A response to the flooding in Morpeth

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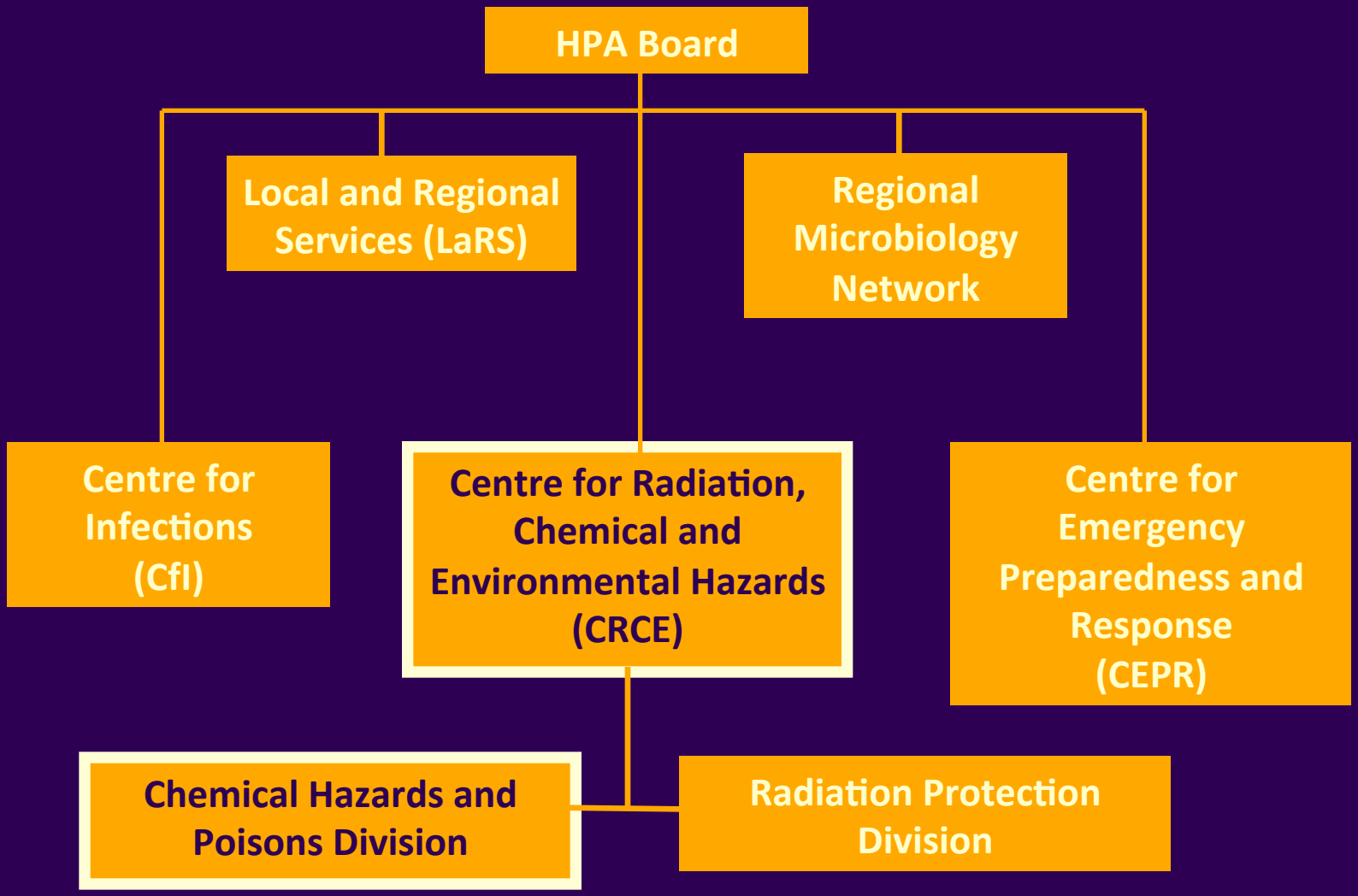
CHaPD in the HPA



