

# Fires in waste sites response guidance, part one

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#### Foreword

Fires involving waste sites have the potential to present a wide range of challenges impacting upon the health and wellbeing of our communities and environment. National trends demonstrate that in some cases fires in waste sites can last for significant periods of time; well in excess of the typical times taken to extinguish fires in industrial premises. Evidence has shown that in exceptional circumstances these fires may burn for a number of weeks.

An enduring fire involving a waste site will generate wider challenges for the emergency services and is likely to require a multi-agency response.

This document has been produced to provide supplementary information to support category 1 and 2 responders (as defined by the Civil Contingencies Act 2004), through the Norfolk Resilience Forum. The general principles presented in this document are a supplementary guide to the Norfolk Emergency Response Guidance (NERG).

Signatory

V. A.

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#### Purpose

The purpose of the arrangements outlined in this guidance is to:

- Save and protect human life
- Safeguard the environment
- Ensure a coordinated multi agency response
- Protect the health and safety of responding personnel
- Enable a proportionate evacuation strategy
- Ensure potential contamination risks are recognised and mitigated
- Recognise that environmental impact may become long term

- Ensure the provision of safety information to the public and businesses
- Recognise the potential for large scale disruption to transport networks
- Advocate best practice business continuity management processes for locations fall within the relative proximity of a waste site that has the potential to cause enduring disruption from air or ground pollution in the event of a fire.

This document should be read with reference to the Norfolk Emergency Response Guidance.

#### Local Considerations

Local Authority areas with poorly performing waste sites should:

- Have bespoke local emergency action plans in place for sites that have the potential to cause wide scale disruption if they become involved in fire.
- Engage with the Norfolk Fire and Rescue Service and Environment Agency to enable intelligence led approach when considering the need for a bespoke emergency action plan.

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#### References

- Environment Agency and DCLG Environmental handbook
- National Operational Guidance Fires in waste sites (including renewable facilities)
- Emergency Response Guidebook (ERG) 2016 UK Edition

# Activation of document

- Firemet and Chemet
- Poorly Performing Sites Register Resilience Direct (NRF) (<u>https://collaborate.resilience.gov.uk/RDService/home/75094/P</u> oorly-Performing-Sites)

This document provides the principles which should, as far as possible, be adopted at any emergency requiring an integrated multi agency response to a fire involving a waste site or a fire with enduring potential. This document should be read in conjunction with any local plan for specific waste sites already known to have the potential to be of a higher risk. Each PPS is tagged on the Fire Service mobilisation system, this triggers contact with the Environment Agency and Public Health England as well as the activation of ResilienceDirect Response.

# Part 1 – Introduction

The Norfolk Community Risk Register (CRR) identifies the risks associated with a large waste site fire to be VERY HIGH.

Waste sites fall into a number of distinct categories as follows: -

- Possessing a waste permit Issued by the Environment Agency (EA)
- Have specific exemptions from requiring a permit (granted by the EA)
- Are deemed illegal waste sites (no permission has been granted by the planning authority and/or the EA believes the activity to be unlawful in respect of the operations being performed.

Illegal sites are likely to present an even greater risk to the public and responders as there may not be sufficient information regarding the content of the stored waste or bad operating procedures may be in use.

This guidance applies to fires at premises that fall within all the above categories and also extends to locations where waste products present such hazards that require enduring firefighting operations in order to resolve the incident and the wider consequential issues associated with public health and the environment.

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This document considers lessons identified from many waste related incidents and offers support to Tactical and Strategic Coordinating Groups in making early and well-informed decisions when dealing with incidents of this nature.

# Part 2 - Types of Waste Fire and associated risks

The type of waste material commonly encountered at waste sites will be:

- Paper, cardboard, plastics, wood and wood products of all types
- Rubber (natural or synthetic), including whole, shredded or crumbed tyres
- Component waste, such as from vehicle dismantling

- Refuse derived fuels (RDF), solid recovered fuels (SRF) and similar fuels
- Waste electrical and electronic equipment (WEEE) containing combustible materials.

