EMERGENCY PLANNING COLLEGE

Emergency Planning College
Occasional Papers
New Series

Number 8
January 2014

# The Identification of Hazardous Industrial Sites in Publicly-Available UK Disaster Risk Assessments

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**Acknowledgements**

The author would like to thank the following for their help with the research underpinning preparation of this paper:

**Steve Terry**

**Iain Dorricott**

**Michelle Newman**

**Richie Allen**

**Ian Dodd**

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## Introduction and Background

Publically-available community risk registers in Great Britain identify and assess the local risk of emergencies, including natural disasters and industrial accidents but excluding the detail of terrorist threats. They provide statements about the relative likelihood of risks and the extent to which they would affect the local community if the risk did occur.

They are typically produced by the risk assessment working groups of local resilience forums, which correspond geographically to police force areas of jurisdiction. These are multi-agency organisations which are responsible for joint emergency planning and preparedness in England and Wales, with equivalents in Scotland and Northern Ireland.

The purpose of the risk assessments is two-fold. First, they provide local planners with a means to compare risks and make appropriate, proportionate decisions about priorities in planning, training and exercising. Secondly, they support the legal duty to warn and inform the public about the risks the community faces. It is this, the outward-facing purpose of the register as a risk communication device, which concerns us in this paper.

In the interests of consistency and coherence, local practitioners are required to use a specific methodology. This is described in the statutory guidance to the Civil Contingencies Act (2004) (Cabinet Office ((2012)) *Emergency Preparedness* Ch 4*).* It is supported by the production of a restricted document called the Local Risk Assessment Guidance, the current edition of which is dated May 2013. These documents, and the associated Local Planning Assumptions Guidance, are under review by the Cabinet Office at the time of writing – with republication due in 2014.

Many (but not all) of the risks identified in community risk registers are site-based. For example, the Local Risk Assessment Guidance identifies 26 risks in the category called “Industrial Accidents and Environmental Pollution”. Local assessors are required to select those that apply to their area and adapt the outcome description to fit the local risk profile. Most of these risks are produced by specific types of

factories, plant or installations that carry out hazardous processes and/or use hazardous materials. They may also be associated with specific infrastructure such as hazardous pipelines, and with specific locations like areas of moorland and forest which are potentially vulnerable to major fires.

"Specific" is the operative word here. These risks can be related firmly and quite precisely to points on the map. And yet, the relevant locations (the seat of a given risk) are not given in the publically-available versions of community risk registers. The purpose of this paper is to present an argument that these locations should be given. Where, for example, a community risk register provides an assessment of the risk designated H1 (fire or explosion at an LPG or LNG terminal or storage site), the site should be identified. This implies giving its address and identity.

**Benefits of Identifying the Locations of Site-Based Risks**

The main benefits would be:

- A marked increase in the local relevance for the public of community risk registers;
- Enabling the public to make sense of their "risk landscape" and become properly informed about it;
- Better support to the statutory business of warning and informing the public about potential emergencies.
- Avoidance of the confusion and suspicion that might stem from non-disclosure.

LRFs cover quite large areas. Place yourself in the position of an ordinarily curious member of the public, when shown a register that includes risks like (for example) H8 or H9 (dangerous toxic chemical releases at two different scales). These are low likelihood risks, but if they did happen their consequences would be serious. But if the register does not reveal where they emanate from, how can you assess the extent to which it affects you? How would you know if it is relevant to you and your local community? How would you know if the seat of the risk was five miles away or fifty miles away?

You might even begin to wonder why you are being given a body of information with some of the most critical elements of it deliberately

withheld. Such risks also have a broadly definable “reach” and, whilst calculating that may not be an exact science, there could be large swathes of the public that live well beyond the area that is likely to be directly affected. To raise awareness of a risk, without giving people the means to assess its actual relevance to them, is questionable in terms of risk communication.

The point about warning and informing, and community resilience more generally, is that a better informed public will often be more resilient, and may be better able to prepare themselves, their families, their businesses and their neighbourhoods for the consequences of risks. Clearly, withholding crucial information like hazard locations does not support that aim very coherently. Because it seems standard to withhold such information from the publically-available registers, the temptation is to assume there is a rationale for the decision. If so, what is it?

**Possible Reasons for not Disclosing Hazardous Site Locations**

At first glance, the answer may have something to do with the Civil Contingencies Act (2004). Assessment and publication of civil protection risks of this nature are legal requirements. But identification of the sites and their locations is not specifically required. Not going beyond the minimum legal requirement is a possible explanation for this choice, but it would be disappointing if that was the only reason. This paper suggests that there are other motives in withholding such information and that the main one is security.