CHaPD - a (very) quick introduction

The Chemical Hazards and Poisons Division

- Provides specialist advice and support to Health Protection Units for incident response, general queries, etc.
- Specialists include Environmental Public Health Scientists, toxicologists, environmental epidemiologists etc…
- Clinical advice provided by the HPA's commissioned service National Poisons Information Service (NPIS)

The incident – wide scale flooding in Northumberland (2008)[1]

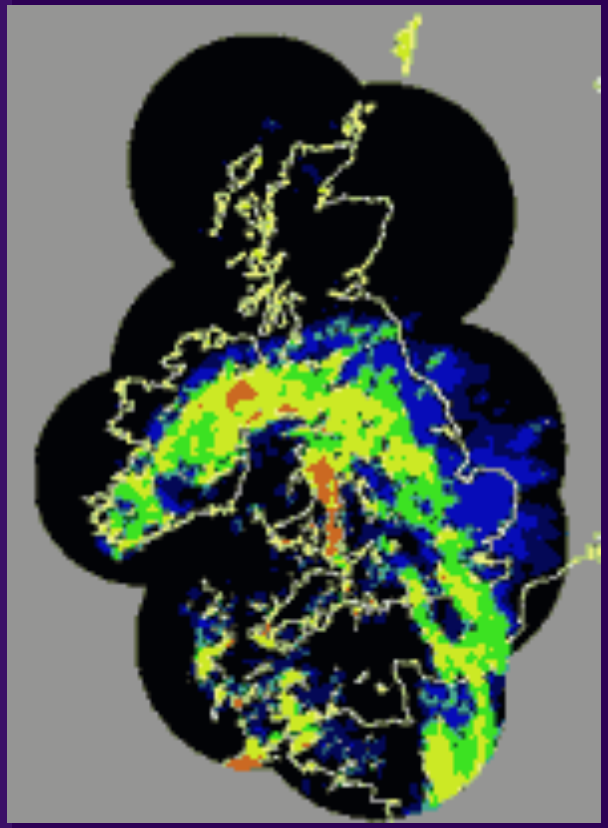
Thursday 4th September

Met Office: Early Warning issued for NE England for Saturday.

Albemarle, Northumberland recorded 112.0 mm (4½ inches) in 72 hours from 09:00, 4 September. **Most fell in the first 48 hours.**

Saturday 6th September

Met Office: Flash warnings issued for more than 60 mm rainfall in parts of the UK. 'The County of Northumberland experienced six weeks rainfall in 24-hours' [2].



Radar image 12:00 5 September

Source [1]: http://www.metoffice.gov.uk/corporate/verification/case_studies_08.html [accessed 070409]
Source [2]: http://www.idea.gov.uk/idk/core/page.do?pageId=8719032 [accessed 070409]

Consequences

In the Northumberland town of Morpeth:

- River Wansbeck burst its banks
- Nearly a thousand homes and businesses were flooded
- More than 850 houses were evacuated
- The worst flood Morpeth has seen since records began

Of eight severe flood warnings across the country, six were in the Castle Morpeth area.

