

SOUTH YORKSHIRE LOCAL RESILIENCE FORUM

15 January 2008

FINAL REPORT ON THE FLOODING OF SUMMER 2007

Contents

	<u>Page(s)</u>
1. Introduction	2
2. Summary of Events	2-3
3. Positive Aspects	3-4
4. Key Improvement Issues Identified	
4.1 Command Structures	5-6
4.2 Gold Command Location, Facilities And Procedures	6
4.3 Involvement Of Category 2 Responders	7
4.4 Communications Technology	7-8
4.5 Personnel Resources	8
4.6 Flood And Inundation Mechanics, Warning, Prevention, Defence And Planning	9-10
4.7 Public Relations	10-11
4.8 Community Issues	11
5. Key Recommendations	12-13

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1. Introduction

- 1.1 This report has been compiled from various sources including comments made at the NPIA-facilitated de-briefing session held on 6 August 2007. The report is offered without prejudice purely in the interests of improving emergency response arrangements and procedures. Although various matters are highlighted and recommendations made for future action, no criticism of the conduct of individuals or of organisations is either implied or intended and none should therefore be inferred.
- 1.2 This report deals solely with themes affecting all organisations and multi-agency matters within South Yorkshire. The purpose of this report is to assist in enabling responding organisations to work together better in future similar events. Each organisation involved in the events of 2007 is conducting its own review of internal matters and procedures. Other reviews are also being conducted at national level.

2. Summary Of Events

- 2.1 June 2007 was the wettest June suffered by the Yorkshire area since 1882. In South Yorkshire, there were two spells of exceptionally heavy rainfall - on 13 and 14 June, a total of 118mm of rain was recorded at Weston Park Museum in Sheffield; and on 24 and 25 June, a total of 88mm was recorded.
- 2.2 The rainfall on 13 and 14 June resulted in localised flooding on 15 and 16 June, leading to the evacuation of a number of properties. However no major rivers overtopped and events were dealt with by local Silver-level commanders. Some idea of the scale of the problem can be gauged by the fact that Friday 15 June 2007 was the busiest day in the history of South Yorkshire Fire & Rescue. However, ten days later this was surpassed.
- 2.3 The ground had been saturated by the rains of early June. Reservoirs and rivers were full. Although this is not unusual for rivers, it is, at this time of year, unusual for reservoirs to be full. On Sunday 24 June, the Meteorological Office and the Environment Agency started issuing warnings relating to a threat of heavy rain and possible flooding in South Yorkshire. At around 7.00am on Monday 25 June, the first flooding incidents were reported to the emergency services and local authorities.
- 2.4 Severe flooding was observed in Barnsley and Sheffield during the morning and some evacuation of flooded properties commenced. Other flooding of properties in Rotherham and Doncaster was also reported. At this time, flooding was primarily from surface run-off water with which drainage systems were unable to cope.
- 2.5 During the afternoon of Monday 25 June, the River Don overtopped in central Sheffield and flooding, on a scale not seen since the 1864 Dale Dyke Dam burst, affected the area from Kelham Island downstream to Meadowhall and into Rotherham town centre. Other watercourses were also much higher than normal. Unfortunately at this time two people lost their lives. A major factory fire was triggered in the Meadowhall area by flood waters impinging on a hot furnace and an electricity sub-station in north Sheffield was flooded resulting in widespread loss of power supplies and the imposition of rota power cuts, to facilitate reconnection.

