

Major Accidents – Environmental Protection and the Environment Agency's role

John Brewington

0115 8463627

john.brewington@environment-agency.gov.uk

Environment Agency

- ⇒ Civil Contingencies Act - **Category 1 Responder**.
- ⇒ (Statutory) role in a wide range of incidents (flooding, CBRN)
- ⇒ Powers to **investigate** environmental offences and make **mitigation** responses
- ⇒ 0800 pollution hotline, 24hr Communication Centre, duty officers, incident rooms, lab service, specialist equipment & contractors (UK Spill).





Environment Risk Assessment & Emergency Planning

Environmental Risk Assessment

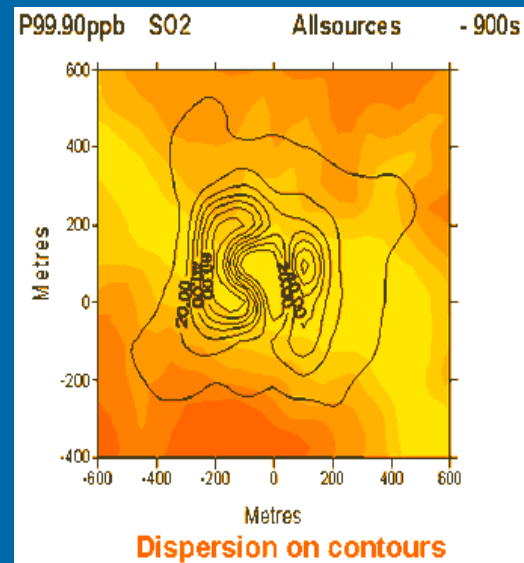
Release



SOURCE



Exposure



PATHWAY



Harm



RECEPTOR

Pathways

- ⇒ Surface water → direct and indirect drainage
- ⇒ Discharges to sewerage systems → consequences
- ⇒ Groundwater → boreholes
- ⇒ Emissions to air → people, sensitive habitats, farm land

- ⇒ Operators must consider mitigation measures e.g. fire water run-off.

⇒ **TIMESCALES – Be Realistic**

Receptors

Sensitive Habitats

- ⇒ International (e.g. Ramsar sites) European (e.g. Special Area of Conservation), National (SSSI)
- ⇒ Farmland and fisheries

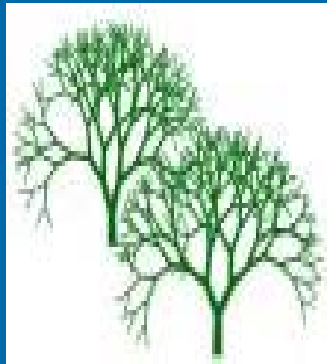
Sensitive Species

- ⇒ Red list species, nationally/regionally rare

Significant Infrastructure

- ⇒ Boreholes
- ⇒ Water treatment and supply infrastructure
- ⇒ Sewerage systems

ANCIENT
WOODLAND



Town

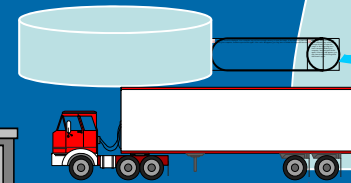
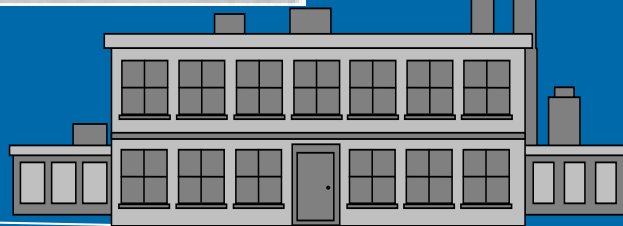


