To: [redacted]

From: [redacted] 19/08/2004 12:51

Subject: Current status

Below is a summary of the current status of our involvement with your company, highlighting those actions still outstanding.

1) <u>Improvement Notice I/KEB/16/03/04/01</u>
- Maintenance of your site electrical system - originally expiring on 23 June 2004.

a) I provided you with a copy of [redacted] Site Visit Report.

b) The Notice was extended to expire on 23 October 2004.

Outstanding actions for you:
- Comply with the Notice by the new due date.

Outstanding actions for me:
- Visit to check compliance.

2) <u>Improvement Notice I/KEB/22/04/04/01</u>
- DSEAR / COSHH Assessment for Ball Mill Room & Paint Shop Area - originally expiring on 16 July 2004.

a) On 04 June 2004, you forwarded me a copy of your 'Internal Zoning Exercise' document for our consideration. I now have [redacted] comments as detailed below*.

Outstanding actions for you:
- Consider [redacted] comments & address those areas that need further attention;
- Comply with the Notice by the new due date.

Outstanding actions for me:
- Visit to check compliance.

b) I provided you with a copy of [redacted] Site Visit Report (which has a bearing on both the Notice & wider site issues) & you forwarded me your response. I have passed this onto [redacted] for discussion & comment.

Outstanding actions for me:
- Forward our conclusions to you.

c) I provided you with a copy of [redacted] Site Visit Report (which has a bearing on both the Notice & wider site issues).

Outstanding actions for you:
- Provide me with your response.

Outstanding actions for me:
- Await your response then discuss it with [redacted] & forward our conclusions to you.

3) * **W H Keys Ltd – Internal Zoning Exercise – Paint Shop / Ball Mills**

Comments by [redacted] (HM Specialist Inspector, Process Safety)

The following is an extensive list of comments although it is not necessarily exhaustive.

1. Ball Mill Manufacture (page 3)

The justification for not zoning the area is that the temperature in the ball mills is below the relevant solvent flashpoints. There is a pressure build up during milling but it is not clear what, if any, vapours are being generated and how. Unless there is a chemical reaction, it must be due to friction and therefore as a result of a rise in temperature. I find it hard to believe that there is no rise in temperature. More justification is required. What would be the consequence of failing to release the pressure at regular intervals – would it be feasible to install a pressure relief valve? I support the decision to vent externally.

2. Large batch manufacture (pp 4&5)

What systems ensure that the refrigerant system is operational before batch preparation commences? How is condensate collected and returned to the solvent tank? After batch preparation the batch is allowed to cool to ambient temperature. For batches using White Spirit and Caromax18 solvents, the basis of safety is that the finished product is below the relevant flashpoint and that zoning is not therefore required. How is the temperature measured and what controls ensure that filling cannot take place above the flashpoint temperature?

3. Zoning Calculations (pp 8 to 12)

These calculations are for release of white spirit vapour through the vent stack only. The calculations are based on BS EN 60079 Part 10 and have been used to estimate the extent of any flammable area in order to judge whether a formal classification is called for. The results of measurements of the concentration and velocity measured in the stack are used in the calculation although it is not clear where and under what conditions these results were recorded. There are numerous errors and incorrect units, particularly on page 10.

The conversion factor from ppm to mg/m^3 is applicable for methane only. The equivalent factor for white spirit is approximately a factor of 10 greater. The conversion from mg/m^3 to kg/m^3 should be 10^{-6} not 10^{-3}. The overall effect of this is that the calculated maximum release rate and the hypothetical volume are a factor of 100 greater than they should be.

The calculation has only been carried out to decide whether a formal classification is required. Despite the significant errors the outcome of a revised calculation would still be that a formal classification is required. The numerical results from the calculation have not been used further in the classification. Rather the zones have been based on similar examples in Annex C of the standard.

4. Specific Area Classifications

4.1 Tank E /Condenser (pp13/14)

The specification of the mixer and pump motors appears to be adequate for the zoning provided that the motors have been installed and maintained to a satisfactory standard. When quoting to Group II the specification should also refer to the relevant British Standard.

4.2 Condenser (pp15/16)

What about the location of the building (finished product storage area) also shown on p21? It falls within the zone 2 extent. Depending on the building construction the zone may extend into it. Would it be easier to relocate the condenser?

4.3 Filling of road tankers above flashpoint (pp17/20)

It is not clear where the designated filling area is to be or what equipment is currently there.

4.4 Xylene Storage tank

If the xylene based product calls for zoning then the xylene storage tank should also be considered when being filled or emptied.