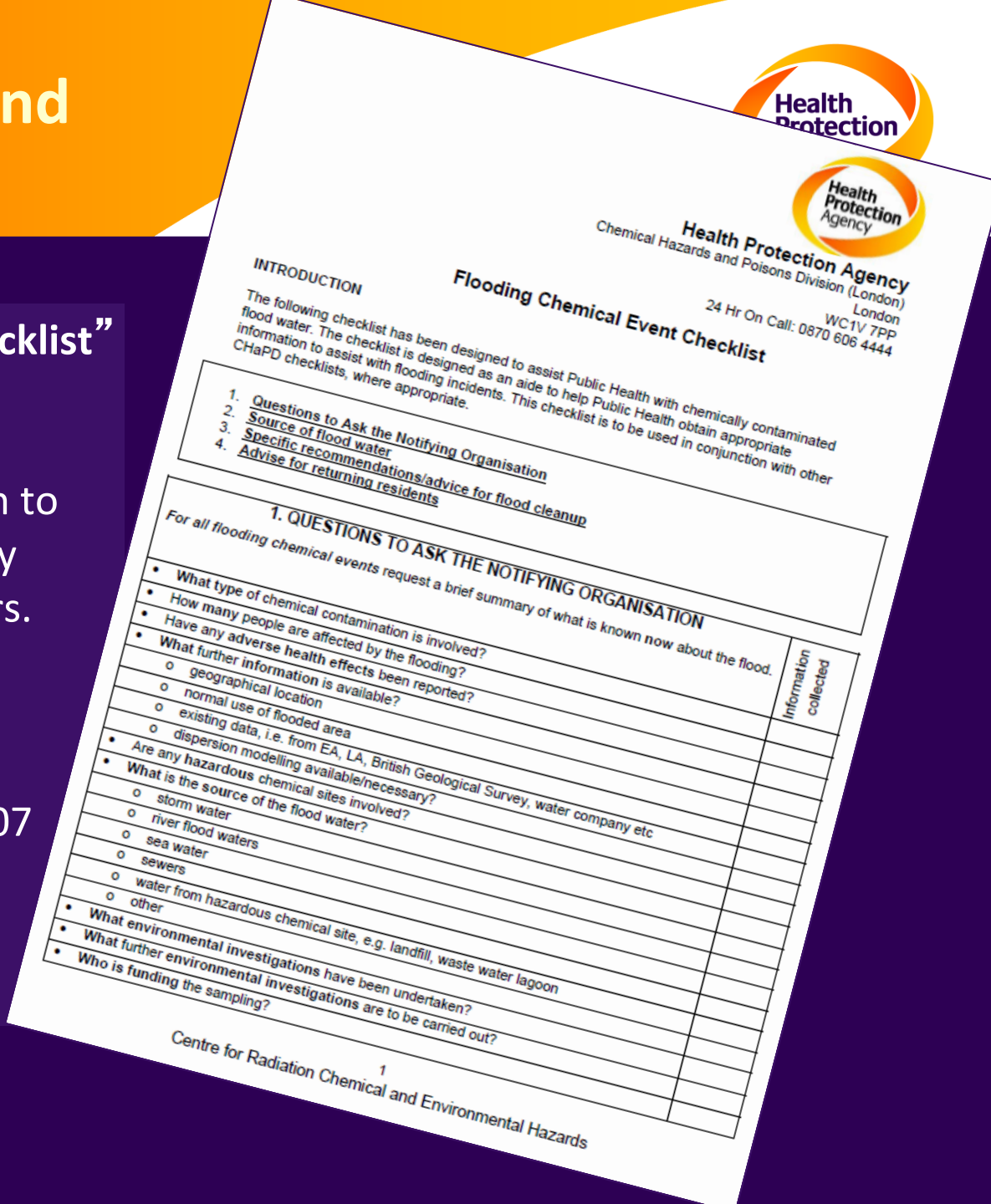
Text based on : http://www.idea.gov.uk/idk/core/page.do?pageId=8719032 [accessed 070409]
Picture (top): The Journal on Jan 8, 09 11:24 AM [accessed 070409]
Picture (middle and bottom): BBC News Website [accessed 070409]

Flooding checklists and resources

"Flooding Chemical Event Checklist"

Provides a structured approach to the assessment of risk posed by chemicals entering flood waters.

Risk assessment frameworks developed after flooding in 2007 used in the HPA response to Northumberland floods.



Health Protection Agency

Health Protection Agency
Chemical Hazards and Poisons Division (London)
London
WC1V 7PP
24 Hr On Call: 0870 606 4444

Flooding Chemical Event Checklist

INTRODUCTION

The following checklist has been designed to assist Public Health with chemically contaminated flood water. The checklist is designed as an aide to help Public Health obtain appropriate information to assist with flooding incidents. This checklist is to be used in conjunction with other CHaPD checklists, where appropriate.

