

EMERGENCY RESPONSE GUIDE

DRAFT

MAJOR ACCIDENT HAZARD PIPELINE PLAN

DATE 9-1-06

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1. Aim of the plan, including links with the plans of other responders

The aim of this emergency plan is to detail action to be taken to minimise the consequences to the health and safety of people in the event of a major accident involving a major accident hazard pipeline.

OBJECTIVES

- To have a clear structure to ensure all users understand the principles of its operation.
- To reduce the risks to the health and safety of all those affected by an emergency, both immediately and potentially.
- To identify those measures needed to contain the effects of the emergency.
- To manage the emergency to minimise the effects on the activities of those not directly involved.
- To deal effectively with pipelines which cross local authority boundaries (both pipelines come into the city from the county).

This plan has been produced by the Emergency Planning Team, Nottingham City Council, in consultation with the pipeline operator; Nottinghamshire Police; Nottinghamshire Fire and Rescue Services; the Nottinghamshire Ambulance Service; NHS Trust; and Nottinghamshire County Council.

Amendments to this plan will be issued as complete page amendments. Plan holders must ensure that any amendments are inserted immediately and those pages that they replace are destroyed.

2. Information about the specific hazard or contingency or site for which the plan has been prepared

Pipelines are considered a safe mode of transportation for conveying hazardous substances and are often safer than alternative methods, for example, by road or rail. However, there are occasions when pipeline failures can occur, resulting in loss of containment or release of the pipeline contents.

Causes of failure to a pipeline can be attributed to the following:-

- Third party damage – accidental or carelessness; deliberate or malicious acts;
- Corrosion – internal and external;
- Mechanical failure - material defects; construction defects; fatigue; stress corrosion cracking; operational errors; maintenance problems;
- External hazards e.g. soil movement; earthquakes; adjacent plant or pipeline failures.

Within Nottingham, three pipelines fall within the scope of the Pipeline Safety Regulations 1996. The Regulations apply to all relevant pipelines conveying 'dangerous fluids', as defined in Schedule 2 of the Regulations and referred to as major accident hazard pipelines, or **MAHP**. The Regulations are designed to ensure that pipelines are designed, constructed, operated, maintained and decommissioned safely.

The Regulations also require pipeline operators to establish emergency procedures for such pipelines. Regulation 25 of the Pipeline Safety Regulations places a duty on the City Council, once notified by the Health and Safety Executive, to prepare, maintain and test adequate emergency plans relating to pipelines within their area which have the potential to cause a 'major accident'. These emergency plans are required to provide an additional safeguard so that, in the unlikely event of a major accident involving a pipeline, protection could be provided to members of the public whose health and safety might be affected.

When a high-pressure gas pipeline fails there is a relatively stable flow until the pipeline is isolated and pressure reduced. The pipeline will, following isolation, 'unpack' due to the leak; this in turn will reduce the consequences of ignition. The gas release could potentially continue for some time.

Gas is lighter than air and, therefore, there is a possibility of a flammable gas cloud forming near to the damaged area of the pipeline, the extent of which is difficult to predict as it is dependant on the release pressure, size and direction of the release and the atmospheric conditions at the time.

An explosion would not normally be expected to occur as a result of a pipeline

failure except if the released gas is confined in some way and present in a flammable concentration. This could occur if the released gas was confined after entering a building. Steps should be taken to ensure that potential ignition sources are not introduced into the area around the release where gas could be present in flammable concentrations.

The following are the more likely hazards and effects or consequences of pipeline failure but an incident may involve a combination of two or more of these effects:

Fire and explosion – If a release is ignited immediately it may burn as a jet flame or pool fire. If a developed cloud is ignited it may burn as a flash fire back to the point of failure or an expanding vapour cloud explosion. The ignition of any release can have serious effects over considerable distances and may involve little opportunity for escape. People indoors may be shielded from the effects of the thermal radiation but the radiation levels may be sufficient large enough to cause buildings to catch fire.

Blast effects and projectiles – The pressure-blast at the time of failure can be significant in close proximity to the pipeline. In the event of a major failure, the pipeline cover material, including soil, rock, hard-core, etc., will be thrown at high velocity into the air. However, blast pressures as low as 1 psi can damage window glass over a considerable distance from the source and thus potentially cause fatalities.

Cryogenic effect – The sudden release of certain fluids may cause severe local cooling of the atmosphere and any person caught in the cloud of released gas may suffer ‘cold burns’ or damage to the lungs.

Asphyxiation – The release of large amounts of gas or vapours (even non-toxic substances) at high concentrations could cause asphyxiation due to the exclusion of oxygen.

Noise – The release of high pressure gas creates a great deal of noise which can be very intense and may cause damage to people’s hearing. The noise can be disorientating and may cause unexpected behaviour in people. A major failure of a high-pressure gas pipeline in a suburban area may result in large numbers of people seeking medical attention for hearing problems.