Farm

SSSI/SPA

River Avon

B3456

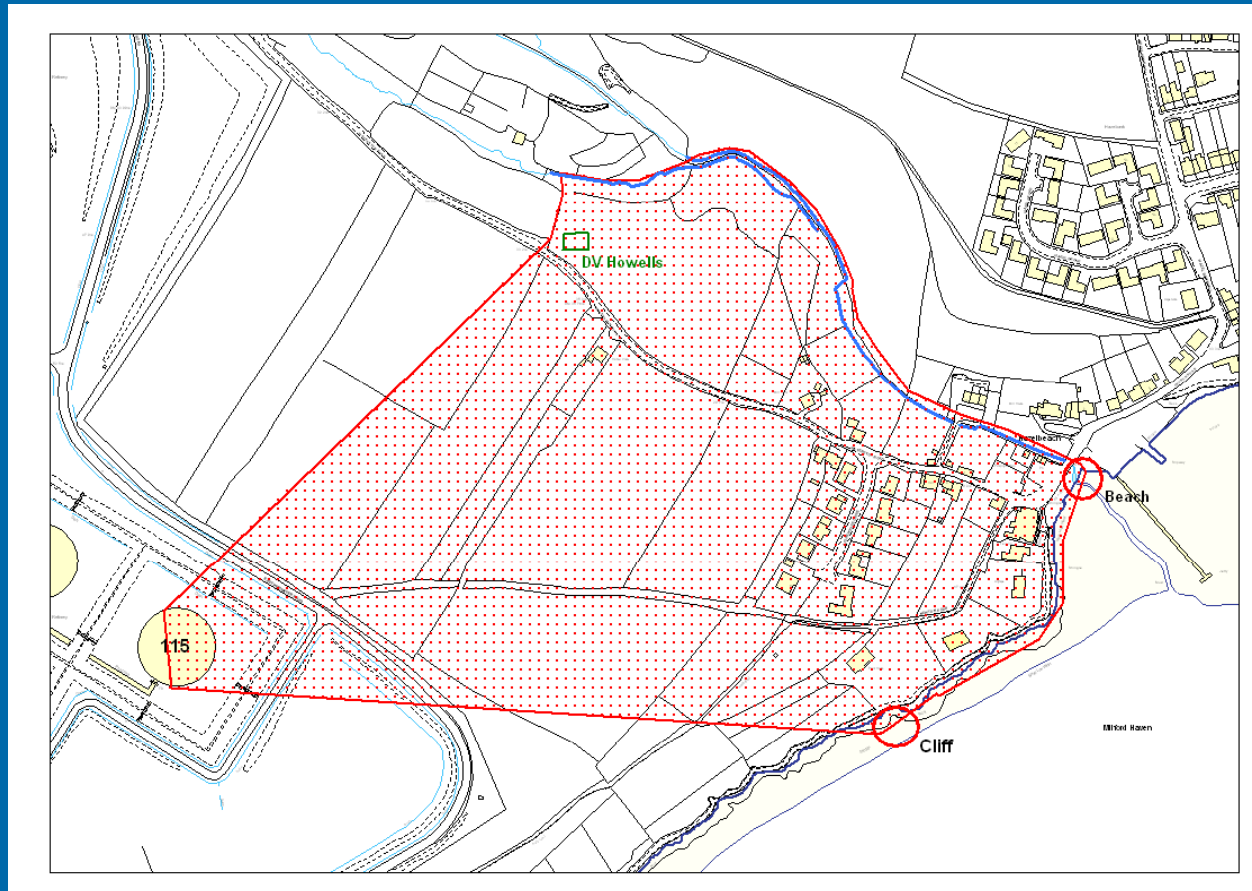


GROUND and AQUIFER

Emergency plans and the environment

- ⇒ The Perfect Plan will.....
- ⇒ Consider the implications of releases
- ⇒ Explore the actions that can be taken
- ⇒ Present the **options** available to responders and the possible **consequences** of these actions
- ⇒ Planning allows for engagement with specialists (air quality modelling, hydrogeologists, toxicologists, public utilities) who may not be available in the event of an incident.
- ⇒ (COMAH plans) must include environmental restoration

Chronic Events at Tank Farms



Tank Floor Leaks Continue

- ➔ **Petroplus Milford Haven, 2005** – 650 tonnes of kerosene to ground from tank bottom leak
- ➔ **Chevron Poole Harbour, 2006** – 30 tonnes diesel to ground from tank floor and bund fissure.
- ➔ **Strath Services Plymouth, 2007** – 60 m³ of petrol to groundwater from tank floor and earth/shale bund.
- ➔ **Chevron Roath Dock, 2008** – 20 tonnes of petrol to ground from tank floor and earth/shale bund.
- ➔ **Falmouth Oil Services, 2009** – Loss of waste oil to estuary following tank floor leak.



