur.
- Are you aware of the 'work safe' procedure and how to raise one?
- How can you help people feel empowered to stop work if they came across unsafe activity or behaviour?