

Working Paper 377

Major Hazards and Development Control

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1. Introduction

Industrial hazard most frequently becomes involved in the planning process in the handling of planning applications viz development control. The consultation structure between the Health and Safety Executive and planning first established by circular 1/72 was essentially directed towards development control rather than forward planning, though the latter has more recently been included in the consultation process. The addition of industrial hazard to the list of planning matters, 'material considerations' and necessary consultation has also come at a time when development control has been receiving increased attention from both within and outside the planning profession concentrating in particular on efficiency and the speed of processing of applications (Department of Environment 1975, 1980; Royal Town Planning Institute, 1979). Hazard has proved at times to be difficult to assimilate into the planning process. A variety of procedural problems have been experienced (Wood and Lawrence, 1980, Hankey, 1980, Finney, 1981, Payne 1981) and particular well publicised decisions have highlighted the conflicts that can occur when dealing with hazardous installations (eg Thornton Cleveleys, Planning, 18th June 1982; Middlesbrough, ENDS, July 1981). In this paper some of these issues will be considered with reference to research undertaken at 3 case study planning authorities (which will not be named for reasons of confidentiality). This work has attempted to examine in detail each authority's experience of dealing with hazard, in terms of the consultation process with the HSE, application determination and forward planning policies and only certain aspects of the results obtained will be considered in this paper. Detailed collection of data at each authority has been undertaken, but it is difficult to assess to what extent the experience of the case study authorities is representative of others. Brief interviews with planning officers from a wider range of local authorities have also been undertaken and further case studies are proceeding so it is hoped that an adequately representative picture will emerge.

The study has in a sense been historical, examining hazard policy and practice over the past ten years. Over this period there has been a development of knowledge, expertise and guidance in relation to hazardous industry with a particular threshold being reached at the beginning of this year with the Notification of Hazardous Installations Regulations (Health and Safety Executive, 1983). This legislation would seem to have improved matters in terms of information and guidance to planning authorities (Johnson, 1983), but accompanying proposals for changes in planning legislation have come under criticism for their limited power and scope and avoidance of the issue of compensation (Major Hazards Working Group, 1982, Milne, 1982). With this in mind the paper will in particular attempt to identify those aspects of past experience under the old 'major hazard' classification system which may continue to provide difficulties under the new regulations.

The paper will discuss firstly the manner in which the case study work has been undertaken, secondly present the results of study at each authority and thirdly assess these results with reference to the consultation process and the impact of hazard on land use and decision making.

2. Case Studies

2.1 Structure

Before describing the results collected from each of the case study planning authorities it is first felt necessary to outline why particular information has been collected and its relevance to the issues being discussed. The aim of this research has been to examine how planning authorities have consulted with the HSE, the extent to which such consultation has been consistent and rigorous, the impact that hazard has had in terms of development restraint and the problems experienced in the course of consultation and decision making.

An examination of the impact of hazard on land use is however far from straightforward. Any development application decision where hazard is of relevance can be seen to be determined by a series of interlocking factors which operate as the application passes through the planning process:

1. The consultation decision. In many authorities if the HSE are not consulted hazard may not figure as an issue in the decision process. Consultation with the HSE is not mandatory and the advice given to planning authorities on when to consult on surrounding development, has allowed considerable leeway in deciding what is referred to the HSE.

2. The nature of the advice received from the HSE if they are consulted. Again in many authorities if the HSE do not object to a proposal, hazard will be written out of the decision process, their advice being taken as 'expert' and therefore perhaps final.

3. If however HSE advice is not just 'no objection' or opinions from other sources become important there is the final decision made usually by the planning committee on how to balance such hazard considerations against other planning factors. The interrelation of these three stages will determine whether the application is passed or refused (or approved with conditions) and new land use restrained or allowed in relation to its hazard implications.

The interaction of consultation, advice and final decision making means that in order to understand the final impact of hazard on land use it is necessary to trace each application decision through these three stages. Accordingly in each authority data has been collected on a large number of planning applications selected on the basis of being significant in hazard terms and within two chosen

zones. The definitions of 'significant' are somewhat arbitrary but conform approximately to the more detailed guidance given recently to some planning authorities by the HSE. These criteria are detailed in the appendix to the paper.

In addition to the presentation of detailed data on planning applications it has also been felt necessary to describe a certain amount of background on each case study authority and the installations within it. This is due to the highly individual nature of each authority and installation and the way this influences attitudes taken towards hazard and the balancing of decisions.

Every installation is individual in respect of such factors as the nature and scale of hazard, its location relative to surrounding existing and proposed development, and its position within the economic structure of the area. It is therefore difficult to apply general and absolute standards to the diversity of hazards and existing land use patterns in existence across the country.

Likewise each planning authority operates in a highly individual context determined by such factors as the pattern and scale of hazards within its boundary local experience of hazardous plant operation, the pressure for new development and the organisation of local public opinion. This hazard context - made up of the concrete physical relationships of existing land use and the more difficult to identify web of influences on the perception of hazard - will be continually important in for instance explaining patterns of consultation and the outcome of planning decisions.