1. Questions to Ask the Notifying Organisation
2. Source of flood water
3. Specific recommendations/advice for flood cleanup
4. Advise for returning residents

1. QUESTIONS TO ASK THE NOTIFYING ORGANISATION

For all flooding chemical events request a brief summary of what is known now about the flood.

	Information collected
• What type of chemical contamination is involved?	
• How many people are affected by the flooding?	
• Have any adverse health effects been reported?	
• What further information is available?	
o geographical location	
o normal use of flooded area	
o existing data, i.e. from EA, LA, British Geological Survey, water company etc	
o dispersion modelling available/necessary?	
• Are any hazardous chemical sites involved?	
• What is the source of the flood water?	
o storm water	
o river flood waters	
o sea water	
o sewers	
o water from hazardous chemical site, e.g. landfill, waste water lagoon	
o other	
• What environmental investigations have been undertaken?	
• What further environmental investigations are to be carried out?	
• Who is funding the sampling?	

Response from CHaPD

Support of LaRS (Regional and HPU functions)

- Specialist Environmental Public Health advice requested and provided
- **Tasked to review potential for chemicals to have been released into the flood waters and to indicate the hazard these pose to public health**

To deliver the task, we needed:

- Flooding data
  - Extent of the flooding : Where had the flood waters got to?
    : Where were they likely to extend to?
- Sources of chemicals in the area
  - **What** is stored **where**?
  - **How** contained?

