



HSE

Health & Safety
Executive

CIMAH to COMAH Information to Demonstration

Martin Goose

HID Central Division (MSDU)



HSC

Health & Safety
Commission



Information/Demonstration

- Information includes stating what is done or predicting what might happen in a Major Accident
- Demonstration takes that Information and uses it, in further analysis, to show that additional measures are 'not reasonably practicable' (in COMAH terms 'not a necessary measure')





HSE

Health & Safety
Executive

Demonstration Step by Step

1. Identify and list the controlled substances and their inventories and compare them with the controlled quantities
2. Identify the location of the hazardous installations and specify which substances are held there, in what quantities, and under what conditions



HSC

Health & Safety
Commission



HSE

Health & Safety
Executive

Demonstration Step by Step

3. Specify the local environment including exposed populations (on and off site) and other hazardous installations (including those at designated domino effect sites) that might be affected by major accidents or be initiators of a major accident.



HSC

Health & Safety
Commission



HSE

Health & Safety
Executive

Demonstration Step by Step

4. Identify all major accidents and develop a qualitative view on the significance of each one, having regard to their potential causes, their likelihood and the severity of the anticipated effects



HSC

Health & Safety
Commission



Demonstration Step by Step

5. In the light of this view on the significance of all the identified major accidents, choose a representative subset for detailed consideration
6. Refine the prediction of the hazard range(s) (**extent**) and their likelihood, for each event in the chosen representative subset.





HSE

Health & Safety
Executive

Demonstration Step by Step

7. Refine the prediction of the consequences (**severity**), for each event in the chosen subset, including the number of fatalities to man and damage to the environment, and develop a view on the extent of lesser harms such as major and minor injuries to persons.



HSC

Health & Safety
Commission



HSE

Health & Safety
Executive

Demonstration Step by Step

8. Show the consequences and the likelihood, for each event in the chosen subset, on an fn matrix or plot (non cumulative) to aid visualisation of the spread of risks and risk ranking.



HSC

Health & Safety
Commission



HSE

Health & Safety
Executive

Demonstration Step by Step

9. Divide the area of the matrix (or plot) into 3 bands (broadly acceptable risk, tolerable if ALARP, and intolerable risk) and calibrate these bands against HSE published guidance on tolerability of risk ('R2P2' and 'QRA its input to decision making').



HSC

Health & Safety
Commission



HSE

Health & Safety
Executive

Demonstration Step by Step

10. Split the “Tolerable if ALARP band” into, say, 3 sub bands to enable proportionate demonstration. Options to do this include using Maximum Potential Fatalities, $F \times N$, $F \times N^2$, $F \times N^{1.4}$



HSC

Health & Safety
Commission



HSE

Health & Safety
Executive

Demonstration Step by Step

11. Consider individually all the major accidents in the tolerable if ALARP band with, say, a MPF of less than 10, and provide a 'standards plus' demonstration that the qualitatively assessed costs, of a qualitatively determined range of additional risk reduction measures, show that nothing more is reasonably practicable.



HSC

Health & Safety
Commission



HSE

Health & Safety
Executive

Demonstration Step by Step

12. Consider individually all the major accidents in the tolerable if ALARP band with, say, a MPF of 10 to 100, and provide a 'qualitative' justification that the identified costs, of a qualitatively determined range of additional risk reduction measures, show that nothing more is reasonably practicable.



HSC

Health & Safety
Commission



HSE

Health & Safety
Executive

Demonstration Step by Step

13. Consider individually all the major accidents in the tolerable if ALARP band with, say, a MPF of greater than 100, and provide a 'quantitative' cost benefit analysis, on a range of systematically determined additional risk reduction measures, to show that nothing more is reasonably practicable.



HSC

Health & Safety
Commission



HSE

Health & Safety
Executive

Demonstration Step by Step

14. Check that the most exposed individual on and off site is not at intolerable individual risk



HSC

Health & Safety
Commission