As an incident involving a pipeline could occur at any point along its length this plan focuses on those parts of the pipeline which are vulnerable to damage such as road, rail and river crossings and other areas of higher risk (see regulation 25, paragraph 141 of HSE’s ‘A guide to the Pipelines Safety Regulations 1996’).

3. Trigger for activation of the plan including alert and standby procedures

Notification of an incident may be generated by a member of the public, the emergency services, pipeline operators or contractors working on or adjacent to the pipeline. Once an emergency call has been received by the relevant pipeline operator, the operator will progress the report in line with their standard procedures activating their emergency response in keeping with the nature of the incident.

Should the incident be declared a **MAHP** emergency, the pipeline operators 'incident/emergency controller' would ensure that Nottinghamshire Police and Nottinghamshire Fire and Rescue Service were informed of the exact nature and location of the incident. Both emergency services would then implement their responses in accordance with their own contingency plans allocating sufficient resources necessary to deal effectively with the incident. Clearly there needs to be a flexible escalation process due to how and from whom the original warning comes from (see Appendix 2).

In the event of an emergency involving a major accident hazard pipeline, prompt and appropriate information will have to be provided to those affected by the emergency. The nature of the emergency will dictate whether people can be given advanced notice of the situation and what actions to take, or information upon an incident that has occurred and what is subsequently required.

Information in a pipeline emergency can, therefore, be categorised as follows:

- Information to sites/premises identified as special risks (i.e., hospitals, schools, residential homes etc.);
- Information to the general public who may be affected by the emergency;
- Information to and through the news media.

The pipeline operator should be prepared to make a formal statement as soon as possible after the emergency response has been activated. In consultation with the pipeline operator and the emergency services, where a public announcement is thought necessary, details of the following should be included:

- The common or generic name of the fluid involved and harmful characteristics in terms of people's health and safety;
- Details of the nature of the incident and its knock-on effects;
- Protective measures, i.e., move away, stay indoors, close windows etc.;
- Details of any evacuation arrangements.

A pipeline emergency will attract news media representatives and the emergency services, the pipeline operator, local authorities or other affected organisations may be contacted direct and asked to report upon their own actions. However, it may be appropriate at some stage to issue joint statements at press conferences etc. The co-ordination of arrangements for joint statements will be undertaken by the police.

4. Activation procedures

On arrival at the scene of a pipeline emergency, the emergency services will need to decide, in consultation with the operator's 'incident/emergency controller', who needs to be warned for safety reasons. This will be the responsibility of the officer in charge who will need to liaise with the operator's representative on the most effective approach.

Additionally, should there be a duty or requirement to do so, due to the nature of the incident impinging on (or having caused damage to the following services), the operator's 'incident/emergency controller' would inform:

The Utilities – Electricity; Gas; Water; Telephone.
Environment Agency
British Waterways
Network Rail
Civil Aviation Authority

The Emergency Planning Officer of Nottingham City Council, once informed of a Major Accident Hazard Pipeline emergency by the police, would respond to requests for City Council resources and implement the City's emergency response arrangements, if required. The Emergency Planning Officer would liaise closely with the operator's 'incident/emergency controller' and the emergency services regarding the emergency.

5. Identification and roles of multi-agency strategic (gold) and tactical (silver) teams and identification of lead responsibilities of different responder organisations at different stages of the response

All emergency services have a Strategic and Tactical plans and it will be decided at the time, the nature and extent of the emergency who would take the lead role at each command and which plans would be exercised. At Gold and Silver command all of the Emergency Services will be represented and it is important that a representative from the Pipeline operator is also present. The lead responder will usually be the Police but dependant on the incident the Fire Brigade may well take the lead. This has to be flexible due to the differing scenario's that may be faced.

For complete roles, responsibilities and 3-tier structure of all agencies please refer to; Sections 5 and 6 "Managing an Emergency"; Section 4.5 of the LRF Strategy Document; Section 3.5 of the LRF Tactical Document and Section 6 of the Tactical document which sets out the roles, and responsibilities and resources of the partner agencies.

6. Identification of roles of each responder organisation

PIPELINE OPERATOR

- Declaration of MAHP emergency
- Alert Emergency Services advising them of the nature and location of the emergency
- Warning to public at risk
- Warning sensitive locations within the danger zone
- Liaison with emergency services and local authority
- Liaison with affected utilities/organisations
- Provision of safety advice for the emergency services and public at risk
- Notify other affected services/organisations (Utilities; Network Rail; Environment Agency etc.)
- Repair; Product Management
- Informing the emergency services of closure of incident
- Joint provision of information to the public
- Notification of incident to HSE

NOTTINGHAMSHIRE POLICE

- Alert the following, informing them of the nature and location of the incident:
 - Fire and Rescue Service
 - Ambulance Service
 - Relevant Pipeline Operator (National Grid)
 - Local Authority Emergency Planning Officer
- Co-ordination of emergency response
- Traffic management – road closures, diversions etc
- Public safety – cordons, warning to public at risk
- Co-ordination of any necessary evacuation

