

## **ENVIRONMENTAL IMPACT OF CONTROLLED BURN**

The R&D Project was undertaken to assess the environmental impact of allowing fires to burn out in a controlled and contained manner (controlled burns) instead of being extinguished. This followed a number of serious pollution incidents that were caused by the run-off of firefighting water at sites storing materials hazardous to the environment. These incidents could have been prevented or minimised if controlled burn techniques had been employed.

The decision to employ the technique is however not a simple one as it needs to consider both the Best Practicable Environmental Option (BPEO) as well as health, legal financial and perception issues. The Agency therefore commissioned the project so that it could look at all these issues so allowing development of its policy on controlled burns and to establish workable guidelines on when controlled burn may be appropriate.

As there are many parties with an interest in controlled burn, the Regulators, Fire Service, operators, insurers and local authorities, the project team began by contacting them, so that any guidance and policy on controlled burn could be informed by their views. Most parties agreed with the basic philosophy behind controlled burn provided safeguards were in place to protect public and firefighter health and safety, and provided financial factors were also taken into account.

Six United Kingdom case studies were then examined in detail. These highlighted the lack of financial information available on which to look in detail at costs versus environmental benefits. Costs were therefore assigned into broad categories. For each case-study incident, the environmental impacts were assessed, including impacts on human health, controlled waters, air pollution and the terrestrial environment. A rigid, quantitative approach was not possible because of the lack of measurements and quantitative data from the incidents. Therefore a semi-quantitative risk-ranking approach was used. The assessments of case studies involving controlled burns showed significant reductions of environmental impacts compared to the probable impacts of conventional tactics.

Drawing on the approach used to assess the environmental impacts in the case studies, guidance has been prepared on the application of controlled burn as a firefighting tactic. Central to the guidance is the need for at-risk sites to carry out a risk assessment and, if necessary, put in place an emergency fire plan. A rapid screening assessment has been developed to identify such at-risk sites. Guidance has been given on the key stages of a full risk assessment and this has been augmented with a worked example.

Potential legal conflicts of adopting controlled burn guidance were examined. Of particular concern was the relationship between the Fire Services Act 1947, Water Resources Act 1991 and the Environmental Protection Act 1990. Current legal opinion on this is that there is no overriding duty under the 1947 Act to extinguish fires, nor is there is an overriding duty to protect property. Therefore, a decision whether or not to carry out firefighting operations would be governed by general principles of public law reasonableness (and by any applicable guidance).

Under the 1990 and 1991 Acts, fire authorities may incur criminal or civil liability as a result of firefighting operations which cause the release of polluting materials into the environment. The issue here is not so much a conflict or inconsistency with the 1947 Act, but rather that legitimate firefighting operations are capable of creating criminal and regulatory liabilities under the 1990 and 1991 Acts. These liabilities would theoretically arise even where the consequences of failing to carry out the operations were severe, and the environmental consequences of carrying them out minor. In practice, it is not expected that the environmental enforcing authorities would exercise their discretion to pursue fire authorities in such a case. Indeed, to do so would probably be an unreasonable use of their discretion.

The R&D Technical Report concludes with a series of recommendations covering further work on substance thresholds, warning symbols, site screening, collection of financial data, the treatment of important buildings, and communications between parties.

The guidance from the document will be used to revise and/or supplement the Agency's Pollution Prevention Guidance Note PPG18.

The R&D Project Record includes information gathering checklists, case studies of selected incidents in the United Kingdom and a legal opinion.

The project supported the Agency Key Theme on "Integrated River Basin Management".

This R&D Technical Summary P2-081/TS relates to information from Project P2-081 contained in the following outputs:

**R&D Technical Report P388 "Environmental Impact of Controlled Burns"**

ISBN 1 85705 414 8

**R&D Project Record P2/081/1 "Environmental Impact of Controlled Burns"**

ISBN 1 85705 415 6

All outputs:

Internal Status: Released to Regions  
External Status Public Domain

Project Manager: Bruce McGlashan, Southern Region.  
Research Contractor: Stanger Science & Environment

Copies of this document and the above outputs are available internally from the Regional Information Centres and externally from the Environment Agency's R&D Dissemination Centre, c/o WRC, Frankland Road, Swindon, Wilts SN5 8YF. Tel: 01793 865012 Fax: 01793 514562

© Environment Agency  
Rio House  
Waterside Drive  
Aztec West  
Almondsbury  
Bristol BS32 4UD

March 2001

Tel: 01454 624400  
Fax: 01454 624409