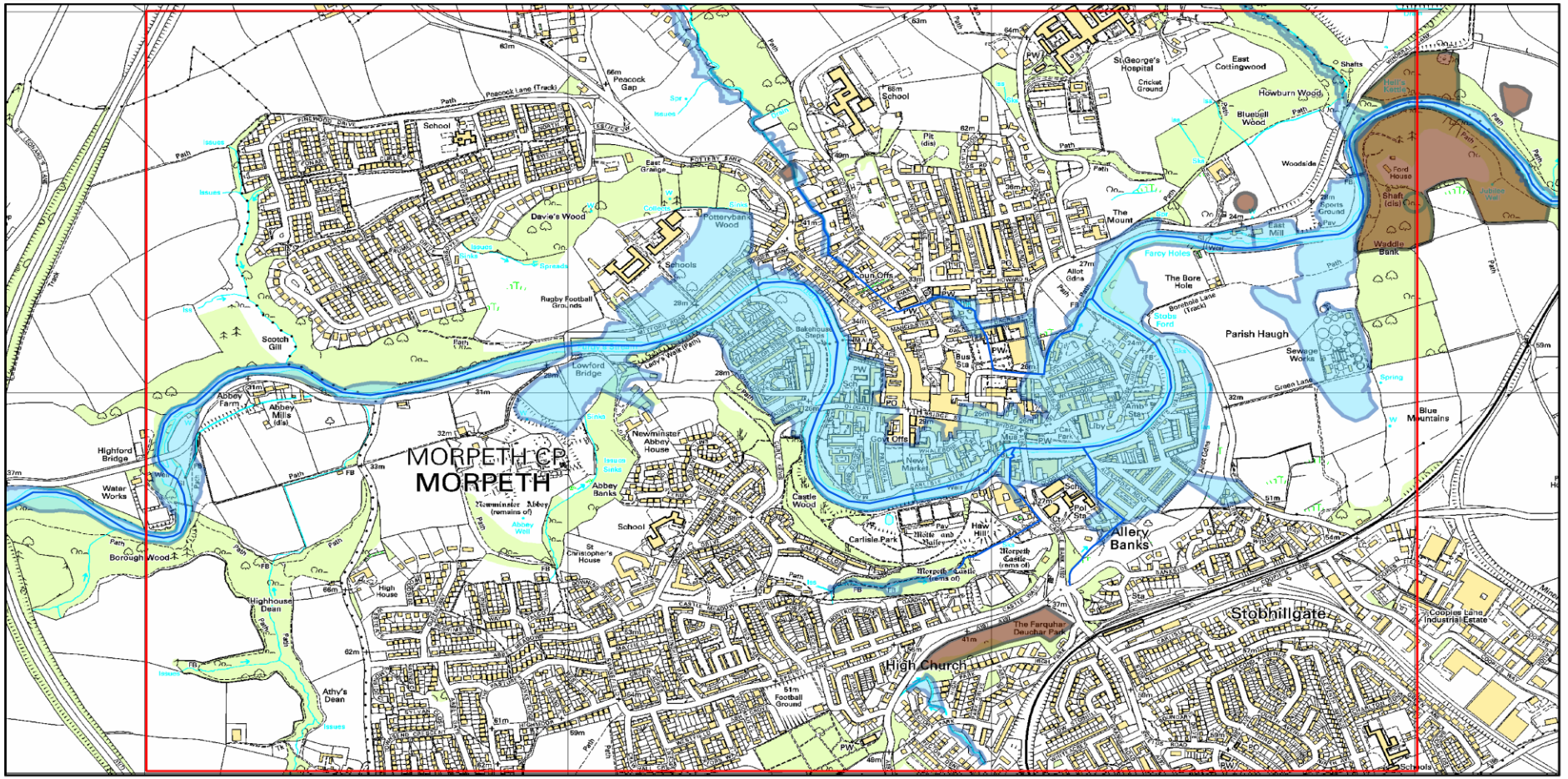
Extent of the flooding

Likely source:	Environment Agency (EA) and Local Authorities
Challenge:	Maps of actual flooding from EA were not readily available because EA still dealing with the initial response to the flooding Identify an obtain local knowledge for affected areas
HPA response:	Discussed with EA whether standard flood plans could be a proxy for actual flooding. 1 in 100 year flood map acceptable Spoke to Environmental Health Officers at the affected Councils
Sourcing map:	Requested from EA Requested from HPA GIS specialists