- 2.6 Late on the evening of Monday 25 June, it was observed that the dam at Ulley Reservoir, owned by Rotherham MBC and operated as a leisure facility, was in danger of collapse with a consequent threat to critical infrastructure including electricity and gas power supplies and a sewage works. A major pumping operation was put in place to reduce the water level and emergency civil engineering works undertaken to reinforce the dam wall and reduce the threat from the spillway. Precautionary evacuations and road closures, including that of part of the M1 motorway, were carried out.
- 2.7 On Tuesday 26 June, areas along the River Rother at Catcliffe started flooding. Later, considerable flooding started occurring further down the Don at Sprotbrough and Bentley and in the areas where the Ea Beck and River Went join the Don. A threat was identified to power supplies at a substation at Thorpe Marsh and efforts made to reinforce flood defences accordingly. These were successful.
- 2.8 Floodwater then collected in the Toll Bar area, which is below both normal river level and mean sea level and normally drained by pumping stations. Due to the difficulties of draining this area, the area remained flooded for some two weeks.
- 2.9 Overall, some 4,000 domestic properties and some 1,600 businesses were flooded, according to Government figures. (It should be noted however that precise numbers of flooded properties are very difficult to determine with certainty.) For the first time since it opened, Meadowhall was closed other than for Christmas Day or Easter Sunday. The M1 motorway was shut for three days. The pumping operations involved the largest ever deployment of the Fire and Rescue Services' High Volume Pumps.

3. Positive Aspects

- 3.1 Although the floods were perhaps the largest and most widespread destructive event to affect South Yorkshire since the Second World War, there were many positive aspects of the response by public authorities that should be recorded.
- 3.2 First and foremost, the numbers of fatalities and casualties caused directly by the flooding was very low. Prompt action by responding organisations did much to minimise casualties and loss of life. There were very few hospitalisations as a direct result of flooding and no major or long-term disruption to health services generally. Despite concerns about the contamination of floodwater with sewage and industrial chemicals, there has been no significant impact on public health.
- 3.3 Secondly, although large numbers of people had to be evacuated from both homes and business premises, these were all dealt with within the county and usually within the local area. There was no need for mass evacuation of South Yorkshire residents outside of the county. Although a number of people will be in temporary accommodation for a considerable time, this has been provided within the areas affected and there has thus been no large dislocation of communities to areas outside of the county - as has happened elsewhere following large-scale flooding.
- 3.4 A large number of people, estimated at around 1,400, were stranded overnight in Sheffield city centre by the closure of the railway station and the cessation of bus and train services. These people were accommodated and fed by the City Council and provided with transport to their destinations within 24 hours of the initial flooding. Many have since praised the Council's organisation that enabled this.

- 3.5 A county-wide multi-agency command structure was quickly established and proved effective in managing rapidly unfolding events, such as the potential collapse of the dam at Ulley Reservoir. The structure remained in place for some time and enabled a co-ordinated response to the threat of further disruption from expected further heavy rain (which in the event did not occur) on the weekend of 30 June and 1 July. It also facilitated a relatively smooth transition to the management of the recovery operation.
- 3.6 The quick provision of military assets, particularly the unprecedented deployment of three Search and Rescue (SAR) helicopters to operate over a major UK city, greatly assisted the overall response and underlined the value of long-standing arrangements for military-civilian co-operation. Other operations, such as the use of a Chinook helicopter to move flood defence materials and the provision of boats were equally successful.
- 3.7 The extreme demands upon the emergency services, and particularly on the Fire and Rescue Service, proved the worth of recent national initiatives regarding the provision of High Volume Pumps and other equipment. The rapid deployment of such national resources was extremely welcome and provided a previously unavailable response to such large-scale flooding.
- 3.8 Many organisations' response and business continuity planning was tested in many different ways - for example the need for the Rotherham Silver Command to redeploy to alternative premises. The success of the overall response proved the value of the investment of time, effort and money that has been put into emergency planning in South Yorkshire for many years. Experience gained in numerous exercises and training sessions proved invaluable to those called on to lead their communities through this challenging period.