2.2 Authority A

This is a major metropolitan authority, with a mixed and varied industrial base. It contains 6 major hazards none of which are particularly large in size or stand out as hazardous sites. Four of the installations are relatively remotely located with little existing or proposed development within them. The two remaining sites are within the main urban area and were selected for detailed study. The planning department is large and busy with hazard rarely of central concern in planning decisions.

Zone 1

This hazard was not introduced until 1977 when an established factory began using LPG. By this time the surrounding zone had experienced a long history of planned and coordinated development with housing and light industrial estate deliberately juxtaposed to cut the length of journeys to work. The firm, located on this estate, applied for permission to install LPG tanks in 1977. The HSE were consulted and permission eventually granted.

Significant planning applications in the surrounding zone after 1977 have included further extensive residential development adding up to a population increase of 2,000, a large industrial development and various community facilities.

From the table below it can be seen that very few of these applications were in fact sent to the HSE, including all the residential development and community facilities.

<u>Significant Surrounding Applications</u>	<u>Sent to HSE?</u>	<u>HSE Advice</u>	<u>Refused on hazard grounds?</u>
31 (1977-82)	6 Yes	6 No objection	0 Yes
	25 No	0 Refuse/ Reservations	31 No

The six applications that were sent to the HSE received no objection. Consequently there has been no refusal of applications on hazard grounds, and the major hazard has had no impact on the land use of the surrounding area.

Zone 2

The major hazard is a long established but small chemical works using highly reactive substances. By 1972 the surrounding zone is intensively developed with a core of housing and two sectors of mixed industry. Significant applications after this date have included selected redevelopment of the major hazard site and infilling of housing and light industry, with a residential population increase amounting to approximately 850. Again very little of this development was consulted on, beyond that at the major hazard site and certain applications in the surrounding zone (as shown below):

<u>Significant Surrounding Applications</u>	<u>Sent to HSE?</u>	<u>HSE Advice</u>	<u>Refused on Hazard Grounds?</u>
25 (1974-82)	6 Yes	6 No objection	0 Yes
	19 No	0 Refuse/ Reservations	25 No

Of the six HSE consultations on surrounding development, four involved the use of hazardous substances at industrial sites within the zone and two were for residential development involving a total allowed population increase of forty two. Therefore most of the residential applications were approved without consultation. Again no objections were received from the HSE and there have been no refusals on hazard grounds.

Assessment

The examination of applications within these two zones shows:

1. A low level of consultation on surrounding development
2. No consultation on substantial population increases
3. No restriction on new land uses within the 1 km zones

If the level of consultation at major hazard sites is considered separately most applications were in fact consulted on, although often only after prompting from the environmental health department. However in the course of study an application involving the use of LPG in major hazard quantities was found, which had not been sent to the HSE and had been approved with little consideration of its hazard implications. The consequences of this omission (only found because of this study) were fortunately not too serious, but the mistake indicates that the process of selecting applications for consultation was unreliable.

An analysis of surrounding development consultation with reference to the date of applications (figure 1) shows some consultation from 1977 onwards. However all pre 1981 applications involve the use of hazardous materials themselves (in small quantities) and not until 1981 were residential developments first referred to the HSE. This late start to consultation can be explained by the fact that before 1981/82 there had been no real departmental policy or guidance to planning officers on HSE consultation. The decision was left up to individual planning officers, with no enforcement or monitoring of what was sent to the HSE. Individual officers would seem to have forgotten or ignored consultation for a variety of reasons:

1. The hazardous installations were relatively small scale and not obvious as such. Development around the sites was already extensive and in the case of zone 1 new development seemed unlikely to be halted.
2. When the HSE were consulted on development at major hazard sites, their replies were invariably short and registered no objection, although they took a long time to return and in some cases delayed applications.
3. There had been no local experience of serious accidents at individual sites and the importance given to hazard in general was low.
4. Guidance in the form of circular 1/72 and the 2 km consultation zone was vague and inadequate for individual officers with little understanding of hazard potential or risk.

A self-reinforcing combination of these factors would seem to have led to a general lack of action and disillusionment in the consultation process. Matters came to a head however in 1981, when the local HSE objected to not having been consulted on development at a site involving the use of hazardous materials within zone 2. This led to a reappraisal of consultation policy with the HSE eventually reducing consultation zones to 1 km and providing graded criteria for significant surrounding development. Applications are now screened at an early stage in the department to see if they fall within these criteria and a computer classification used to indicate that consultation is necessary. The consultation decision is now consistent and rigorous picking out applications where previously no consultation has occurred.

