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Target Audience:
 FOD Inspectors
 Gas Officers
 Specialist Group Inspectors (Process Safety, Occ Hyg)

RELIABILITY OF CARBON MONOXIDE ALARMS

This SIM gives advice on the findings of recent research into the long term reliability of carbon monoxide (CO) alarms and the approach Inspectors should take when they receive enquiries about alarms.

INTRODUCTION

1 The recent fundamental gas review published in 2000, included the following recommendation:

Recommendation 33

We recognise the potential that CO alarms offer for helping to reduce the risk of carbon monoxide poisonings and believe it likely that they will become increasingly established as a safeguard (as with smoke alarms, now required under Building Regulations in certain circumstances). However, until questions of long-term reliability/stability have been addressed, it would be premature to consider imposing a mandatory requirement for alarms to be fitted. To progress an early resolution of this issue, HSE should now actively engage in further (industry-backed) research, with a view to developing suitable criteria in standards, for securing increased detector reliability. We believe that any longer-term work on this topic would be a suitable candidate for the proposed strategic research plan (Recommendation 5).

*Although a legal requirement is not proposed for the present, we nevertheless recommend that reference to the potential contribution of CO alarms should be made in gas (and other fuel) safety publicity/guidance while stressing that they are to be regarded as a backup precaution, ie supplementary to (**not** in substitution for) proper installation and maintenance of appliances/flues. The position on possible legal controls, for example, whether alarms might be required in certain 'targeted' premises, should be reviewed again if (and when) current technical questions are resolved.*

FINDINGS OF RECENT RESEARCH

2 The results of a 2-year project, funded jointly by HSE, BG Group and DTI, into the long-term reliability of CO alarms were published on 6 August 2001. The research examined the stability and long term reliability of a sample of alarms and sensor types.

3 The current British Standard BS 7860: 1996 *Carbon monoxide detectors (electrical) for domestic use* includes a stability test on the sensor, restricted to a period of 3 months. The recent research suggests that this does not provide a guarantee of reliable long term performance in the home environment. The research involved initial laboratory assessment against the BS of 30 models of alarm (several kite marked, others not), of which 6 were selected for a one-year field trial. Of these, 2 models (only one of which is currently available in the UK) still performed within specification at the end of the trial.

4 The report can currently be found on HSE's website (www.hse.gov.uk/research/crr_pdf/2001/crr01360.pdf).

5 In the interests of open government, the report gives the names of the alarms in question. However, the foreword to the report makes it clear that the purpose of the report is not to present a 'black list'. The Council of Gas Detection and Environmental Monitoring (CoGDEM) who represent most manufacturing companies involved were invited to participate in the research but declined. Questions may be raised about the validity of the report on the basis that technology has moved on significantly since the work was done, but at this stage HSE believes that concerns over long term reliability remain for older and newer alarms.

FURTHER RESEARCH

6 HSE intends to engage with alarm manufacturers in further research, to build on the present work, with a particular interest in developing reliability criteria in the standard by which alarms are assessed for compliance. Further tests on the reliability of the CO alarms tested in the report and similar tests on newer generation alarms are also likely to be conducted.

ACTION BY INSPECTORS

7 In line with the findings of the fundamental gas review:

(1) the use of CO alarms should be encouraged, rather than discouraged;
BUT

(2) users should be advised not to rely on them for safety: they provide a second line of defence behind the proper installation and maintenance of appliances by CORGI registered installers.

8 Those considering purchasing an alarm are recommended to obtain one manufactured to BS 7860 or, when published, BS EN 50291.

9 Advice on siting should be available from suppliers or in the Good Building Guide No 30, available from the Building Research Establishment, Bucknalls Lane, Garston, Watford WD25 9XX. Advice on siting is also likely to be available in another forthcoming standard, BS EN 50292.

10 Carbon monoxide alarms are not a legal requirement, and the use or absence of them is only likely to be a secondary consideration when dealing with the risks arising from an improperly installed or maintained appliance. EMM guidance on those risks and enforcement action are given in [OC 440/30](#).

11 Further enquiries can be directed to the Engineering and Utilities Sector in Nottingham.

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