Waste is defined as hazardous if it (or the material or substances it contains) is harmful to humans or the environment. Examples of hazardous waste could include:

- Asbestos
- Chemicals, such as brake fluid or print toner
- Batteries
- Solvents
- Pesticides

- Oils, such as engine oil
- Equipment containing ozone depleting substances, such as fridges
- Hazardous waste containers

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# 2.1 Hazards

Generic On site Hazards Associated with Waste site fires:

- Thermal radiation
- Toxic and harmful smoke
- Hidden or rapid fire growth
- Unstable stacks or falling materials
- Unstable ground

# 2.2 Potential risks and consequences

Risk associated with waste fires may include:

- Fire fighting
  - Injuries to responders
  - High demand on fire and rescue services and other agency resources
- Smoke/emissions to air: Potential for short term and longterm exposure smoke to impact on responders and local residents/communities.
  - Worsening pre-existing health problems, especially asthma and other respiratory illnesses
  - Restricting movement including use of local amenities or access to health and other public services if sheltering in place, with windows closed, for protracted periods of time.
- Environmental impacts, both short term and long term

- Hazardous materials, including biological hazards
- Plant, machinery and vehicle movements
- Restricted access and egress for emergency services
- Malicious threats to attending personnel
- Pressurised containers, aerosols and gas cylinders

- Working at height
- Landfill gas or biogas
- Electricity
- Running or pooling fuel fires
- Open water and slurry pits
- Pollution of surface and groundwater leading to public water supplies being closed, or disrupting the use of water, such as fishing, boating and bathing and damage to the natural environment
- Communities
  - Road closures due to smoke plumes; traffic disruption caused by hose layout; disruption to rail network
  - Large-scale disruption over days, possibly weeks
  - business disruption because access to their premises is denied
- Large-scale financial losses for the site, the responding agencies and the local community

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### Section 3 – Evacuation planning

Protection of the public from the effects of harmful smoke emanating from a waste fire must be a priority for the emergency services. The scale of the evacuation and sheltering message strategy must be based on:

- The immediate fire and explosion risks
- The risks associated with respiratory compromise; and
- The immediate potential health effects associated the smoke plume.

These drivers must be dynamically risk-assessed based on the following factors when considering the need to evacuate or advising the public to stay in their homes / business locations, which should be done in a multi-agency forum including PHE.

These drivers must be assessed based on the following factors when considering the need to evacuate or advising the public to stay in their homes / business locations. <u>Strategic and Tactical planning assumptions must consider the potential for long term displacement for large enduring waste site fires in addition to the guidance presented within the NERG.</u>

#### 3.1 Key evacuation planning factors for multi-agency teams

- Wind Direction and atmospheric stability 1) at the time of the incident, and 2) how long range weather forecasting will influence the scale of the evacuation required over time.
- Time of Day smoke plume dynamics will differ depending on time of day – Smoke is likely to travel slower at lower level at Night when compared to Day time conditions impacting on the rate at which evacuation tactics should be deployed.
- Nature of burning material will influence the toxicity and amount of particulate in the smoke plume (see also Fire Type)
- Proximity of human life distance between the Fire (source of the pollution) and those at risk of exposure / contamination
- Fire Fighting Mitigation –sprays used by the fire service may reduce the amount of particulate being released by the fire.



In most cases the composition of burning waste will be easily to determine i.e. a site Permitted by the Environment Agency. In other circumstances e.g. Illegal waste sites; the materials involved may be unknown. In either case, responders must evaluate the risk to health from the smoke generated by the fire and consider how this impacts on the need to evacuate the public.

The information below and in diagram 1 provides guidance on zoning considerations when deciding the scale and type of evacuation strategy required.

Diagram 1 shows a zoning method to support initial evacuation decision making.



*Initial Isolation Zone* – this should be declared by the fire service. This zone comprises of two areas according to wind direction and airborne respiratory risk. For planning assumptions, the downwind sector of the Initial Isolation Zone will be the most hazardous area of the incident ground presenting the highest level of health risk and should be considered equivalent to AEGL\* 3 where all exposure must be avoided unless respiratory protection and sufficient PPE is provided. The only personnel likely to be in this area will be the Fire Service.

*Evacuate Zone* – this is an area equivalent to AEGL 2 where the need to evacuate will be declared.

*Shelter Zone* – this is equivalent to AEGL 1 where it is more likely that a Shelter in place approach may be viable.

*Notification Zone* – this area requires no intervention but reassurance to the public may be required.

\*AEGL's are Acute Exposure Guide Lines specified in Emergency Response Guidance (ERG). ERG is routinely used by Norfolk Fire and Rescue Service

Hazardous Material Environmental Protection Advisors (HMEPA) – see Glossary for full details.