As far as decision making is concerned it can be seen that the low level of consultation and HSE replies of no objection combined to make hazard very rarely an issue in final decisions. In only one case did the HSE suggest considering the refusal of an application; on the crucial introduction of the major hazard in zone 1. Their advice balanced the hazard from the installation against safety precautions taken but recommended neither acceptance or refusal outright. The planning committee had to balance this advice against, most crucially, the fact that the firm had said they would pull out of the area if the application was not approved. The potential loss of 400 jobs eventually over-rode safety considerations, in view of the high level of unemployment in the area at the time. There was no input of public opinion into this decision as the application had not become common knowledge.

The attitude towards and awareness of hazard in the planning department would now seem to have been stepped up, as a consequence of the improved consultation organisation and recent local experience of an accident involving hazardous chemicals and a near accident at the major hazard in zone 1.

2.3 Authority B

This authority is a borough council dominated by the petrochemical and chemical industries and consequently containing 13 major hazard sites. The local economy is dependent upon these industries both now and in the past for employment and rate income and the local population and firms involved have enjoyed a relatively safe and cooperative relationship. The planning department has built up considerable expertise on hazard and risk, through dealing with this industry.

Zone 3

A large and long established chemical plant using a range of hazardous materials forms the major hazard in this zone. The plant itself created and sustained the development of the town along part of its perimeter so by 1972 there is a substantial band of housing, light industry, shops and schools extending out from the boundary fence. Empty land within the zone is predominantly owned by the firm and intended for its own future 'non-hazardous' expansion.

Since 1972 there has been selected residential infill in the main town amounting to a population increase of 370 the continued development of light industrial estates and the building of a school across an area of empty land. Redevelopment on the major hazard site itself has been rigorously consulted on, with all applications beyond the very minor sent to the HSE. Consultation on surrounding development has not been so complete as is shown below:

<u>Significant Surrounding Applications</u>	<u>Sent to HSE?</u>	<u>HSE Advice</u>	<u>Refused on hazard grounds?</u>
36 (1975-82)	20 Yes	17 No objection	0 Yes
	16 No	3 Refuse/ Reservations	36 No

On three of the twenty consultations the HSE recommended refusal or expressed reservations but in none of these instances was the advice followed. Therefore there has been no restriction of land use on hazard grounds through the development control system.

Zone 4

An LPG distribution depot forms the hazard at the centre of this zone. It was established in the 1960s located between a small urban community and a large area of varied petrochemical industry. The strip of housing (population 350) had long been considered an inappropriate land use (due to air pollution and isolation from services) and clearance had been proposed but postponed on several occasions. In 1972 the empty areas of land in the rest of the zone were owned by 2 chemical firms but allocated in a non-statutory local plan for non-hazardous uses.

In 1977 the major hazard extended and increased its LPG storage capacity but surrounding development after 1972 has been on only a minor scale and involved no residential population increase. Clearance of housing was again considered in 1980 but the local authority decided to support the community for at least another ten years, following a survey which found little local support for clearance.

Only seven significant surrounding applications were found in this zone and all were sent to the HSE for their advice.

<u>Significant Surrounding Applications</u>	<u>Sent to HSE?</u>	<u>HSE Advice</u>	<u>Refused on hazard grounds?</u>
7 (1975-82)	7 Yes	6 No objection	2 Yes
	0 No	1 Refuse	5 No

The HSE recommended refusal on one application for housing and this advice was followed, but additionally the planning committee refused a further industrial application on the same site partly on hazard grounds, although the HSE had not objected. In this zone therefore there has been very little development since 1972 and restriction has been enforced through development control and long term strategic policies.

Assessment

An examination of the two zones in this authority has shown a somewhat contrasting picture, with development in zone³ going ahead despite HSE objection whilst development in zone⁴ has been restricted.

Looking firstly at consultation the HSE have been rigorously consulted on all major hazard development. There has also invariably been extensive consultation between firm and HSE before applications are even submitted on major developments. Problems have arisen however with delayed response from the HSE and the provision of sufficient information on outline applications. On surrounding development the results from zone³ showed a substantial split between consultation and non-consultation. If surrounding applications are considered over time, as in figure 2, this division conforms approximately to pre and post 1977/78 periods. The influence of the 2 km consultation advice is clear here; before 1978 circular 1/72 provided insufficient guidance for the authority to select applications for consultation. The 2 km zone at least provided an indication of the area of interest and prompted the beginning of surrounding consultation. The selection of applications has since been rigorous, with the size of significant development lowering and extending below the definition used in this study. Applications are selected for consultation by one person with substantial expertise on hazard and consistency is therefore maintained. HSE advice on major hazard applications has never recommended refusal but on several occasions the process of negotiation between HSE and developer has been important in making plans acceptable and planning conditions have been imposed to enable some continued control over the hazardous site.

HSE advice on surrounding development, although predominantly offering no objection, has on several occasions recommended refusal or expressed strong reservations. The reactions to this advice have varied. In zone³ the first refusal advice involved the use of a building as a play centre only 450 m from the major hazard. After 8 months the application was approved although the HSE response had not been received, as the decision could be delayed no longer. Two months later the HSE's advice recommending refusal was eventually received. Taking this advice belatedly into consideration the planners felt that it would have been unlikely for the development to have been refused, because of the existence of long standing housing all around it.