This view is based on discussions with many groups of emergency management professionals working in various local resilience forum risk assessment working groups. They report a consistent policy lead to the effect that giving such information would be a breach of security. Revealing the location of a hazardous site would, it has been suggested, be tantamount to giving terrorists a “route map” to our vulnerabilities, and so make it easier for them to select targets. This sounds like a noble reason. But in the view of this author it is an assumption that should be challenged.

Before considering the case against disclosure in detail, we need to consider other possible justifications for not giving out the locations of risks.

First, it can be argued that to do so would alarm the public unnecessarily and raise disproportionate concerns. However, the flaw in this argument is obvious. People living or working within a specified radius of the most hazardous plants must, under regulations like COMAH, be informed of the fact and regularly given appropriate safety advice. There is no case on record of this causing any significant level of public alarm – even amongst those who live closest to the risk. This argument actually underestimates the public and their ability to make rational "risk constructs".

Another argument heard against identification of site-based hazards is that it would create tensions between the local resilience community and the site operators. This argument misses a fundamental point. In fact, site operators make a lot of information about their business freely available to the public. Enough, in fact, to make the deliberate withholding of a few basic pieces of information about location and identity in community risk registers look rather odd.

Also, the site operators, whose sensitivities are supposedly in question, are an integral part of the local resilience community with a shared set of interests. Their licence to operate depends on them being able to demonstrate due regard for public safety. Most of them embrace that requirement wholeheartedly and publically already, and the community risk register is another vehicle by which they could demonstrate this engagement.

**The Security Argument**

This is the dominant argument against publishing the location and identity of industrial hazard risks in community risk registers. The evidence is anecdotal, but there is a commonly-held assumption that the release of such information would give the potential terrorist – or anyone else of malign and violent intent - a guide to likely targets and an idea of what could really cause hurt in the local community.

I do not trivialise this notion for a moment. There are people out there who would welcome the opportunity to do that and only the vigilance of many people stops it happening more frequently and more damagingly than it does. But the question is; does the argument stand up to

analysis, because (on the other hand) there is a very good case for making that information available in the community risk register?

Anyone responsible for risk communication should automatically challenge assumptions about what sort of information should or should not be made available, to whom and why. Also, terrorists are often sophisticated people with education and skills. It does not seem credible that, by withholding the identity and location of hazardous sites, one would be inconveniencing them to any significant extent.

Finally, there is a question of proportionality. The risk of terrorist attack on infrastructure of this nature is relatively low, but the potential benefits (in terms of community resilience) of providing better, more detailed risk communication are relatively high. Risks in civil protection are almost never absolute; they have to be seen in context if policies based on them are to have any real meaning.

**The Experiment**

Driving out of a northern English city, I passed what I guessed to be a medium-sized chemical processing plant. Although a risk related to toxic chemical release is included on the local community risk register, the location of the plant or plants associated with that risk were not given. A discreet enquiry told me that this was for “security reasons”.

I decided to find out what I could about the site I had seen on my journey through the area. I set myself a 30-minute limit, and the following rules: I allowed myself an Ordnance Survey map and a computer, and access to the internet. In the end, only 4 sites were used, and they collectively yielded the information shown below.

The OS map identified the site is identified as a “works”. It is, though, quite obviously a chemical plant. Containment vessels are visible from the adjacent main road as one drives by, but there are none of the structures that an interested layperson would associate with, say, a refinery. It is also a relatively small site and is probably too small to be a major storage facility. This makes it reasonably safe to assume that it is a processing plant. Armed with that basic assumption, I started an internet search.

I used a common search engine, the name of which would be familiar to everyone reading this. I entered “chemical works in ….”. It turned out there was more than one in the vicinity, but it was very easy to narrow the search and identify precisely the site in question. The remainder of the search consisted of following links and following up on some technical data on the site of a very well-known internet encyclopaedia.

**Information About the Site Found on the Internet Within 30 Minutes**

1. The site operator’s company name and overall corporate details.

2. The site’s address and post code.

3. The plant’s telephone and fax numbers.

4. The plant’s e-mail address.

5. A description of the company, its business and its ownership structure.

6. The company’s sales figures.

7. The number of employees on its various sites, including the one in question.

8. A list of the site’s products, ranging from the toxic, to the noxious and to the merely corrosive.

9. The essential properties of those products and intermediaries, including their implications for human health and their general behaviour when unconfined.

10. Company guidance on how to find them, including a “click here for maps and directions” link.

11. Pictures of the site, including satellite photography that resolved to a high level of detail the whole site and the surrounding terrain.