4. Key Improvement Issues Identified

4.1 Command Structures

- 4.1.1 A county-wide command structure consisting of a Police-led Gold Command, district Silver Commands, Incident Commands and individual organisations' command support groups was set up on Monday 25 June 2007.
- 4.1.2 The Police activated a County Gold Command (sometimes referred to as a Strategic Co-ordinating Group - SCG) at around 14.30 by making telephone contact with organisations and asking for a representative to attend the designated Gold Command facility at Atlas Court. Some confusion arose between and within LRF partner organisations as to the need to attend this group. This resulted in some organisations, particularly some local authorities, not being present during the early stages of the event. The absence of these partners had a consequent effect on the deployment of military resources, as these were redeployed after initial events in Sheffield had been resolved when, with a more complete picture of the situation, they might not have been.
- 4.1.3 The basis on which people were invited to attend the Gold Command was not wholly clear. Nor was the basis on which Gold Command had been initiated or on whose authority it had been initiated. Some organisations, including the health sector and also Category 2 responders (as defined in the Civil Contingencies Act 2004) offered to attend but were turned down, only to be asked later. Others were not invited, but afterwards indicated that they could have provided useful input.
- 4.1.4 Silver Commands were established in the four districts by district Police commanders operating in conjunction with local authority officers. These were established independently as the need arose and prior to the establishment of a Gold Command. At the time of these Commands being established, several organisations declared a "Major Incident". No declaration of a county-wide "Major Incident" was communicated to all LRF partner organisations and, for some time, some organisations were unsure as to (a) whether a county-wide "Major Incident" had been declared; (b) whether this declaration affected themselves; and (c) what action should have been taken as a result.
- 4.1.5 A feature of the four separate district Silver Commands was the differing nature of the responsibilities and authorities of personnel involved. Police and local authority officers had operational command of their services' resources, whereas, for example, SYFR officers were deployed to act only as liaison officers, as operational control of SYFR resources remained with SYFR Control and local incident commanders.
- 4.1.6 Representatives of other organisations attended both Gold and Silver Commands, leading to confusion regarding information and responsibilities. (See also 4.3 below.) A Silver Support function had previously been identified by some organisations but was not understood by others. Previously also a Gold Support function, at which all organisations would be represented, had been identified in a multi-agency exercise held in 2004, but this was not implemented. In the event, a support function was set up at Atlas Court, but its place in the command structure was not clear. In addition, SYFR set up their own Command Operations Room, which was referred to on occasion as Silver Support and other organisations also set up similar bodies, leading to a multiplicity of "support cells".
- 4.1.7 The multiplicity of support and command groups led to confusion about information flows. In particular, lower level groups perceived that information was going into Gold Command, but that Gold Command was not sharing information to the same extent.

In turn, some technical or background information, such as weather forecasts, which did come out of Gold Command was often out-of-date by the time it reached lower level groups and also easily contradictable by publicly-accessible information sources such as websites.

- 4.1.8 Information was not handled in a consistent manner across all organisations. No consistent filtering, formatting or logging was applied to information, so that it was difficult for recipients to assess the source and reliability of the information.
- 4.1.9 There were occasions when confusion about command protocols and the urgency of the situation resulted in command protocols being breached or ignored. As well as the danger of putting individual personnel at risk, there was a danger that the response to a higher-priority need, as determined by the relevant command groups, might have been jeopardised. In addition, higher commands might then not have had accurate information about the location or availability of resources or personnel.

Summary

- The basis on which Gold Command was established was unclear.
- Elements of the command structure were confusing to those involved.
- There was confusion about whether a "Major Incident" had been declared by each organisation - and what this signified for other organisations.
- There was some confusion between liaison and command functions, particularly at Silver level.
- There was confusion as to where external agencies should fit.
- The relationship of Gold Command to other levels of command was problematic, in that communications were inconsistent and consequent information flows were confusing.
- Breaches of command protocols jeopardised the overall response.

4.2 Gold Command Location, Facilities And Procedures

- 4.2.1 Gold Command was established by South Yorkshire Police at Atlas Court, Sheffield. This location suffered the disadvantage of being directly affected by the flooding. Catering and other accommodation were not ideal for prolonged operations.
- 4.2.2 People attending Gold Command had not been briefed as to the equipment and facilities that would be available to them. There were problems of access by non-Police personnel to Police IT facilities and communications. Other equipment brought in by Gold officers could not be connected or operated satisfactorily. There was difficulty therefore in communicating information and decisions from Gold Command to the respective partner agencies' own control systems.
- 4.2.3 Although there had been several exercises involving Gold-level activities, it was evident that levels of training and knowledge were not consistent amongst those instructed to attend the Gold Command. These combined with the lack of dedicated equipment and resources contributed to confusion and delay in decision-making and implementation.

