

INDUSTRY EXPERIENCE FROM THE PILOT EXERCISE

Ian Hamilton Senior Technical Safety Adviser, HSE Shared Service, BP Grangemouth

This paper will set out the industry experience in producing a safety report to the new COMAH Regulations. It will describe how the assessment criteria discussed in the previous papers were used to develop the new style reports. It will highlight the any problems that were encountered during the exercise. The paper will also discuss the benefits in participating in the exercise.

Keywords: Safety Report, Criteria, Pilot Exercise, COMAH Regulations

INTRODUCTION

When the CIMAH Regulations were introduced in the 1980s BP decided that a common approach to the submission of Safety Reports would be beneficial from both theirs and the Regulators viewpoint. To meet this goal a network of safety professionals from all BPs UK top tier sites and Corporate functions was established. The main purpose of this group was to provide guidance on the structure and content of safety reports and review the feedback that individual sites received on their submissions.

In July 1997 BP were approached by the Head of the Technical Assessment and Information Technology Strategy Unit, within the Chemical and Hazardous Installations Division of the Health and Safety Executive to see whether they would be willing to second a safety professional into the unit to assist with the development of assessment criteria to be used by assessors of safety reports submitted under the COMAH Regulations. This work was being undertaken by a project team within the Health and Safety Executive. The details of this project entitled SHARPP (Safety Report Handling Assessment and Review Principles and Processes) have been discussed by the previous presenters.

One of the products of the SHARPP Project was to seek volunteers from industry to participate in a pilot exercise to produce a safety report that would meet the requirements of the COMAH Regulations. During the early part of my secondment HSE were in the process of seeking volunteers . As stated previously BP has a number of current top tier CIMAH sites and the opportunity to participate in the pilot exercise was seen as an ideal way to ensure that a consistent approach was adopted in writing safety reports to meet the requirements of the COMAH Regulations. To ensure that BP achieved the maximum possible benefit from the

secondment they sought to participate in the pilot study. Originally Grangemouth was put forward as the BP site to participate because of my previous experience there, however the Scottish site for the pilot had already been chosen. I therefore contacted all the other UK sites to see if any of them would be willing to participate. BP Chemicals at Saltend in Hull asked to be put forward as their Core CIMAH and the DF Complex reports were due for resubmission under CIMAH in 1998. In addition to these reports the Hull site have another eight that they currently submit under the CIMAH Regulations.

The DF process involves the liquid phase oxidation of naphtha using air as the oxidising material in four reactors - two on DF2 and two on DF3 - operating at 185°C and 47 barg. The reaction mixture is processed in distillation columns involving azeotropic, pressure and vacuum distillation and liquid/liquid extraction to produce acetic acid, formic acid and propionic acid. A partially oxidised light ends fraction from the main reaction is fed to the acetone recovery plant where pure acetone is extracted and the remainder fed back to the reaction system. Light residues recycle feed is residues from DF2 and DF3. Useful material is removed by flash distillation and returned to the reaction system. Remaining residues are fed to site boiler house as fuel for steam generation.

In December HSE accepted the proposal to use BP Chemicals at Hull as part of the pilot exercise. However, because of the Christmas break work on the report did not start in earnest until early January. This gave us approximately three months to complete the two reports. Once Hull were accepted it was agreed that I could assist with the preparation of the reports and act as a link between BP and HSE.

PREPARATION OF THE REPORT

Each company participating in the pilot exercise was given a set of all the draft criteria which related to the assessment of Safety Reports (i.e. Management, Descriptive, Predictive, Technical and Emergency Response) and the latest revision of the Consultative Document for the Regulations. The task was then to prepare a report which would meet these requirements.

As stated earlier two reports were submitted one plant specific report the other being the core report. The core report gave information concerning the overall aspects of the site, geographical location, details of the safety management system, general management structure, position of installations, etc. The plant specific report gave information about an individual plant which had been identified as having the potential to cause a major accident.

The first step in the process was to establish a contents list for the report. This was done by extracting the headings from each of the criteria and putting them into sections. Each section could be related back to Annex 2 of the Seveso II Directive and Schedule 4 of the draft COMAH Regulations. This ran to four pages. The existing CIMAH reports were then used to provide the detail for each heading and identify where information was lacking or required to be expanded upon. It was then an iterative process to complete the reports using the criteria to decide on the information required.

COMMENTS ON PROCESS

From an early stage in the preparation of the report it became apparent that if Schedule 4 of the Regulations was followed the information would not be presented in a logical manner and

would be difficult for the Assessor to gain an understanding where the site was, what hazardous substances were present and how many people could be affected, before details about the management system were presented. We therefore decided not to follow Schedule 4, but to set out the report in a format that could be easily read. In the end the format adopted was similar to that of Schedule of the CIMAH Regulations

Reports submitted under CIMAH were required to, identify the nature and scale of the use of dangerous substances at the establishment, identify the type, likelihood and consequence of major accidents that may occur, give an account of the arrangements for safe operation of the establishment, for control of serious deviations that could lead to a major accident and for emergency procedures at the establishment. The requirements of COMAH take this a step further in that there is now a requirement to demonstrate amongst other things that, the safety management system is adequate, the necessary measures have been taken for major accident prevention, control and mitigation and the plant has been adequately designed, constructed, operated and maintained.