Shelter in place strategies – This type of approach must be closely monitored and reviewed. Multi agency response tactics must consider the likelihood of increased concentrations inside properties over time due to prolonged exposure in the smoke plume, these issues need to be considered by the recovery cell in conjunction with the AQC.

*Evacuation Zoning* - The Fire Service's Incident Commander will advise on initial zoning to support evacuation decision making. PHE and ongoing intelligence from the STAC (if activated) will enable the zones to be refined.

Software available to the Fire Service (CHEMET and FIREMET) will provide interim plume modelling to support decision making in conjunction with the Fire Service (HMEPA) however protracted incidents will require scientific and medical evaluation to make informed decisions on the scale of evacuation required.

# 3.2 Air Quality Cell

A smoke plume from a fire has potential to affect local air quality and public health through the increased exposure to air pollutants for the local population. Smoke may be a particular risk to those with underlying cardio-pulmonary disease, the old and the young. Actions such as evacuation or sheltering in place can help to reduce exposure, and PHE will provide a dynamic public health risk assessment based on the conditions of the fire and advise on the appropriate actions to take. Public messages in the event of a fire are available from PHE.

In the event of a large scale fire, where there is a significant potential risk to public health and the environment through exposure to pollutants released to air a decision to activate an Air Quality Cell (AQC) will be made jointly by the Environment Agency's National Air Quality Technical Advisor (NAQTA) and PHE. The AQC Service is scalable and operates at levels 1 to 3 dependant on assessment of risk factors and potential for incident escalation. The AQC may decide to deploy Environment Agency monitoring teams if it is needed to support their technical assessment of risk. Advice from the AQC will be provided verbally (usually by the PHE representative at a multi-agency group) and in a written AQC Advice Note. The AQC will normally be activated for up to 3 days during the acute phase of the incident. Following this responsibility for co-ordinating Air Quality from the incident will be handed over to the local authority. If an AQC is not convened for an incident the EA, PHE and members of multi-agency coordinating group will continue to provide environmental and public health advice. The Met Office will provide modelled air quality information and weather forecast information.

Resilience Direct contains further information for Local Resilience Forums in the event of incidents about the AQC response: <a href="https://collaborate.resilience.gov.uk/RDService/home/109280/LRF-Information-about-AQC-Response">https://collaborate.resilience.gov.uk/RDService/home/109280/LRF-Information-about-AQC-Response</a>



3.3 Evacuation versus sheltering decisions: points to consider

The multi-agency group, including PHE, will need to decide on whether evacuation is required or if shelter advice is necessary based on the physical characteristics of the fire and what materials are likely to be involved. To assess the scale of toxic and other harmful pollutants in the smoke plume and in turn the development of proportionate evacuation strategies and public advice; the following points should be considered.

• Asphyxiants (including Oxygen depletion); and / or

• Irritants and Particulate matter

• Material that are toxic; and / or

Burning characteristics may support early assessments on the scale of any evacuation requirements. The following waste fire characteristics are relative to the types of respiratory risk most likely to be present:

- 1. Flaming Combustion Well Ventilated this would typically be a fire outside where the availability of oxygen is high allowing free flaming. In these cases the production of smoke and toxic compounds tends to be lower in the early stages, with more toxic products forming as the fire develops.
- 2. Flaming Combustion Ventilation Controlled ventilation control is where the availability of oxygen is restricted i.e. within a building or in a confined space. The reduction in oxygen in these circumstances lead to high yields of Carbon Monoxide, Carbon Dioxide, Hydrogen Cyanide and other gases in addition to smoke.
- 3. <u>Smouldering</u> These fires burn at a much slower rate and are cooler in comparison to flaming fires; the cooler burning rate leads to the potential for greater quantities of toxic by-products being produced compared to free flaming fires.
- 4. <u>Deep Seated (Anaerobic Pyrolysis)</u> these fires may appear to be smouldering, but is combustion contained within the material. These fires have the same characteristics as smouldering fires, but have greater potential to yield higher levels of toxicity.

### 3.4 Guidance

A waste fire has the potential to generate a huge range of harmful products of combustion that will vary depending on nature of the materials involved and the conditions of burning. Whilst each fire must be assessed individually to determine the products being produced; the multi-agency response must prioritise the factors that will have the greatest impact on health, and pay particular attention to toxicity.