Morpeth with 1-in-100-year flood zone and historic landfill

Flooding_1_in_100_Year_nat_floodzone3_v3_9_NE

Historic_Landfill_Sites_010k_NE



Map produced by CHaPD Chilton on: 08/09/2008

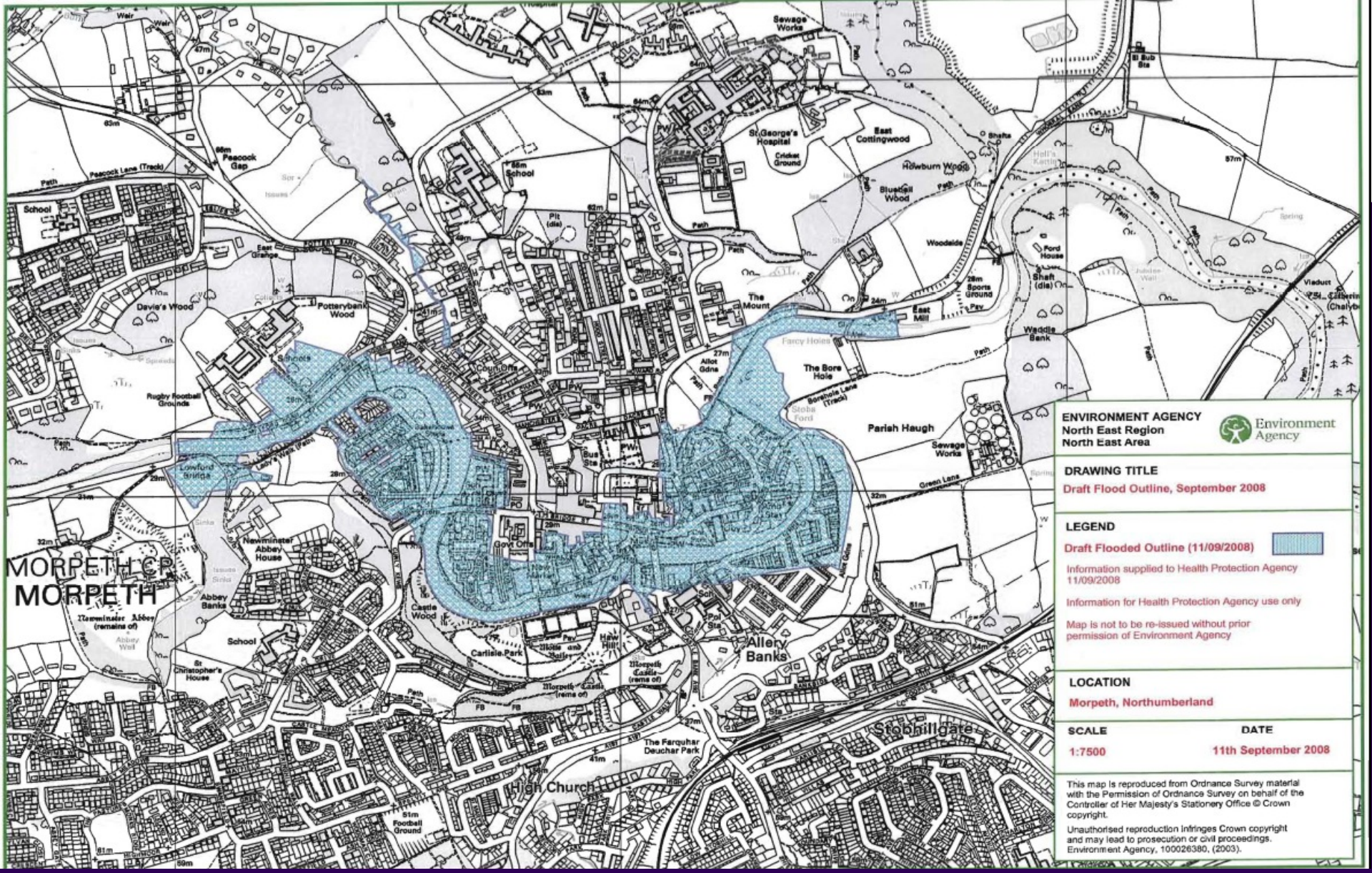
Produced by Emergency Response Division,
Centre for Emergency Preparedness & Response.
Health Protection Agency, Porton Down,
Salisbury, SP4 0JG. (01980) 612991.

0.25 0.125 0 0.25 Miles

1:13697

N W E S

Use of HPA GIS capability to identify (a) the potential flood extent and (b) historic landfill sites in the area.



