



## Health Protection Agency

Chemical Hazards and Poisons Division  
 Centre for Radiation Chemical and Environmental Hazards  
 24 hour tel: 0844 892 0555

### 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 Chemical Hazards and Poisons Division (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**

<b>1. QUESTIONS TO ASK THE NOTIFYING ORGANISATION</b>	Information collected
<i>For all flooding chemical events</i> request a brief summary of what is known <b>now</b> about the flood.	
• What <b>type</b> of chemical contamination is involved?	
• How <b>many</b> people are affected by the flooding?	
• Have any <b>adverse health effects</b> been reported?	
• <b>What further information</b> is available?	
o geographical location	
o normal use of flooded area	
o existing data, i.e. from Environment Agency, Local Authority, British Geological Survey, water company etc	
o dispersion modelling available/necessary?	
• Are any <b>hazardous</b> chemical sites involved?	
• <b>What is the source</b> 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	
• <b>What environmental investigations</b> have been undertaken?	
• <b>What further environmental investigations</b> are to be carried out?	
• <b>Who is funding</b> the sampling?	



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<b>2. SOURCES OF FLOOD WATER</b> The following is a guideline to the different sources of flood water and the likely contaminants.	Information collected
<ul style="list-style-type: none"> <li>• Storm water: contaminants in runoff from roads, motorways etc may include:</li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o hydrocarbons (especially if petrol stations, fuel depots etc are in the area)</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o heavy metals</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o road salts (e.g. high sodium and chlorine concentrations)</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o nitrates, fertilisers, pesticides, herbicides (especially in rural/semi-rural areas).</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Overloaded sewers (backflow) in Combined Sewer Systems. Where the sewers are overburdened or flooded, the waste water is generally discharged into a waterway; this may contain:</li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o residential and/or industrial contamination, such as microbes and chemicals from industrial discharge into the sewers</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o chemical contamination from unknown sources.</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Hazardous landfill sites</li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o odours and/or contamination from chemicals, e.g. hydrogen sulphide, mercaptans etc.</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o persistent chemicals, e.g. asbestos</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o mercury can bioaccumulate in fish, wildlife, humans.</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Waste water lagoons</li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o Volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), dioxins etc.</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Acid mine drainage</li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o Sulphuric acid (pH may range between 2-3)</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>o Heavy metals and minerals, e.g. aluminium, arsenic, cadmium, cobalt, copper, iron, lead, manganese, nickel, silver, zinc.</li> </ul> </li> </ul>	

<b>3. SPECIFIC RECOMMENDATIONS/ADVICE FOR FLOOD CLEAN UP</b>	
<b>Carbon Monoxide</b>	
<ul style="list-style-type: none"> <li>• Petrol or diesel operated generators, dehumidifiers and pressure washers should <b>never</b> be used <b>indoors</b> without adequate ventilation, as they have the potential to release carbon monoxide</li> </ul>	
<ul style="list-style-type: none"> <li>• To prevent carbon monoxide build up, emergency responders or cleanup, personnel must ensure that there is adequate <b>ventilation</b></li> </ul>	



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<b>Personal Protection</b>	
<ul style="list-style-type: none"> <li>• Avoid skin contact with contaminated water/material</li> </ul>	
<ul style="list-style-type: none"> <li>• Avoid chemically contaminated enclosed areas (garages, cellars etc) where fumes may build up without adequate protection</li> </ul>	
<ul style="list-style-type: none"> <li>• Ensure adequate protective clothing is worn</li> </ul>	
<b>Action to protect the health of the public:</b>	
<ul style="list-style-type: none"> <li>• Safety of public water supplies</li> </ul>	
<ul style="list-style-type: none"> <li>• Safety of drinking water</li> </ul>	
<ul style="list-style-type: none"> <li>• Safety of private water supplies</li> </ul>	

<b>4. ADVICE FOR RETURNING RESIDENTS</b>	Information considered
Following potential and confirmed chemical contamination of homes, the following guide can be used to generate advice for returning residents	
<ul style="list-style-type: none"> <li>• Following chemically contaminated flood water, residents must not return without advice by Environmental Health Department and/or Public Health</li> </ul>	
<ul style="list-style-type: none"> <li>• Ensure flooded basements and confined areas have been adequately ventilated</li> </ul>	
<ul style="list-style-type: none"> <li>• Ensure floating oil and petroleum products have been assessed for explosion hazard</li> </ul>	
<ul style="list-style-type: none"> <li>• Ensure air bricks are clean and do not facilitate entry of chemical contaminants and odours into home or basement or foundations</li> </ul>	
<ul style="list-style-type: none"> <li>• Ensure correct disposal of chemically contaminated sandbags etc</li> </ul>	
<b>Food and hygiene advice</b>	
<ul style="list-style-type: none"> <li>• Do not use public water supply until advised by water company</li> </ul>	
<ul style="list-style-type: none"> <li>• If drinking water has a chemical odour, do not heat or boil</li> </ul>	
<ul style="list-style-type: none"> <li>• If water smells of chlorine or is discoloured, run taps to flush water through pipes</li> </ul>	
<ul style="list-style-type: none"> <li>• Ensure all cutlery, crockery and cooking utensils are washed and disinfected prior to use</li> </ul>	
<ul style="list-style-type: none"> <li>• Dispose of all contaminated or potentially contaminated food, including tins</li> </ul>	
<ul style="list-style-type: none"> <li>• Do not eat garden or allotment produce until advised by Environmental Health Department</li> </ul>	
<b>Management of chemically contaminated household items</b>	
<ul style="list-style-type: none"> <li>• Contaminated soft furnishings should be disposed of or appropriately cleaned (Environmental Health Department will advise)</li> </ul>	
<ul style="list-style-type: none"> <li>• Permeable material (e.g. wall paper, insulation etc) with chemical contamination may need to be removed (Environmental Health Department will advise)</li> </ul>	
<ul style="list-style-type: none"> <li>• Chemically contaminated children's soft toys may need to be disposed of</li> </ul>	
<ul style="list-style-type: none"> <li>• Chemically contaminated clothes and other personal items should be professionally cleaned or discarded (Environmental Health Department will advise)</li> </ul>	