Asphyxiant gases and low oxygen levels are most likely to present the greatest risk within a compartment containing the fire or in the immediate vicinity around the contained area. Asphyxiant gases are therefore less likely to pose a risk to the public outside the fire compartment due to dispersion and dilution.

The most common potential hazards to persons outside the compartment will be from the other products of combustion:

• Organic Irritants – Acrolein and Formaldehyde

• Particulate matter

• Complex molecules – Dioxins, Dibenzofurans and Isocyanates

Scenarios in which the combustion is considered to be incomplete due to low temperature, lack of ventilation with an absence of flaming have the potential to generate the greatest quantities of hazardous combustion products.

Multi agency groups must continually review the smoke plume and other sources of contamination associated with a fire in a waste site and adopt the most robust evacuation strategy in conjunction with lead agency advice. Firefighting tactics will have a direct impact on burning characteristic and should be considered within the overall strategy in extinguishing the fire.

### Section 4 – impact of fire fighting and key decision making

Firefighting activities have the potential to cause large volumes of contaminated firefighting water over a number of days or in some cases, weeks. The location of a waste site is therefore a fundamental factor when assessing the ongoing impact of firefighting activities due to environmental sensitivities e.g. Local Aquifers/ drinking water bore holes, Sites of Specific Scientific Interest and areas of Ground water vulnerability; the presence of livestock and arable crops must also be considered.

The multi-agency response may need to balance firefighting tactics with the wider off-site challenges that may have longer term consequences for the community. It is very likely that key decisions will need to be made by the multi-agency group when considering the wider scale of a fire involving a waste site fire. These may be, but not limited to:

• Air quality will take primacy over the potential for ground contamination to reduce the impact of respiratory health.

• A controlled burn will be permitted with no / minimal firefighting intervention.

 The Evacuation / Notification zone will be increased / decreased based upon the firefighting strategy



Tactics above are not exhaustive, but will require professional judgement and expert advice from the Environment Agency, Public Health England, The Fire Service and where deployed STAC etc.

In all cases where a risk of air or ground pollution threatens health or the environment, the following Model (Diagram 2) should be observed when considering the short- and long-term impacts of a multi-agency response to resolve a fire at a waste site.

Diagram 2 - The Source, Pathway and Receptor model enables a general awareness of the likely challenges to be managed within the multi-



The initial phases of firefighting operations will undoubtedly involve a fire fighting attack involving water.

Controlled Burn - Any decision to consider a 'Controlled Burn' must be considered against:

- The duration the fire is likely to burn if no intervention is made
- Who and what will be at risk if subjected to long term exposure of smoke from the fire

- What is burning
- The impact on the community and quality of life if the fire is left to burn



**Firefighting Attack** – the decision to firefight will have initially been based upon a dynamic risk assessment by the fire service supported by an Environmental Impact assessment: Long term firefighting tactics will generate the potential for large volumes of firefighting run off; but can be mitigated by:

- The use of any containment measure on the site
- The use of improvised containment measures to capture run off
- Recycling firefighting water to reduce the quantity of run off
- The use of sacrificial areas in consultation with the Environment Agency.

**Guidance** - The multi-agency group must consider the wider challenges associated with a fire at a waste site and recognise that whilst the Fire Service will have primacy on firefighting operations; the wider challenges associated with the firefighting tactics being employed must be agreed collectively when the fire is likely to burn for long period of time.

#### Section 5 – transport considerations

The enduring nature of a waste site fire may present a number of challenges on transport networks. These are:

- Road Network depending on the location of the site, major roads or vital access routes may be obscured by smoke for long periods of time presenting hazards to road users. Further consideration must be made in anticipation of any traffic that may queue as a consequence of the fire; or at times where traffic congestion is known to occur regularly i.e. rush hour traffic. The focus in these situations must be:
  - The risk posed to road users by the obscured highway, or the risk of exposure to the occupants of vehicles for static traffic;
  - The criticality of routes required for emergency services for other 'business as usual' operations.
- Fire and Rescue Service Specialist Equipment Waste sites have a tendency to be in remote areas where water supplies for firefighting
  are poor. In these situations the Fire service may deploy large hose laying vehicles to lay temporary water mains. These mains can
  extend up to 3 KM on the highway posing a significant obstruction to road users and pedestrians. The deployment of temporary water
  mains and High Volume Pumps (HVP's) require the support of the police to secure the highway. This may require temporary road
  closures and diversions. The deployment of water mains of this type will require the multi-agency response to:
  - Communicate the impact the firefighting tactics will have on the community and general access in the vicinity
  - Enable support to the fire service to manage the surrounding area of the temporary main to prevent access to the area.