The second application in zone³ related to 2 areas of infill housing. Both applicant and planning department strongly objected to any refusal on hazard grounds largely again because of the extent of surrounding housing. Before a confrontation with the HSE was reached the major hazard plant decided to shut down the hazardous storage nearest to the development and the HSE withdrew their objections.

The third application involved a school 1.5 km away from the hazardous site, upon which the HSE advised that preferably a site further away from the hazard should be found. An alternative site was available but the planners considered that access and road safety problems at this site would in fact increase the danger for children, over and above the resulting reduced level of risk from the chemical plant. Additional arguments against the movement of the school included the existence of 2 schools closer to the hazardous site and the need for school places for local children. Approval was eventually given.

In this zone therefore other planning considerations have been considered stronger than HSE advice on hazard. In particular the extent of existing and intervening development, has made any refusal difficult to contemplate. The long and harmonious interrelationship between the plant and the local community would also seem to mean that the risk of accident is generally considered to be very low and the safety measures taken by the firm to be of a high standard.

In zone⁴ however applications were refused on hazard grounds on two occasions. The first for the development of one acre of housing only 200 m from the major hazard, received advice recommending refusal from the HSE. With the additional support of structure plan policies opposing development in the area and the fact that new development would prejudice any eventual housing clearance this refusal recommendation was followed. (The decision was also upheld on appeal). The second application on the same site but for industrial development was not objected to by the HSE, but was refused by the planning committee on similar grounds to the housing. The potential for a purchase notice to then be served was realised but considered to be not important enough to alter the committee's decision; in the event no such notice was in fact received.

In this zone restriction of development on hazard grounds has been possible because of the expected clearance of existing development in the area, and the generally accepted unsuitability of the area for residential development on general environmental and service provision grounds. There has therefore been no real contradiction in refusing development at a site with other existing development in the near vicinity.

2.4 Authority C

This is a largely rural borough council with a low overall population and relatively little industry. It however contains three major hazard sites all established before 1972 one of which provides local employment on a substantial scale. Given the scarcity of industry in the area as a whole and the considerable vocal local opinion hazard has been at times an important and contentious local issue.

Zone 5

The hazardous installation is a large and long established chemical plant using a variety of hazardous materials. Development within 1 km of the plant before 1972 has consisted only of a limited area of light industry and part of a small established village. A 2 km zone however covers all of this village and half of a small town. Significant development applications since 1972 have included residential in the town and village amounting to a population increase of 950.

Redevelopment and extensions on the major hazard site have been referred to the HSE, as has approximately two thirds of significant surrounding applications (as outlined below).

<u>Significant Surrounding Applications</u>	<u>Sent to HSE?</u>	<u>HSE Advice</u>	<u>Refused on hazard grounds?</u>
38 (1974-82)	26 Yes	25 No objection	33 No
	12 No	1 Refuse/ Reservations	5 Yes

On only one application did the HSE recommend refusal but a total of 5 applications have in fact been refused by the authority on hazard grounds. These refusals involved a superstore and residential development amounting to a population increase of 300.

Zone 6

This zone surrounds an isolated village which had two major hazards established very close to it in the 1960s, when little consideration of safety was taken. Significant extensions to the site after 1972 were consulted on with the HSE, who approved the developments stating that they would in fact result in a reduction in risk and despite some local concern the applications were approved.

Surrounding significant applications have been relatively minor consisting of residential infill amounting to a population increase of 60, and an extension and temporary classrooms at the village primary school. The majority of these applications have been consulted on and HSE advice has on only one occasion recommended refusal.

Assessment

Consultation in this authority again shows a fairly distinct pattern over time. Figure 3 shows the balance of consultation and non consultation for surrounding development. Over the period 1974-79 there is a somewhat haphazard pattern of consultation, with no obvious criteria for selection, but once the 2 km zones have been introduced the level of consultation increases and becomes more consistent. However from 1981-83 non-consultation on certain applications again

begins to appear. This can be explained by the introduction of detailed zoning of HSE recommended land use restrictions around both major hazard installations, which reduces the area for consultation to within 1 km and potentially makes consultation on the majority of applications unnecessary. The authority has however remained cautious and continues to consult where there is any doubt over the advice likely to be given.

As far as refusing planning applications on hazard grounds is concerned the authority has restricted development without HSE recommendation on successive occasions, as well as following refusal advice as early as 1974. An examination of refused applications reveals the factors that have influenced this unexpected pattern of decision making.

An application for a large superstore in 1974 was located only 500 m from the zone⁵ major hazard in the middle of an area otherwise undeveloped. The HSE tentatively recommended refusal, a view supported by local parish councils, and the application was refused on various grounds including proximity to the major hazard.