Summary

- Premises used for Gold Command were neither designed nor suitably equipped for the purpose.
- The varying levels of prior training experienced by those attending Gold Command were also reflected in the ease with which those personnel operated.

4.3 Involvement Of Category 2 Responders

- 4.3.1 Because of the widespread nature of the emergency, there was call for representation at command groups from many organisations, including "Category 2 Responders" as designated under the Civil Contingencies Act 2004.
- 4.3.2 It was often not clear to what extent certain Category 2 Responders (eg utilities) could speak for other related organisations. The fragmented nature of the post-privatisation industries caused problems in defining responsibilities. It was not clear whether representatives of Category 2 Responders were sufficiently trained or prepared to deal with issues placed with them. Category 2 Responders were less likely to have been involved beforehand in detailed planning and exercising.
- 4.3.3 The relationship between Category 1 and Category 2 Responders as laid down in the Act is not statutorily enforceable and is subject to a willingness, particularly on the part of Category 2 Responders, to devote resources and provide information. The resulting deficiencies in prior engagement caused problems in response-management.
- 4.3.4 Some Category 2 Responders were not notified soon enough of their need to be present at command groups - equally some were not pro-active in putting themselves forward. There was a noticeable lack of knowledge of the links and dependencies between various organisations and their assets. For instance, electricity providers were often unaware of key resources dependent on particular grids. Some utility companies and highway authorities were unaware of the location of some critical assets at particularly vulnerable locations, such as major gas and electricity mains under bridges where they were vulnerable to flood damage.
- 4.3.5 At several key infrastructure locations, such as Thorpe Marsh, the responsible utility was wholly dependent on an emergency response to protect a major asset. At other locations, asset owners were unaware of the potential danger from nearby hazards, for example, the threat to Sheffield's electricity supply from a collapse of the dam at Ulley Reservoir. They were thus unable to communicate timely and detailed forecasts of the potential effects of ongoing events to other agencies with response functions.

Summary

- The fragmented nature of utilities provision caused problems.
- A prior lack of information-sharing and liaison between Category 2 Responders and Category 1 Responders caused confusion and delays in implementing response strategies.
- The unrealised reliance of utilities upon other organisations caused problems.

4.4 Communications Technology

- 4.4.1 Throughout the flooding period, communications systems were overloaded. A number of expedients were adopted to overcome these problems, many of which created further issues.
- 4.4.2 Many organisations' officers relied on personal or issued mobile telephones. This created inconsistencies and bypasses in command structures. In particular, there was little control of access to mobile telephone numbers, resulting in some officers "freelancing" by responding to local requests for assistance without reference to

higher commands. Equally, there were attempts, often for local political reasons, to bypass established command structures using mobile telephony.

- 4.4.3 Some organisations attempted to use e-mail. However, the use of personal e-mail addresses meant that relieving personnel could not access previous correspondence. The use of e-mail also led to an indiscriminate "scattergun" approach to the promulgation of and requests for information. This led to unnecessary confusion and duplication. The use of e-mailed attachments also caused problems due to differing software installation and firewall criteria.
- 4.4.4 The Police Airwave radio system proved resilient for Police purposes. The issue of Police Airwave radios to partner organisations offered some limited external support, but also raised training, procedural and security issues.
- 4.4.5 The use of differing systems and inconsistencies in usages and procedures also led to a loss of logging and recording of calls and information. Although in some cases technological retrieval methods can be used to obtain data for review, real-time recording and display of information, particularly that created verbally, was not always carried out, or even possible, leading to differing "pictures" being held of situations, by controls and command groups and even by officers at the same location.

Summary

- Existing and available communications systems were overloaded.
- The use of differing methods of alternative communications caused their own problems.
- The lack of an overall comprehensive recording and information retrieval and display system led to ambiguities.