Note – the deployment of HVP water mains will require planning to consider the most efficient route with minimal disruption. Once established, HVP water mains cannot be manoeuvred without heavy plant.

• Air / Rail Networks – these networks must be considered during the firefighting operation were applicable.

#### Section 6 – Major incident – JESIP – TCG check list

A fire at a waste site has the potential to develop into a Major Incident for one or more agency.

Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services. A fire at a waste site is likely to require a multi-agency response when resolving the emergency and any ongoing consequences that have the potential to impact on communities in the short and long term.

In all cases where a multi-agency approach is required the Joint Emergency Services Interoperability Principles (JESIP), Joint Doctrine: The Interoperability Framework should apply. Early assessment of the potential impact on the community by the SCG and TCG is essential to establish immediate, short- and long-term priorities. The Following Check list should be used as an initial frame to formulate a strategy and supporting objectives to resolve the incident.

These items should be considered by the SCG and TCG over the duration of the incident and prioritised according to the principles of the Joint Decision Model. Initial Recommended Attendance – Fire, Police, EEAST, Environment Agency, PHE, District EPO, Norfolk County Council Resilience Team, Highways England, NHS England and media cell rep.

Ongoing Interested Parties – Trading Standards, HSE and Norfolk & Waveney Clinical Commissioning Groups.



# 6.1 Model - Strategy (not exhaustive for example purposes)

- □ Save and Protect Life
- □ Protect and preserve Environment
- Maintain Road transport infrastructure
- $\hfill\square$  Economic support and recovery

# 6.2 Model Objectives (not exhaustive for example purposes)

- Ensure that the Initial Isolation Zone has been established and persons within have been rescued / removed / vacated
- □ Assess the risk associated with the smoke plume immediately down wind of the incident

# 6.3 Key Decision Considerations

### Evacuation Profile / Health

- Have the respective evacuation zones been agreed and communicated throughout the multi-agency command framework?
- □ Number of persons in respective evacuation zone?
- □ Have specific life or vulnerability been identified Elderly persons, Residential Care, Hospitals, Schools?
- □ Presence of Livestock?

- □ Agree the Firefighting response
- □ Enable

- □ Monitor ongoing effectiveness of evacuation strategy:
  - o Monitor air contamination
  - o Mitigate air and ground contamination
- Implement necessary transport restrictions to 1) support emergency service operations and 2) prevent danger to transport network users.
- □ Presence of food processing plant?
- What evacuation / shelter advice is required? Agree evacuation parameters and tactics to execute evacuation plan.
- $\hfill\square$  Any key infrastructure sites within the evacuation zone?



Impact of Weather and atmospheric conditions on decisions:

2 -3 Hours forecast. 12 hours – will this impact on the agreed Evacuation plan and the scale of requirement?

# Air Quality

- □ Has an assessment of air quality been submitted by the AQC and undertaken by health professionals?
- □ What level of public engagement / information is required to advise on current air quality standards?

# Fire Fighting Tactics

- □ What will the tactics be full firefighting attack or controlled burn?
- □ Separation of waste with heavy plant part firefighting / part controlled burn?
- □ Has the firefighting tactics been agreed where off site risk have been identified.

### Transportation

- □ Have road closures been agreed with all responders?
- Have the fire service specified the scale of heavy plant deployment required to resolve the fire / specifying the level

- □ Is it foreseeable that the fire may burn for some significant period of time if so what additional plans need to be considered at this stage?
- □ Would any change in meteorological conditions lead to a change in the shelter/evacuation strategy?

- $\hfill\square$  Has the impact of firefighting been considered against:
  - The risk of environmental pollution?
  - The timeliness of the required / agreed evacuation plan?

of traffic control / diversions / closures required for High Volume Pumping ?

□ Has the impact of the fire been considered against Business as usual requirements for the emergency services?



#### Economic

- □ What is the estimated timescale for resolving the incident?
- What businesses are likely to be affected?