In the following year an outline residential application was also refused on hazard grounds at a site beyond that of the superstore, but this time without the support of the HSE who registered no objections. The opinions of parish councils and those of the authority itself, combined with the recent Flixborough incident, would seem to have determined this refusal on only hazard grounds.

Thirdly an application in 1981 to extend the nearby industrial area towards the major hazard site was refused on several grounds including the need to maintain an undeveloped area around the hazardous plant. The HSE did not object to the development but the chemical firm itself expressed concern over the encroachment towards its site and would seem to have strongly influenced the refusal decision.

The further two applications refused, involved outline residential development at the village within zone⁵. The first in 1976 for 30 houses was not objected to by the HSE but they commented that additional housing could limit the future development of nearby land allocated for hazardous industrial uses. The application went to appeal and the authority's case for refusal on the grounds of population increase near a hazardous site and the prejudicial effect on the nearby land was upheld.

The second of these residential applications in 1979 was located further away from the site and the HSE again did not object. However there was substantial local opposition to the proposal both from the parish council and individual members of the local public on the grounds that it represented an increased population in the vicinity of the major hazard. The application was consequently refused.

3. The Consultation Process

The examination of the past practice of consultation in the three authorities has

shown considerable variation in the development that has been consulted on both between authorities and over time. This reflects both the evolution of knowledge, organisation and concern over the past ten years in the whole hazard field and the authority-specific influences on the level of awareness and concern over hazardous installations considered earlier. Several particular issues also warrant discussion.

3.1 The adequacy of selection guidance

In selecting applications for consultation planning authorities have had to balance between that guidance provided by central government and the definition of their own criteria for consultation. Central guidance has progressed from the pragmatic circular 1/72, to the stopgap 2 km rule and the detailed graded criteria now being given under the Notification Regulations. The different reactions to this guidance and the definition of additional criteria in the three case study authorities indicates the leeway available and the inconsistencies that have occurred.

The early reaction to circular 1/72 contrasted between Authority A who did very little, and Authority C who were consulting on and refusing surrounding developments as early as 1974. The 2 km consultation zones were used (at least in theory) by all three authorities but applied with varying strictness, according to their own perception of hazard extent. Defining the significant size of surrounding development within the 2 km zone (where little central guidance was given) proved especially problematical for Authority A and led to inaction; Authorities B and C varied their definitions over time, with the latter at times sending nearly all applications whatever their size to the HSE before finding a 'happy medium'.

In response to particular events and only after some HSE reluctance, Authorities A and C had their 2 km zones reduced in size and graded criteria for significant surrounding development introduced. Both authorities found this increased guidance of use, with the result in area C that fewer applications were being sent to the HSE. Concrete land use restrictions and housing lines have also now been applied in zones 5 and 6, indicating clearly where the HSE will approve or object to particular types of development. Here even less consultation is required and more applications can be dealt with by the HSE area office. These recent trends in HSE advice are now being more generally applied under the Notification Regulations although detailed installation-specific guidance on zones for consultation or particular land uses are to be only progressively introduced (Barrell and Scott, 1982). Such advice would seem to have been generally welcomed as a significant improvement on the unsatisfactory combination of circular 1/72 and the 2 km zones (Major Hazards Working Group 1982).

A few reservations should however be noted:

1. Until strong planning control is introduced over the intensification of hazard, the size of consultation zones (now related to quantity and nature of material stored) may vary over time quite markedly. Development may not be

consulted on as it is outside a 300 m zone and a month later suddenly become included in a 1 km zone as a consequence of the installation introducing new hazardous materials on site.

2. The problem of the accumulation of residential developments under the significant size, adding up in total to a large population increase, remains.

3. Concrete land use zoning may only be easily incorporated in certain situations; for example where land is already relatively empty, there are few pressures for new development and they fit or can be fitted into current or proposed forward planning documents. In zone 1 and 2 of Authority A, land use zoning with reference to hazard would have been of little use with dense existing development around the site and continued development pressures and precedents within both zones.

3.2 Internal Organisation

The experience of Authority A would tend to indicate that the organisation of the consultation selection procedure within the planning department is important in achieving consistent and rigorous consultation; leaving the decision to individual case officers may result in inconsistency and mistakes. An efficient procedure may exhibit the following features:

1. The application is checked to see if it falls within consultation criteria by one specified person, as soon as it arrives at the planning department.
2. Consultation criteria are defined clearly and agreed with the HSE, and
3. The HSE are consulted as soon as possible during the application processing period. Where appropriate firms should be encouraged to consult the HSE before submitting applications at hazardous sites. (Where departments are 'computerised' it may be possible to identify applications within consultation zones using a spatial search facility).

All three case study authorities had, by the end of 1982, organised a selection procedure which would seem to be working efficiently and consistently. To a certain extent achieving this state of affairs has relied on past experience and the individual expertise of particular planning officers. Authorities introduced to hazardous installations for the first time under the Notification Regulations may not have the benefit of such experience and problems encountered in the past may therefore occur again.