4.5 Personnel Resources

- 4.5.1 All organisations' management structures and resources came under intense pressure. It was clear that many organisations lacked sufficient numbers of suitably trained and experienced officers to staff all the required command groups in such a way as not to create concerns about health, safety and welfare. Varying patterns of shift working were implemented with varying degrees of efficiency, but creating problems of continuity and consistency of decision making.
- 4.5.2 A particular success was the early realisation of the scale of the emergency by many organisations, which sent staff home during the Monday to enable the instigation of a relief shift later on on the Monday evening. Equally however, some organisations did not grasp the need to instigate shift working for certain personnel until the strain of working long shifts had become obvious.
- 4.5.3 There were clear concerns across a number of organisations about health and safety issues, such as the issuing of Personal Protective Equipment. As no across-the-board guidance was issued, staff from partner agencies at the same incidents were often working and equipped to different standards.

Summary

- The incidents placed great strain on personnel resources.
- Implementation of shift working patterns was inconsistent.
- Health, safety and welfare issues were often dealt with in a non-systematic and reactive way.

4.6 Flood And Inundation Mechanics, Warning, Prevention, Defence And Planning

- 4.6.1 It was clear that the perception of flood risk varied amongst both organisations and individuals. Information, where available, was capable of varying interpretations.
- 4.6.2 Some members of the public did not take sufficient responsibility for protecting themselves and their property and attempted to use the emergency services or local authorities for minor matters when those organisations were under severe pressure.
- 4.6.3 There was a general lack of understanding of the impact of previous weather on such factors as ground saturation and the effects of this combined with the relatively steep gradients in river catchment areas, particularly in Sheffield and Barnsley. Understanding the resulting quick feed of surface water into watercourses and rivers and the time of water travel through the river catchment is essential to the identification and planning of flood management systems.
- 4.6.4 There was concern about the consistency of warnings issued from the Meteorological Office and the Environment Agency and information programmes to the public and businesses. There was a perception that the Environment Agency needed to better understand its role in the warning and informing process and to indicate more clearly what response it expected in relation to its warnings from Category 1 and 2 responders. There were no clearly identified trigger points for the activation and initiation of other agencies' response plans and command structures. The use of probability terminology in flood prediction was confusing and inconsistently understood and interpreted.
- 4.6.5 There was a clear need for more accurate and timely warning information. For example, a "Severe Flood Warning" was issued for Kelham Island only after the area had been inundated. Such warnings were not easily understood and difficult for individuals to convert into understandable terms - eg: *"flooding is likely to extend to x area or y height up key buildings and walls"*. Coupled with this is the fact that, due to the speed of onset of flooding, particularly in Sheffield, the distinction between "Flood Warning" and "Severe Flood Warning" was difficult to justify.
- 4.6.6 There was a lack of the locally-based telemetry required to provide more focused information, particularly in the Sheffield area and a lack of co-operation between the Environment Agency and other agencies, such as water and drainage companies, in order to make better use of existing non-EA telemetry. Environment Agency plans for a Sheffield Catchment Flood Management Plan were originally scheduled for completion in December 2008. This is now delayed and it will be Spring 2009 before all options are considered. It is therefore unlikely that any major EA scheme for Sheffield would commence for at least four years and there is little chance of implementation before 2013-14 at the earliest.
- 4.6.7 The terminology used was confusing. Reference was made to "flash flooding", "pluvial flooding" (ie from rainfall) and "fluvial flooding" (ie from rivers). To some extent, the technical differences in terminology relating to floodwater do not matter to people flooded out. The impact is still as devastating whether it is surface water, water from drains or water from rivers. However, a number of agencies have differing responsibilities for predicting and dealing with the different types of event. In particular, the responsibility for dealing with "flash flooding" (ie rapid-onset flooding on minor watercourses and from surface water caused by heavy rain) is divided at present. A number of different bodies - the Environment Agency, drainage boards, water companies, highway authorities and landowners - can all be said to be partially, but neither wholly nor principally responsible.