“The main threat to ecosystems (from industrial accidents) is the wastewater from fire extinguishing activities, which may pollute surface water or groundwater if not captured effectively.”

European Environment Agency - 2010

Abbey Metal Finishing, Nuneaton April 2010

Lower tier metal-platers.

CA investigating possible breach of tertiary containment and pollution of the ground and river Anker.

Significant fish kill.



Grosvenor Chemicals, Huddersfield

May 2010

Top tier contract chemical manufacturer

Investigating possible breach of tertiary containment

Pollution of Rivers Colne and Calder

Closure of canal network



Minimising the risk

- ➔ Do you know....
- ➔ How much fire water would be needed to fight the worst case fire on your site?
- ➔ How long the available tertiary storage will last?
- ➔ What you would do next?
- ➔ If not engage with your local EA and FRS now.

Minimising the risk

➤ COMAH Containment Policy

- Applies to all fuel storage at COMAH sites
- Guidance collates standards and best practice for secondary and tertiary containment which is relevant to all sites.

➤ PFOS Foam – use banned since 27 June 2011

➤ Forthcoming ISO Guidance on containment systems for the prevention of pollution arising from uncontrolled fire water run-off and review of CIRIA 164.

EA role in COMAH Incidents



EA Role

- ➔ Part of the multi-Agency response
- ➔ Advice to off-site responders
 - ➔ Fire Service – fire water management
 - ➔ HPA – health impacts of environmental pollution
- ➔ Monitoring environment – air and water
- ➔ Warning and informing i.e. abstractors and public
- ➔ Limited pollution response capability
- ➔ Advice on restoration
- ➔ Investigation

Fire Service Partnership

- Environment protection equipment with all Brigades.
- Incident Response Planning
 - Off-site COMAH plans
 - Fire Service Ops Plans - 7(2)(d)
- Focus on
 - Fire water management plans (Buncefield Recommendation)
 - Consideration of controlled burn (PPG 28)



Air Quality in Major Incidents



Air Quality in Major Incidents

- New Air Quality **Modelling** and **Monitoring** arrangements for England and Wales
- Delivers timely air quality information to the Health Protection Agency and partners
- To enable;
 - appropriate action by the emergency services
 - meaningful messages to be provided to the public

Air Quality Cell

- ➔ **National and virtual**
- ➔ **Health Protection Agency** – Primary “customer” of data.
- ➔ **Met Office** – Weather forecasting
- ➔ **Health and Safety Laboratory** – Advanced plume modelling, chemical reactivity advice.
- ➔ **Food Standards Agency** – Food uptake and contamination
- ➔ **Environment Agency** – Cell coordination and monitoring

Flood Risk



Flooding

- ➔ Flooding can act as a precursor to a major accident.
- ➔ **Czech Republic - Aug 2002.** Flooding of Spolana destroyed production equipment and caused a release of 86 tons of chlorine following tank floating.
- ➔ **BP Oil, Northampton 1998.** Near Miss. 300m from River Nene and was flooded to depth of 0.5m deep. No damage to tanks but operations did not resume for 6 weeks.

Flood Warning



- ➔ Check whether you are in a floodplain
- ➔ Sign up to flood warnings direct
- ➔ Ask us for site specific modelling – a charge may apply
- ➔ Consider flood warning for infrastructure providers
- ➔ For More details
 - ➔ www.environment-agency.gov.uk/business/topics/32354.aspx

Summary

- ➔ Environmental Risk Assessment is critical part of emergency planning.
- ➔ Major accidents are leading to environmental harm.
- ➔ Operators and responders need to consider the environmental impacts of incident mitigation.
- ➔ Provision of robust secondary and tertiary containment are key to successful incident management.

- ➔ EA response to major incidents is focussed on provision of advice to partner Agency's and environmental monitoring. And flood warning!



John Brewington

tel + 44 (0)115 8463627

e-mail john.brewington@environment-agency.gov.uk