3.3 Delay

One particular problem which has plagued the consultation process in the past and led to considerable disquiet amongst planners, is the time taken for the HSE to respond to consultations. Any delay in determining planning applications can clog up the planning system and cause problems for developers with constrictive investment

and construction timetables. The pressure on planning departments to speed up the processing of planning applications has been substantial over the last decade, so clearly consultations taking over the recommended period of 28 days have been a particular source of irritation and concern (Wood and Lawrence 1980, Hankey 1980).

Response times in the case study authorities were analysed and the following results obtained:

Development	Measurement (days)	Authority A	Authority B	Authority C
Major Hazard	Delay Range	7-93	5-507	7-111
	Average	34	141	46
Surrounding Development	Delay Range	6-41	2-347	5-240
	Average	19	73.5	38

Several points should be noted.

1. In some cases, response times have been extremely long (over a year) but these are exceptional, involving problems with the supply of information between parties or the need for changes in development proposals before HSE approval could be given.
2. The average response times for major hazard applications are consistently higher than for surrounding development indicating the often greater complexity of such applications and the more frequent need for referral to the central hazards assessment unit.
3. Five out of six of the average response times are above the recommended 28 days and many responses took longer than the eight weeks normally allowed for the determination of the whole planning application. This is clearly unsatisfactory from a planning point of view and has led to successive complaints from developers, representations to local and central HSE and appeals to local government organisations. On particular applications such as the nursery in Zone 3, HSE delay has proved to be especially significant.

There seems to have been a significant improvement in response over the past few years. Figure 4 shows the yearly average response times for consultations on surrounding development. After a peak or bottleneck around 1978/79 delay has dropped off markedly and is now within the region of acceptability for planning purposes. In the case of major hazard developments, long response times are still being experienced but these would seem to be inevitable given the nature of the assessment which must be undertaken and the level of resources available to the HSE.

With the introduction of the new notifiable sites this year - a six or seven fold increase on the number of major hazard sites - the system may again become overloaded and delay increase (a concern also expressed by the planning associations; Major Hazards Working Group 1982). The more restrictive definition of significant surrounding development should reduce the number of applications sent within each zone but this will probably not compensate for the increased number of zones now in 'official' existence. The HSE would seem to have streamlined their administrative procedures and the increasing delineation of concrete land use restriction zones around hazardous sites, as has been undertaken in Authority C, would seem to ease matters, but at the same time the adequacy of HSE resources to efficiently handle the new regulations has also been questioned (House of Commons, 1982). Only time will tell whether delay again becomes a major cause for complaint.

3.4 The Consequences of Not Consulting

The description of the case study authorities' experience of consultation shows how matters have improved over the last ten years. This period cannot however just be written off lightly, as one of learning and development. There are consequences arising from the lack of consultation with the HSE in the past, which may make land use rationalisation more difficult in the future and have potentially serious implications for some planning authorities.

Firstly there is the development and population increase in the vicinity of major hazards which has taken place without HSE consultation. In Authority A this development has been considerable amounting to a population increase within 1 km of the two sites of approximately 2,800. In Authorities B and C consultation has been more extensive and the development allowed without HSE consideration that much lower. In cases of non-consultation there has usually been little or no consideration of hazard, and development has been allowed and people put at risk, where the HSE may have objected and applications been refused. In terms of the objective of increasing or (at least not worsening) public safety, such a past history and the time that it has taken for matters to improve is disturbing. Furthermore the build up of recent development may set precedents and make the refusal of applications in the future that much more difficult.

Secondly and in addition there is the problem of liability in the event of an accident at a major hazard plant. If the planning authority can be proved to have acted negligently in considering planning applications for development which is affected by such an accident they may become liable. On surrounding developments, the vagueness of central guidance on the need for consultation may make it difficult to prove that not consulting with the HSE was acting negligently. However in the case of development involving major hazard or notifiable quantities of hazardous material where the need for consultation is clear, authorities may become liable if they have not consulted the HSE. This occurred on an application in Authority A, as

described earlier, and in the event of an accident here, affecting surrounding people or property, the authority may well be liable on the grounds of negligence. This if nothing else emphasises the need for planning authorities to organise an efficient consultation procedure.

4. The impact of hazard on land use

The examination of the outcome of planning decisions in the case study authorities showed that in three of the six zones there had been no restriction of development on hazard grounds and the vast majority of applications had not featured hazard as an important issue in their final decisions.

This low level of restriction and hazard involvement can be explained by a combination of four interlocking factors:

1. The lack of consultation with the HSE on many applications (discussed in the previous section)
2. The overwhelming majority of HSE replies of no objection
3. The response in most cases to the HSE reply of no objection, being to take the hazard/risk question as acceptable
4. Where the HSE recommend refusal the planning authority deciding on balance to give permission any way

The general low level of restriction versus development allowed within consultation zones contrasts with fears expressed, when the 2 km consultation zones were first introduced, over the likelihood of large scale land sterilisation and blight. Refusal of planning applications on hazard grounds seem to be in general few and far between.