- 4.6.8 Equally, the responsibility for the maintenance of minor watercourses is also unclear. The Environment Agency is responsible for "main rivers" as defined by the Government, but not for the streams feeding into them.
- 4.6.9 Where clear responsibility for flood defences existed, it was not always clear to other organisations what these were designed to do or how they were intended to work. The use of washlands to absorb and collect water was not always appreciated as an intentional strategy. Where mechanically-operated defences existed, these were not always fully resilient and capable of operation under adverse circumstances. In particular, one flood defence gate failed to operate because of a power supply problem due to the flooding.
- 4.6.10 Greater clarity was needed on the responsibility for dam and reservoir overtopping plans and on who has a duty to warn and inform. Allied to this was a need for clarification on the responsibility for dams on reservoirs in recreational use (such as that at Ulley Reservoir). There were considerable delays in obtaining and circulating detailed information to partner agencies, particularly those most likely to be adversely affected.

Summary

- Widespread variations in the understanding of flood-risks and the necessary precautions that should be taken.
- Concern about agencies' and the public's response to differing levels of flood alert and warning. (The Environment Agency has since concurred with this.)
- The use of probability terminology which is not widely understood and which is capable of differing interpretations.
- The purpose and capabilities of existing flood defences are not widely understood and the defences themselves can suffer secondary failure as a result of, for example, power failures.
- Information about the extent and effect of flood inundation from dams, particularly consequential and secondary effects, caused, for example by inundation of power stations, is difficult to access in an emergency.
- The threat from breaches in smaller dam structures, including those below the limit covered by the Reservoirs Act 1975, is not widely understood.

4.7 Public Relations

- 4.7.1 Communications with the public presented several issues. Although a South Yorkshire Media Plan exists, at no time was this formally implemented.
- 4.7.2 The issuing of media releases by the responding organisations presented major problems in that it was not possible, as the Media Plan had previously envisaged, for all organisations to have sight of all releases prior to publication. Although media relations were in theory led by the Police, some organisations resorted to issuing their own press information as delays in the approval of joint statements arose. This caused tension between organisations and delays in the promulgation of important advice to the public.
- 4.7.3 The differing protocols under which various organisations operate led to difficulties of co-ordination. Several organisations have authorised relatively junior operational staff to talk to the media on particular operational issues. In other organisations, only a single, named, senior individual may speak to the press. This disparity also caused

tensions and delays. Certain statements issued as a result were not helpful to the overall response.

Summary

- The South Yorkshire Media Plan was not implemented.
- Different media protocols caused tensions between agencies.
- Delays resulted in the promulgation of important information.

4.8 Community Issues

- 4.8.1 The impact of the flooding on communities and the local economy was massive, widespread and very varied. Differing perceptions of the effects and immediate responses contributed to difficulties in managing the longer term impact on the community.
- 4.8.2 Some members of the public perceived differences in the financial support made available to insured and non-insured victims and in the services available to council tenants as against those available to owner-occupiers. Communities in some areas felt isolated and neglected as the main focus of attention went to particular areas. There were also rumours circulated that various organisations had deliberately allowed flooding of particular areas, in order to preserve higher value assets or serve some higher and undisclosed purpose.
- 4.8.3 A further cause of discontent was the allocation of VIP visits and other activities. An apparent focus on particular high profile cases left people in some areas feeling ignored or bypassed. In addition, differing progress with resolving incidents also caused problems - this was particularly the case between the western and eastern halves of the county, as floodwaters in Barnsley and Sheffield quickly subsided enabling a swift transition to recovery working, whereas areas of Doncaster, and to some extent Rotherham, remained in response operations for much longer as the water took longer to drain away.
- 4.8.4 The widespread establishment of Assistance Centres by local authorities and the representation of all agencies in the community were generally regarded as good. However, greater clarity was needed regarding the identification and availability of information on "vulnerable people", as referred to in the Civil Contingencies Act 2004.
- 4.8.5 The economic impact of the flooding was much greater than had previously been envisaged when comparing flood risks with other potential hazards. This is not just related to the short-term closure of directly-affected businesses, but also encompasses a wider impact on local traders and suppliers and the longer-term impact of resultant redundancies - direct and indirect - on both businesses and the community. A key issue following the flooding was to maintain business confidence and counteract negative publicity, particularly amongst distant customers who can switch contracts to non-affected areas.

