Technology Deployment Fact Sheet

Multiple Deployment of the Oxy-Gasoline Torch Cutting Tool

SUMMARY

During fiscal year 1999, the Oxy-Gasoline Torch cutting tool was deployed on the F and DR Reactors Interim Safe Storage Project at the Hanford Site.

The Oxy-Gasoline Torch had been previously demonstrated as part of a Large-Scale Technology Demonstration Project by the U.S. Department of Energy's Fernald Environmental Management Project office at the Fernald site. The technology was subsequently deployed at Fernald and for work during the Hanford Interim Safe Storage Project at the C Reactor. The Oxy Gasoline Torch is a safe, cost-effective cutting tool for use in dismantlement operations as part of decontamination and decommissioning work.

INNOVATIVE TECHNOLOGY DESCRIPTION

The Oxy-Gasoline Torch, developed by Petrogen International, Ltd., is a commercially available metal-cutting tool. The torch features a new design that eliminates the possibility of backflash.

The torch is fueled by a mixture of gasoline and oxygen. The fuel components are delivered to the torch via hoses from a pressurized gasoline tank and a cylinder of oxygen, both of which are portable. The gasoline tank can be pressurized by a hand pump or with an external source of compressed air. The gasoline and oxygen are combined in a mixer in the head of the torch. The fuel mixture travels to the tip of the torch where it is lit. After a few seconds of pre-heating, the tip of the torch becomes warm enough to vaporize the gasoline at the tip. The rapid expansion of gasoline results in a high-velocity stream of highly combustible oxygen/gasoline vapor that fuels the cutting flame of the torch. Vaporization of the fuel in the tip is an endothermic process that reduces overheating of the torch and extends its life.

BASELINE DESCRIPTION

The baseline technology is the oxy-acetylene torch.

DEPLOYMENT DESCRIPTION

The Oxy-Gasoline Torch cutting tool was used for dismantlement operations as part of the interim safe storage of the F and DR Reactors.

DETAILS OF BENEFITS

The following are the benefits of the Oxy-Gasoline Torch when compared to the baseline technology.

- Increased cutting speed, particularly for metal thicknesses greater than 2.5 cm (1 in.)
- Reduced airborne contamination
- Readily available and less-expensive fuel
- Increased worker safety
- Reduced cost of operation.

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