### Recovery

□ Has provision been made for ongoing environmental monitoring for air, water and soil contamination?

# Public information messages

□ Has a multi-agency media cell been set up?

### Concurrent issues

- □ Any restriction on movement due to animal or human disease risks
- Emergency Services dealing with other Major Incidents in the county
- Emergency Services deployed elsewhere in the country at large events that could lessen resources available.

### Cells within the coordination framework

Management of a multi-agency response may benefit by developing function specific cells within the coordination framework, these may include:

- Air Quality Cell (established jointly by the Environment Agency and PHE) to consider the impact of air and ground contamination that may present immediate or long term health risks to people and livestock. This should also include potential compromise to areas associated with the food chain.
- Transport to consider:
  - $\circ\;$  The management of any evacuation process
  - $\,\circ\,\,$  Isolation or restriction to support emergency ingress or egress for emergency services

- □ What is the impact on electricity or water supplies to the public?
- □ Are there any anticipated long term health risks associated with the fire?



- $\circ\;$  The wider impact on Rail and Air transport infrastructure
- Evacuation to consider the need for Humanitarian Assistance and implement if necessary
- Recovery to consider the long term effects of potential air, water or ground contamination
- Food chain to consider the impact on livestock contamination, grazing areas, standing crops and food processing facilities potentially affected by smoke contamination

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- Media multi-agency media cell to coordinate public messages:
  - $\circ$  Have public health lines been included in any press/media information;
  - Is there any need for ongoing updates/information to the public e.g. in the form of FAQ's, newsletters



#### Protocols

This guidance will take effect 01 August 2020 and replaces all previous versions. It will be reviewed 3-yearly or should legislation or best practice guidance necessitate such action. The master copy of this document and a record of the review and decision-making process will be held by Norfolk Resilience Forum (NRF). Contributing organisations are asked to notify NRF of any changes that may impact on the content or procedures outlined in this document.

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#### Amendments

Date	Details	Amended By
March 2016	First draft version complete, ready for consultation.	Richard Herrell
0.4 / 0.5	Updated following consultation	Gemma Bailey
0.6	Updated following health consultation	G. Bailey
1.0	Submitted for Exec Lead sign off	G. Bailey
July 2020	Reviewed	Derek Sim



# Records of Plan Validation and Training Schedule (last 5 years)

Date	Details	Exercise/Training/Incident
9 June 2016	Tactical Coordinating Group Awareness Course - waste fire scenario & plan used during the TCG Awareness Course.	Training
2017	Three large Waste site fires across the county of Norfolk, collaboration between Emergency Services, Environment Agency, Local Authorities to bring to a successful conclusion	Incidents

# **Distribution List**

No.	Recipient	No.	Recipient
1	Norfolk & Suffolk Constabularies, Contingency Planning	9	North Norfolk District Council, Civil Contingencies
2	Norfolk Fire & Rescue Service	10	South Norfolk Council, Emergency Planning
3	East of England Ambulance Service	11	Environment Agency (Essex, Norfolk & Suffolk and Cambridgeshire & Bedfordshire)
4	Norfolk County Council, Resilience Team	12	Public Health England
5	Borough Council of Kings Lynn & West Norfolk, Emergency Planning	13	Great Yarmouth Borough Council, Emergency Planning
6	Breckland District Council, Emergency Planning	14	Norfolk County Council Public Health
7	Broadland District Council, Emergency Planning	15	NHS England
8	Norwich City Council, Emergency Planning	16	Clinical Commissioning Groups (via PRO Public Health)



#### Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
AEGL	Acute Exposure Guide Lines	JESIP	Joint Emergency Services Interoperability Principles
CRR	Community Risk Register	NCC	Norfolk County Council
EA	Environment Agency	NERG	Norfolk Emergency Response Guidance
EEAST	East of England Ambulance Service NHS Trust	NFRS	Norfolk Fire & Rescue Service
EPO	Emergency Planning Officer	NRF	Norfolk Resilience Forum
ERG	Emergency Response Guidance	PHE	Public Health England
HMEPA	Hazardous Materials Environmental Protection Advisor – (Norfolk Fire and Rescue Service)	SCG	Strategic Coordinating Group
HSE	Health & Safety Executive	STAC	Scientific Technical Advisory Cell
HVP	High Volume Pump	TCG	Tactical Coordinating Group

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