Summary

- Community attitudes to events were coloured by perceptions of differing treatment.
- Where assistance was provided, it was generally well-received.
- There were problems identifying people who were "vulnerable".
- The economic impact was much greater than had been envisaged in planning.

5. Key Recommendations

(These recommendations will be allocated by the SY LRF to the body/ies best placed to implement them.)

5.1 Command Structures

- The basis and method(s) for activating a Gold Command should be clearly laid out.
- The roles and responsibilities of Silver Command, Support and Liaison officers and groups should be clearly agreed so that all agencies understand them.
- The way that Category 2 Responders and organisations such as the Meteorological Office are incorporated in command groups should be clarified.
- The significance and implications of the declaration of a "Major Incident" should be clarified.
- Further training regarding command structures should be undertaken by all organisations.
- Protocols for the consistent filtering, formatting, logging and promulgation of information should be agreed across all organisations.

5.2 Gold Command

- South Yorkshire LRF should designate agreed premises for use as a Gold Command and ensure that these premises are resilient against expected threats.
- The premises designated for Gold Command should be equipped with appropriate IT and communications equipment for the use of Gold Command.
- Gold Command premises should have conference and welfare provision.
- Those officers likely to be required to attend Gold Command should have training.
- Gold Command should incorporate Gold Support facilities, particularly for scientific and technical advice and all organisations should provide appropriate staff officers to assist their representative at Gold Command.

5.3 Involvement Of Category 2 Responders

- The position of individual Category 2 Responders with respect to representing their industries should be clarified and standardised across the UK.
- Representation should be made to appropriate agencies, regulatory bodies and the Government with regard to strengthening the liaison and information-sharing duties of Category 2 Responders under the Civil Contingencies Act 2004.
- Category 2 Responders should ensure that those sent to Silver and Gold Commands are capable of responding to the demands placed on them.

5.4 Communications Technology

- Protocols for the use of e-mail, mobile telephones and Police Airwave systems should be standardised and agreed across all organisations.

5.5 Personnel Resources

- All organisations should ensure that they have sufficient numbers of suitably trained and experienced officers to staff all the required command groups in such a way as not to create concerns about health, safety and welfare.
- All organisations should agree common health and safety protocols for staff working in dangerous conditions, such as in or near water, and common standards of Personal Protective Equipment.

5.6 Flood And Inundation Defences And Planning

- The capabilities and limitations of flood defences and the nature and extent of flood risks should be clarified and communicated in a more understandable manner, both to the public and to organisations.
- Further telemetry should be installed, and better use made of existing telemetry, in areas known to be at risk of flooding.
- Information about the extent and effect of flood inundation from dams, particularly consequential and secondary effects, caused, for example by inundation of power stations and the threat from breaches in smaller dam structures should be more readily available.

5.7 Public Relations

- The LRF organisations should agree protocols for the release of information to the media, which enable individual organisations to issue timely information about matters under their own remit.

5.8 Community Issues

- The public should be encouraged to take and accept more responsibility for protecting themselves and their property and dissuaded from relying on the emergency services or local authorities for minor matters.
- The use of Assistance Centres should be recognised and promoted.
- Greater clarity is needed regarding the meaning and implications of the term "vulnerable people" as referred to in the Civil Contingencies Act 2004.
- More work should be undertaken in preparation for providing assistance, particularly financial assistance, in order to minimise adverse comparisons between different areas.
- The LRF should monitor the long-term progress of recovery issues in conjunction with other long-term studies of affected communities such as health studies.

12 November 2007

Revised 09 January 2008