Where the planning authorities have considered refusing applications on hazard grounds, either because of HSE advice, the pressure of local opinion, or internal policies, many factors can become involved in the decision process. Some of these act as constraints on action taken, whilst others are factors to balance against hazard potential in determining applications. Some issues have been briefly discussed with reference to particular applications in the case study zones and others have been apparent as more general influences on attitudes towards hazard and development restraint. Each factor identified will be considered in turn.

4.1 Forward Planning. Where forward planning has actively incorporated hazard into its general policies and land use allocations, non-conforming planning applications may be avoided from the start and may be relatively easily refused by reference to the forward plan. This is the case in Zone 5 where areas of low and ordinary occupancy industry and low rise housing have been allocated around the major hazard site in a forthcoming local plan. Where however forward plans are old or have not taken any consideration of hazard, land use rationalisation with reference to hazard through development

control may create conflicts with existing land use allocations. The coordination of forward planning and development control policies is therefore of considerable importance but may not be easy especially where notifiable installations have suddenly appeared in recently planned areas.

4.2 Planning Precedents

Closely allied to the above is the way in which planning precedents may serve to obstruct current development restraint. For example in Zone 1 much of the residential development which went ahead after 1977 proved the last phase of a long term housing project and the shops, pub, nursery and community centre were necessary to serve the completed earlier phases. Thus these developments had very strong planning precedents, and in addition two areas of housing already had outline planning permissions so any restraint would have been an enormous step in terms of past policy, economic implications and publicity. It make take many years for such planning precedents and existing permissions to be 'worked out', thwarting attempts to rationalise land use around hazards unless considerable political will is shown and resource implications faced.

4.3 Future plans/expansion of the hazardous installation

This issue has arisen in planning decisions in two different forms:

- a. the extent to which permitting surrounding development may limit the future expansion of the hazardous plant, and
- b. the extent to which future redevelopment on the major hazard site may increase or decrease the risk to surrounding new development

An example of the first of these was outlined in Zone 5 where the potential constraint was felt to be strong enough to limit two residential developments, and of the second, in Zone 3 where future plans to shut down an area of hazardous storage were sufficient reason for the HSE to remove their objection to a housing development nearby. In both situations there is clearly the problem that the future plans of the firm may not be certain and in the long term can easily change. Whether or not future plans can be taken as certain or whether worst case assumptions of future expansion should be accommodated is a difficult decision.

4.4 Compensation

The constraint of compensation arises where development is revoked or discontinued or a purchase notice is served. Neither of the three planning authorities have formally revoked or discontinued planning permissions. In Zone 6 a school is in the process of being moved to a safer site but this is a policy agreed with the county authorities and incurring costs to them but not involving actual compensation. If the school had been private it is questionable whether

relocation could even have been considered.

Purchase notices are difficult to serve successfully and in Zone 4 where application refusal on hazard grounds left the possibility of a purchase notice open, this did not materialise. In this case the potential compensation was relatively low and could be faced by the planning authority, but clearly in many other cases a potential purchase notice would not be acceptable. Although compensation has never been paid on hazard grounds by either of the three authorities it is perceived as a strong constraint, especially in relation to contemplating more radical action to alter existing land use patterns.

4.5 The existing situation and intervening development

The conflict which seems to appear most frequently in planning decisions on hazard for surrounding development, is that between refusing new development and the existence of other development around it and nearer to the hazardous site. This conflict manifests itself in two guises:

- a. The argument in relation to such community facilities as schools and nurseries, that most of the people or children who will attend the facility live in the surrounding housing and are, therefore, no more at risk. Indeed evacuation of a group of children at a school may be easier than their evacuation when dispersed around a housing estate.
- b. The argument that if one development is refused, it implies that all existing development nearer to the hazardous site is equally or more at risk and should consequently also be removed.

Both of these conflicts have occurred repeatedly in the case study authorities. The HSE policy in such situations is that 'the existence of intervening development should not in any way affect the advice about the possible effects of the hazardous activity on proposed developments which may appear to be less at risk than existing ones' (Barrell and Scott 1982). This is a pragmatic policy, designed to prevent deterioration of far from ideal existing land use patterns, but contains an element of double logic or double standards which is difficult to avoid, and is picked up on in the typical arguments described above. For planning committees to take a decision which appears to contain double standards and for many people implies that they are living under an unacceptable risk, may be politically very difficult. This dilemma has led in several of the examples discussed earlier to decisions going against HSE advice.

Clearly the worse the existing land use conflict, the more intervening development will prove a constraint. A useful contrast can be seen in Authority B, where developments were not refused in the middle of long-life housing in Zone 3 but were refused in Zone 4 where the surrounding housing was decaying and expected to have only a short life before clearance.