Received from EA at 15:59 on Thursday 11/09/2008

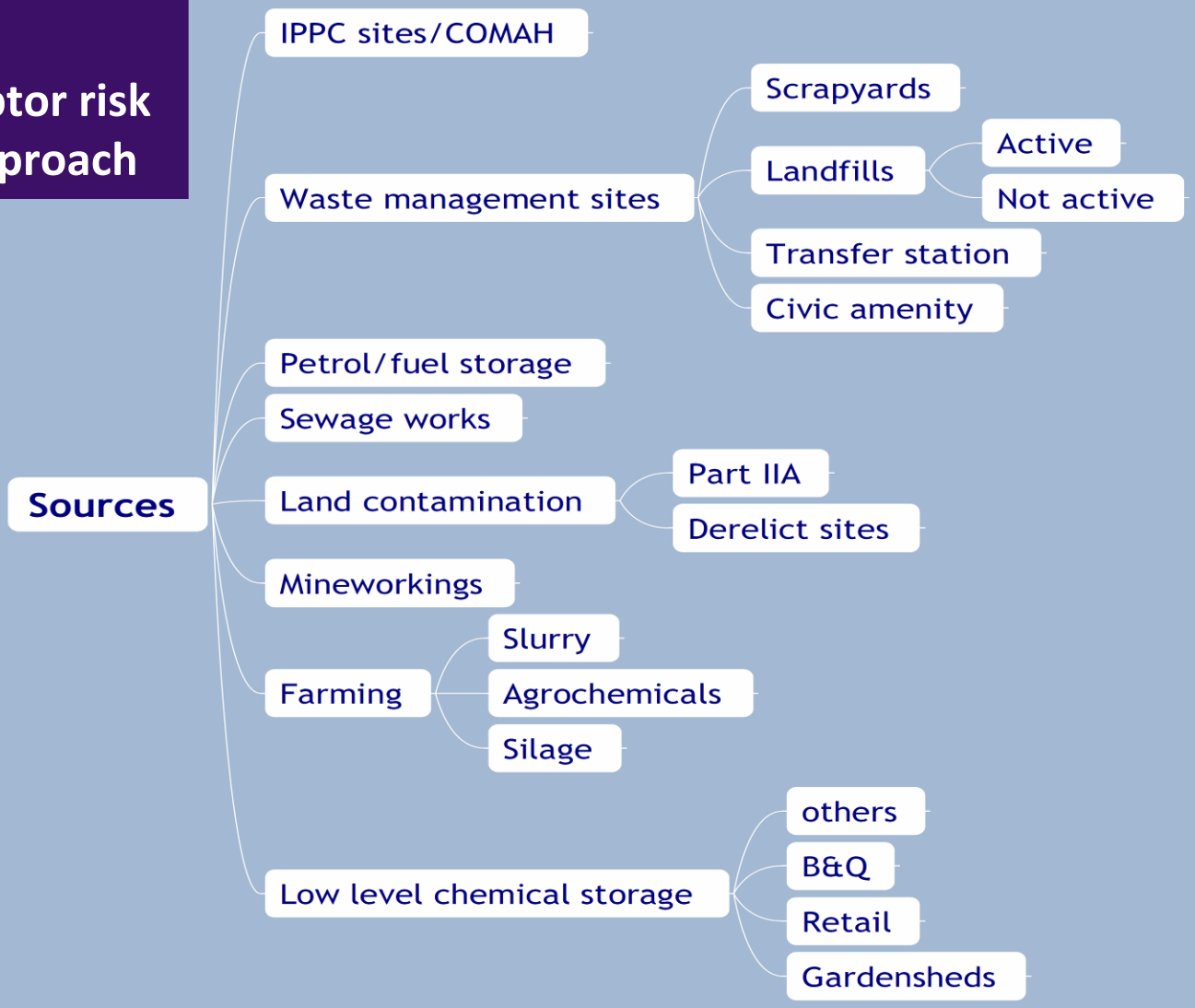
EA's <u>draft</u> flood extent which closely reflects the 1 in 100 year flood GIS map used

Sources of chemicals

Likely source:	Environment Agency (EA), local authorities, local knowledge
Challenge:	What to look for informed by internal framework document
HPA response:	Local knowledge important Sites permitted under the IPPC/EP legislation Businesses with large chemical storage

Framework from 2007 floods
Potential Sources:

Part of source-pathway-receptor risk assessment approach



Recovery and Restoration

- Participation at Castle Morpeth Council's Recovery and Restoration Group
- Support for the LaRS Consultant/front-line
- HPA support to Council's "Morpeth Town – Clean-up and Infrastructure Group Meeting"

"We estimate that approx 4000 litres of gas oil has been lost from our Rothbury depot due to flood damage to our storage facilities, I think the photograph is self explanatory"

Led to a review of risk assessment using this and local knowledge from Alnwick District Council's Environmental Health Officers