The purpose of the criteria was to give the Assessors a guide as to the information that they should be looking for which demonstrates that all necessary measures have been taken. Each set of Criteria was written in a different style, this led to difficulty interpreting the level of detail required to demonstrate. The most helpful style was that adopted by the Management Criteria. This listed each criterion, then gave a reason for it and finally gave examples of evidence on how it could be met. This was most helpful as it gave an indication of the level of detail required to ensure that information provided would be sufficient. Some of the other criteria left the writer wondering how much information to include. For example the criteria being used to assess the properties of dangerous substances was essentially asking for the Material Safety Data Sheet (MSDS) in that they required information on boiling point, flash point, vapour pressure, explosive limits, International Union of Pure and Applied Chemistry (IUPAC) nomenclature, Chemical Abstract Number, health hazards, effects on the environment, etc. However to include all the MSDS would have been impractical. They would have created at least a further volume to the report. Thus we chose to extract the information from the MSDS and other sources, when the information was not available from the MSDS, and tabulate it. This proved to be a major exercise in itself as more detail was required than had previously been submitted under CIMAH. The preparation of this table alone, which ran to two sides of A4 paper, took approximately two man weeks.

Another example of this appeared in the Emergency Response criteria. The information being sought after here was in essence the site emergency response plan. However, as with the information on dangerous substances had we included the plan this would have created a further volume to the report.

The style and format of the reports took a considerable amount of time to prepare. We estimated that it took approximately seventy man days to prepare the two volumes for the pilot exercise. This was because it was difficult at times to judge how much of a referenced document or procedure to use in the reports. This was partly due to the fact no definition of the requirements of demonstration had been given with the criteria. In some cases the whole document was included and others it was only referenced by content and title. In some cases it was difficult to establish what the actual measures would be which would prove compliance. This may have resulted from the fact that the criteria which were used during the preparation of the reports were relatively early drafts. They were the ones that had been sent

out for consultation both internally within HSE and externally. An example of this arose from the Technical Criteria where there was the perception that the report should demonstrate that a hierarchical approach have been used when the plant was originally designed. Something that is almost impossible to demonstrate on a plant which is 40 years old.

A number of the criteria asked for the same information, although it appeared in a different format. This arose because each set of criteria were written by different teams with the idea that they would be used by different assessors. An example of this was in the Emergency Response criteria where details of the site, which had already been requested in the Descriptive Criteria, were being requested. When writing the reports we had to ensure that we did not provide the same information twice.

One of the main differences between CIMAH and COMAH was the perception that environmental issues would be more prevalent. Although some of the criteria discuss environmental issues there was no guidance on what constituted an environmental accident. We therefore had to rely on existing guidance and hope that this met requirements. This was also the case with the Predictive aspects although a further revision of these criteria was sent out during the exercise.

There was a considerable amount of time spent cross checking the Assessment Criteria with the Consultative Document to ensure that the correct interpretation had been made. This was especially evident with the dangerous substances as the categories and definitions had changed from CIMAH.

Initially it was thought that timescale to complete the reports was ample (approximately 3 months). It soon became apparent that it was going to be difficult to complete for the reasons discussed above. However the reports were submitted by the required date although it was recognised that all the cross checking with the Assessment Criteria had not been completed and that there were some areas where additional information would be added.

HEALTH AND SAFETY EXECUTIVE ASSESSMENT OF REPORTS

The Health and Safety Executive forwarded the results of their assessment of the reports to BP Chemicals, Hull at the end of June. The assessment team concluded that there were no serious deficiencies in either report. However, a number of deficiencies were highlighted in the written demonstration. Some of these were relatively minor and will be easily rectified in future revisions of the report. The ones that will require more time and effort relate to adequacy of the demonstration and the lack of environmental information. This stems from the fact that guidance on what constitutes demonstration was not contained in the criteria nor was there sufficient guidance on environmental issues.

The most serious concern centred around the Major Accident Prevention Policy (MAPP) that had been put forward. This was a Corporate document which related to prevention of all accidents not just major accidents and is signed by one of the group managing directors and the group chief executive. The Assessment team did not consider this document to meet the requirements of the MAPP in that it did not specifically address major accidents. However when analysed against Schedule 2 of the Regulations, (Principles to be taken into account when preparing Major Accident prevention Policy Document), it met the requirements. Discussions on this are on going at present as the implications of this could affect all BPs Top

Tier sites.

A meeting was held with the assessment manager and some of the team to discuss the points raised in the letter. At this meeting a number of other points, which had not been included in the original letter, were raised. In addition we were presented with a set of environmental criteria which had been drawn up for the Environment Agency by DNV. Prior to this there had been very little information available from them. We are currently awaiting feedback on the outcome of this meeting. Further details will be given when the paper is presented.

CONCLUSIONS

Participating in the pilot exercise has proved a valuable experience for BP in that we have gained a good understanding of the requirements of the new regulations. This will allow us to develop our own guidance for the preparation of safety report thus ensuring that a common approach is taken for all BP establishments.

The lack of environmental criteria meant that when writing the report we were second guessing the requirements of the Agency. Also the lack of a clear definition of demonstration presented problems

The exercise has shown the importance of providing clear guidance to both the Assessor and the report writer thus avoiding the time consuming process that Industry and HSE went through when CIMAH was introduced. It has also shown that whatever guidance is produced it needs to be in the form of a single set which encompasses all aspects of the regulations.