COMAH Control of Major Accident Hazards

Control of Major Accident Hazards Regulations 1999 (COMAH)

Plant integrity management: Ageing Plant

Dear ……

I am writing to invite you to participate in a survey the COMAH Competent Authority is conducting into the risk of ageing plant as a potential cause of a major accident. You are not legally required to respond to this request but if you do it will help the Competent Authority to prioritise its inspection programme in the forthcoming years. I can assure you that should you complete the questionnaire this will not automatically mean that we will follow this up with an inspection, as we will use the information gathered to prioritise our programme by focusing on areas of greatest risk. However, without such information it will be more difficult for us to decide whether or not we should visit to review this issue.

I would also like to use this opportunity to advise you of new guidance we have just published on the management of the risks associated ageing plant at major hazardous establishments. I have enclosed a summary of this guidance for your information. Even if you decide not to respond to the survey I would encourage you use the guidance and the questionnaire to check whether plant ageing is a risk at your establishment and where relevant, review your arrangements for controlling that risk.

Plant ageing, leading to an increased risk of loss of containment and other failures due to plant and equipment deterioration, has been shown to be an important factor in incidents and accidents. Recent research indicates that 50% of European major hazard loss of containment events arising from technical plant failures were primarily due to ageing plant mechanisms such as erosion, corrosion and fatigue. In the UK alone, it is estimated that there were 173 loss of containment incidents attributable to ageing plant mechanisms between 1986 and 2008. Accordingly, we have identified ageing plant as a strategic priority within our current work plan.

If we decide to make an inspection visit, we will give you advanced notice and, where appropriate, send you a series of questions that set out the issues we want to explore in more detail. If you have ageing plant that presents a major accident risk, we will be looking at the measures you have taken to monitor the condition of those assets. If we do not visit under the current programme of work, you will still be expected to implement effective measures to manage ageing plant where it presents a major accident risk and your performance in this area may be assessed during future inspections.

Further information about ageing plant is contained in the Annex to this letter.

Please complete the questionnaire by …….. (date) and return to Justin Holroyd at Health and Safety Laboratory, HSL. Where possible, please e-mail your completed questionnaire to justin.holroyd@hsl.gov.uk. Alternatively, you may post your response to: Justin Holroyd, Human Factors Group, Health and Safety Laboratory, Harpur Hill, BUXTON, Derbyshire, SK17 9JN.

Yours faithfully

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ANNEX

What is ageing plant?

Ageing plant is plant which is, or may be, no longer considered fully fit for purpose due to deterioration or obsolescence in its integrity or functional performance. 'Ageing' is not directly related to chronological age. There are many examples of very old plant remaining fully fit for purpose, and of recent plant showing evidence of accelerated or early ageing, e.g. due to corrosion, fatigue or erosion failures.

Previous work for HSE (Research Report 509[1]) defined ageing and ageing plant as follows:

"Ageing is not about how old your equipment is; it is about its condition, and how that is changing over time. Ageing is the effect whereby a component suffers some form of material deterioration and damage (usually, but not necessarily, associated with time in service) with an increasing likelihood of failure over the lifetime.

Ageing equipment is equipment for which there is evidence or likelihood of significant deterioration and damage taking place since new, or for which there is insufficient information and knowledge available to know the extent to which this possibility exists.

The significance of deterioration and damage relates to the potential effect on the equipment's functionality, availability, reliability and safety. Just because an item of equipment is old does not necessarily mean that it is significantly deteriorating and damaged. All types of equipment can be susceptible to ageing mechanisms".

What are the signs of ageing?

The issue is now always about how long plant has been used – 'long service' plant will be found everywhere and in all industries. The key issue is the evidence from inspections, planned and reactive maintenance, plant failures, loss of containment incidents, etc that may indicate that your plant condition and performance is, or could be, prone to deterioration due to ageing.
Ageing is more likely to be an issue at sites that have:

- externally located pipework and/or vessels operating at ambient temperature or above, particularly where insulated;
- aggressive process materials;
- a high cycle rate; and
- a high reliance on instrumented protective systems and control systems that utilise obsolescent hardware or software, or are no longer supported by the manufacturer or supplier.

1 Research Report 509: Management of equipment containing hazardous fluids or pressure (HSE, 2006)
http://www.hse.gov.uk/research/rrhtm/rr509.htm

The clearest evidence of ageing will be where you have:

- Moved from a same period/same inspection regime to a risk-based regime where periodically and depth of inspections have been increased;
- Re-rated (down-rated) plant to keep it in service;
- Found typical signs of plant ageing: creep, cracking, corrosion and changes in corrosion rates, during maintenance inspections;
- Experienced recurring defects, and/or increasing trends of unplanned maintenance and breakdowns.