5. Deciding on Acceptability

With some combination of the factors discussed above, and the more conventional planning considerations such as employment and housing needs, having to be balanced against hazard and risk issues, coming to decisions on applications may be far from simple. On the hazard side the planning committee may have available to consider (a) the advice of the HSE, (b) the safety record of the major hazard firm, (c) local opinion on the acceptability of risk and (d) their own perception of hazard and the relative risks of hazardous industry and other activities. Much of this advice and opinion may be pitched at a very general and imprecise level, risk being very rarely discussed in quantitative terms.

Local opinion may not always be available as a broader input to assessing acceptability. Applications need not be advertised and publicity may be deliberately avoided. When the major hazard was introduced in zone 1 no local opinion was sought although there were several active residents associations in the area. In contrast, in Authority C the automatic consultation with parish councils has led to applications being vigorously opposed on several occasions and development refused. Whether or not an input of local opinion is necessary to make decisions on the highly perceptual concept of acceptable risk is a matter for debate.

Planners own assessment of hazard and risk may at the same time not be well formed. When faced with a hazardous installation which is an accepted feature of the landscape, and has within recent memory caused no problems, it may be very difficult for the planner to visualise the impact an accident could have on the surrounding area or to obtain a "gut reaction" on the likelihood of the incident occurring. On such occasions planners and planning committees are largely dependent on the advice of the HSE. However, on successive occasions in the case study authorities, the extent and detail of advice given on applications has been felt to be inadequate. Requests for further information on, for instance, the exact nature of the

hazard presented, the potential physical impact on people and buildings, the safety precautions that can be taken, or a detailed quantitative assessment of risk, have experienced varying success. On most occasions local HSE inspectors have attempted to co-operate and arrange meetings with the planning department, but the limited information often at their disposal has meant that matters have not improved and planners have come away dissatisfied. On the occasions that planners have managed to obtain a more detailed (although by other standards basic) assessment from the M.H.A.U. as in Authority C, the information made available has not only aided the determination of individual decisions, but also raised the general level of confidence in HSE advice.

However, even if extensive advice on hazard and risk is available, this does not necessarily ease the balancing process. Weighing the threat to peoples lives against more conventional planning factors, in a situation of inevitable uncertainty, is an emotive, complex and unenviable task.

6. Conclusion

This examination of major hazards and development control has come at a time when ironically "major hazards" no longer exist. Now known as notifiable installations and joined by 2,500 or so sites of lesser size, it may also be tempting to sweep aside the problems and difficulties experienced under the old system as new legislation and procedures are gradually ushered in. The case study authorities have provided some justification for such a view; consultation guidance and procedures have improved over time and the HSE are perceived as more efficient and forthcoming. Planners would seem to be more aware of hazard and its complexities and the HSE more attuned to the operation and needs of the development control process.

However, the case study authorities have also revealed far deeper conflicts and constraints in making decisions on planning applications which will inevitably continue in the future, and may frustrate attempts to

improve land use conflicts under the "notifiable" system. Additionally it is not yet clear to what extent the consultation process is continuing to operate efficiently under the new regulations. Several areas of potential difficulty have been identified and the worsening of "old" problems such as delay may occur again. Furthermore, as discussed in section 3.4 it is not possible to write off the past ten years of hazard and development control as one of merely learning and improvement. Opportunities for increasing public safety may have been missed whilst legislation has sat in the "pending file" and decisions made with inadequate information and under unreasonable constraints.

As far as the overall goal of reducing the number of people at risk is concerned it is clear from past experience that this objective must be tempered by the conflicts (in particular the existing situation) which operate on the ground. The variation in level of development restraint in the case study authorities would seem to indicate that action is taken largely on a marginal basis i.e. applications are refused only where there are few adverse effects through doing so. There is a strong case for some constraints, in particular compensation, to be loosened so that, where demanded or felt necessary, stronger action may be taken.

Whether the overall level at which development restraint has so far been set, both by the HSE and individual authorities is adequate is difficult to assess. Unfortunately the only true test will come in the aftermath of a serious accident at a hazardous plant.

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Appendix

In the process of selecting applications at and around hazardous sites, the following criteria of significance were used:

1. Major hazard site

All applications at the major hazard site, beyond the very minor. This would include redevelopment of process plant, additional storage capacity and new office buildings but not applications for fencing, advertisements, single storey temporary buildings and so on.

2. Surrounding zone

Here there are four categories of significant applications;

(a) Residential - all residential development larger than 2 dwellings. No extensions or alterations.

(b) Industrial - all industrial and warehousing developments, redevelopments and large extensions excluding small individual warehouses and temporary prefabs. Any development itself involving the use of hazardous materials is also included.

(c) Community facilities - any development of or extension to schools, hospitals, nurseries, churches, community centres and so on, again excluding the very minor.

(d) Retail - all large retail developments such as supermarkets and D.I.Y. superstores.