Source: Email from County Council Officer, received Thursday 11th September 2008

Reflections

Lessons

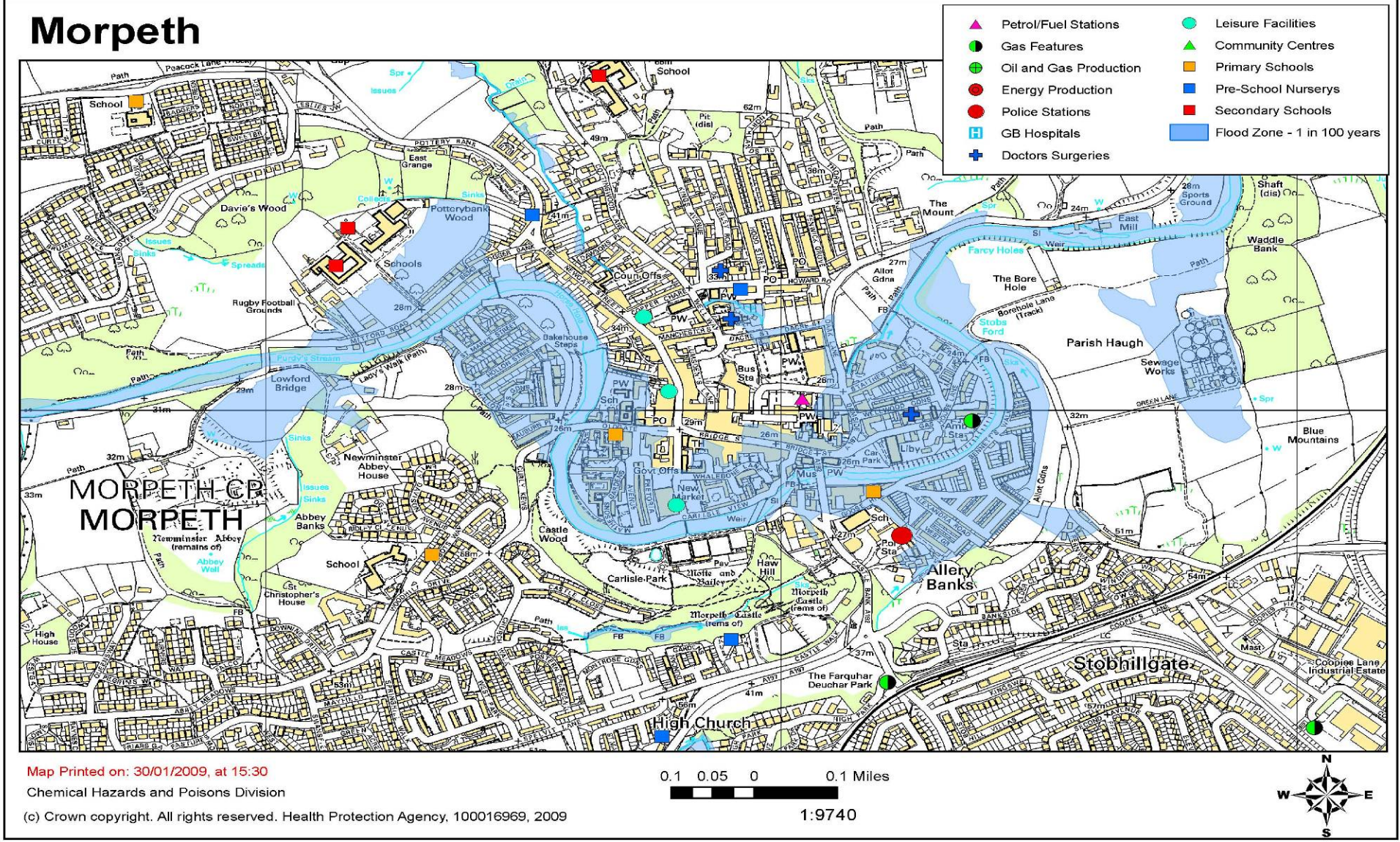
- Actual flood mapping data not readily accessible
- Standard flooding maps can provide proxy
- Useful application of the HPA flooding checklist and internal framework documents developed following 2007 flooding
- Local knowledge very important
- Multi-agency working important

HPA GIS capabilities provide customisable overlays of:

- Flooding maps, e.g. 1 in 100 year flood plans
- Chemical sites
- Historical land use
- Licensed waste sites
- Sensitive receptors e.g. schools, GP surgeries, hospitals, etc.

Enables rapid identification and prioritisation of hazards.

HPA GIS capability:



Thank you…..

http://www.hpa.org.uk/