12. Pictures of the main gate and entrance barrier.

13. The contents of the tank farm.

14. The exact size of the site.

15. Its chemical reactor capacities.

16. Its cooling, heating and vacuum capacities.

17. What kind of filters, centrifuges and dryers it used.

18. The fact that one particularly hazardous process takes place at this site.

19. The facts that the site is only metres away from a major trunk road.

20. The fact that a main inter-city railway line runs close to the boundary fence.

**What Does this Mean?**

First, of course, it is not a full picture of the site and its vulnerabilities. A serious target reconnaissance by a hostile operative would undoubtedly reveal even more, even from legitimate, open sources. The hostile investigator would, self-evidently, allow themselves more than 30 minutes for their research and try to gain access to a wider range and type of information.

The point is this; so much information can be acquired so quickly and so easily, by someone motivated by nothing more than curiosity. Furthermore, it was gathered by someone without any training in chemical engineering or any real understanding of the chemical industry – beyond that of any given emergency management professional.

Therefore, it can be suggested that publishing the identities and locations of these risks in public community risk registers should be seriously debated, and the assumptions underlying the reluctance to do this should be challenged.

**The Confirmation**

For the sake of rigour, I assigned the same task to a small group of practitioners who kindly gave of their time out-of-hours when attending a course at the Emergency Planning College. Using the same plant, I gave them <u>only</u> its location on the local OS map. Their task was to find out, within 30 minutes, as much as they could about that plant, using the internet. The intention was to compare their findings with my own, as a check and a control – to confirm that my findings are replicable.

The results are tabulated below:

| Information point found by the author | How many of the check team (5 members) found this information? | Comments |
|---|---|---|
| 1. The site operator's company name and overall corporate details. | 5/5 | |
| 2. The site's address and post code. | 5/5 | |
| 3. The plant's telephone and fax numbers. | 5/5 | |
| 4. The plant's e-mail address. | 3/5 | |
| 5. A description of the company, its business and its ownership structure. | 5/5 | |
| 6. The company's sales figures. | 2/5 | |
| 7. The number of employees on its various sites, including the one in question. | 1/5 | |
| 8. A list of the site's products, ranging from the toxic, to the noxious and to the merely corrosive. | 5/5 | Available in company literature |
| 9. The essential properties of those products and intermediaries, including their implications for human health and their general behaviour when unconfined. | 3/5 | All found these on a popular internet encyclopaedia, after their reference in company literature. |

| | | |
|---|---|---|
| 10. Company guidance on how to find them, including a “click here for maps and directions” link. | 3/5 | |
| 11. Pictures of the site, including satellite photography that resolved to a high level of detail the whole site and the surrounding terrain. | 4/5 | 2 remarked on the quality of the picture resolution |
| 12. Pictures of the main gate and entrance barrier. | 3/5 | 2 remarked on the quality of the picture resolution |
| 13. The contents of the tank farm. | 1/5 | This individual was an experienced emergency planner |
| 14. The exact size of the site. | 2/5 | |
| 15. Its chemical reactor capacities. | 1/5 | |
| 16. Its cooling, heating and vacuum capacities. | 0/5 | 16 & 17 were the only serials not found by any member of the check team |
| 17. What kind of filters, centrifuges and dryers it used. | 0/5 | 16 & 17 were the only serials not found by any member of the check team |
| 18. The fact that one particularly hazardous process takes place at this site. | 1/5 | This individual was an experienced emergency planner, but the facts are available from company literature |
| 19. The fact that the site is only metres away from a major trunk road. | 5/5 | Deducible from the map alone |
| 20. The fact that a main inter-city railway | 4/5 | Deducible from the map alone |

| | | |
|---|---|---|
| line runs close to the boundary fence. | | |

Additional material found by the check team:

The team pointed out several other facilities in the vicinity, which would make an emergency at the plant more significant. These are:

- Proximity to a major local airport;
- Proximity to a school;
- Proximity to a large leisure centre (all deducible from maps alone).

One checker was surprised by the amount of information that could be gained through a popular professional networking site – which is not a line of access the author used.

Remember that the core argument is that community risk registers should declare the identity and location of sites that are the seats of risks identified within them. In this exercise, five out of five checkers found this information about a site pointed out to them on an OS map within minutes.

**Conclusion**

At the very least, these findings suggest that there should be a serious debate in risk assessment working groups about the merits of including the locations and identities of some or all of their site-based risks. This should be associated with a debate about the validity of the security argument against publishing these details, which should be informed by an understanding of what information is already out there and freely available from a variety of open sources – including the site operators themselves.

It does not reflect well on community risk registers that they raise the general awareness of risks across a wide area, without providing much granularity of information. So, people are sensitised to the risks but deprived of the information that they need to make sense of them in terms of their own local vulnerabilities. It would lead to a marked improvement in the utility and validity of community risk registers if they included the locations and identities of site-based hazards.

Furthermore, on the basis of the evidence in this paper, the rationale for withholding them is slim. Consider this alongside the potential benefits of greater public relevance and the recommendation follows naturally; local resilience forums should at least challenge the assumptions underlying their decision to withhold such information.