- Security of vacated premises
- Continued 'liaison' with Pipeline Operator and other agencies
- Co-ordination of public information

NOTTINGHAMSHIRE FIRE & RESCUE SERVICE

- Alert the following, informing them of the nature and location of the incident:
 - Police
 - Ambulance Service
 - Pipeline Operator (National Grid)
- Preservation of life at scene
- Casualty evacuation
- Liaison with Pipeline Operator and other agencies
- Joint provision of information to the public

NOTTINGHAM CITY COUNCIL

- Alert the following, informing them of the nature and location of the incident:
 - Police
 - Fire and Rescue Service
 - Pipeline Operator (National Grid)
- Respond to requests for relevant functions (road barriers, diversion signs, etc.)
- Activate City's Major Incident response arrangements, should this be necessary, for the provision of:
 - Emergency Accommodation
 - Welfare
 - Emergency Transport
 - Emergency Catering
 - Help Line etc.
- Liaison with Pipeline Operator and other agencies

- Liaison with emergency services
- Liaison with adjoining Local Authorities (if necessary)
- Joint provision of information to the public

NETWORK RAIL – Midlands Zone

- Safeguarding trains which are in or approaching the area affected by the emergency
- Taking appropriate action in respect of passengers and train crew aboard trains
- Arranging for staff working on the railway infrastructure in the area affected by the emergency to be advised on what action to take
- Sending an incident officer to the site or relevant rendezvous point, where appropriate, to assess and monitor the situation and liaise with other responding organisations
- Implementing, in conjunction with train operating companies, contingency arrangements for train services
- Isolating electricity supplies where necessary

7. Location of joint operations centre from which emergency will be managed

To maintain flexibility the Emergency services will decide where the Bronze and Silver commands will be situated on the day, depending on the incident, but both could well be on the ground. Gold, if needed, will be decided by the Emergency Services.

National Grid have a Bus at Ambergate which may be used as Silver if no other facility can be found. This may mean that there are two Silver /Bronze commands in operation (i.e. 1 National Grid and 1 Emergency Services). If this is the case National Grid will also provide staff for both Bronze and Silver Emergency Services commands to aid response and communication (this will be notified to Emergency Services on the day).

8. Stand-down procedures

Cat 1 Responder	Stand-down condition
Nottingham City Council	When the effects of the emergency on people, property environment and infrastructure are made safe for the public to go about their normal business whilst complete recovery is being worked to.
Police	When no further life at risk. All property secure and safe. Restoration of normality achieved, with no further need to coordinate other emergency services. Further considerations that may influence stand-down are: Investigations, preservation of crime scene, collection and dissemination of casualty information and identification of deceased.
Fire	All rescues had been undertaken. All fires extinguished. Flammable atmospheres ventilated and dispersed. Environmental effects have been mitigated.
Ambulance	All casualties removed. No further need for triage or first aid.
NHS bodies	All casualties treated.
Environment Agency	Environmental effects have been mitigated and there is no further risk to the environment. Clean up has been completed and no further impact or consequence is anticipated from the emergency.
External Organisations	Stand-down condition
National Grid	Area made safe. All gases ventilated and dispersed with no further risk of escape. Pipeline repaired and made operational. Reinstatement of surrounding area roads, paths, SSSI's ESSSI's and AONB's etc

Most responders would leave support in each command until the lead agency Bronze /Silver commander disbanded the command.

9. Plan maintenance and training procedures

1. Plan validation (Exercises) schedule

Exercise and testing is not required under the Pipeline Safety Regulations for emergency plans after publication and no provision for the costs incurred of exercising and testing is made. It is, however, in the interest of all to co-operate and co-ordinate their individual exercises/tests, in the validation of emergency procedures, equipment and control centres including the effectiveness of inter-agency communications.

This Plan will be reviewed every 3 years. However, the Plan should be revised if a new risk assessment indicates that the plan is out of date or a new risk is identified; lessons are learned from experience of an emergency; lessons are learned from an exercise; restructuring and other changes in organisations, their procedures and technical systems identified in the plan take place or changes in key personnel. The Civil Contingencies Act 2004 requires that plans include provisions for carrying out exercises.

It is, therefore, proposed to hold a full multi-agency exercise every 5 years (or as deemed necessary by multi-agency group or operator).

It is also proposed to test call-out procedures every 2 years (or as deemed necessary by multi-agency group or operator).

	2004	2005	2006	2007	2008	2009
Plan Review		X			X	
Exercise	X					X
Call-out Test	X		X		X	

2. Training schedule

Training for an effective response to a major pipeline accident is the responsibility of the individual emergency services and agencies in the plan. This does not preclude or obviate combined or joint training initiatives by all participants in this plan.

The Civil Contingencies Act 2004 requires provisions for the training of staff or other persons to be included in the plan.

It is, therefore, proposed to hold a training event every 3 years (or as deemed necessary by multi-agency group or operator).

	2004	2005	2006	2007	2008	2009	2010
Seminar	X			X			X
Training Event	X			X			X
Other							

Contact details of key personnel

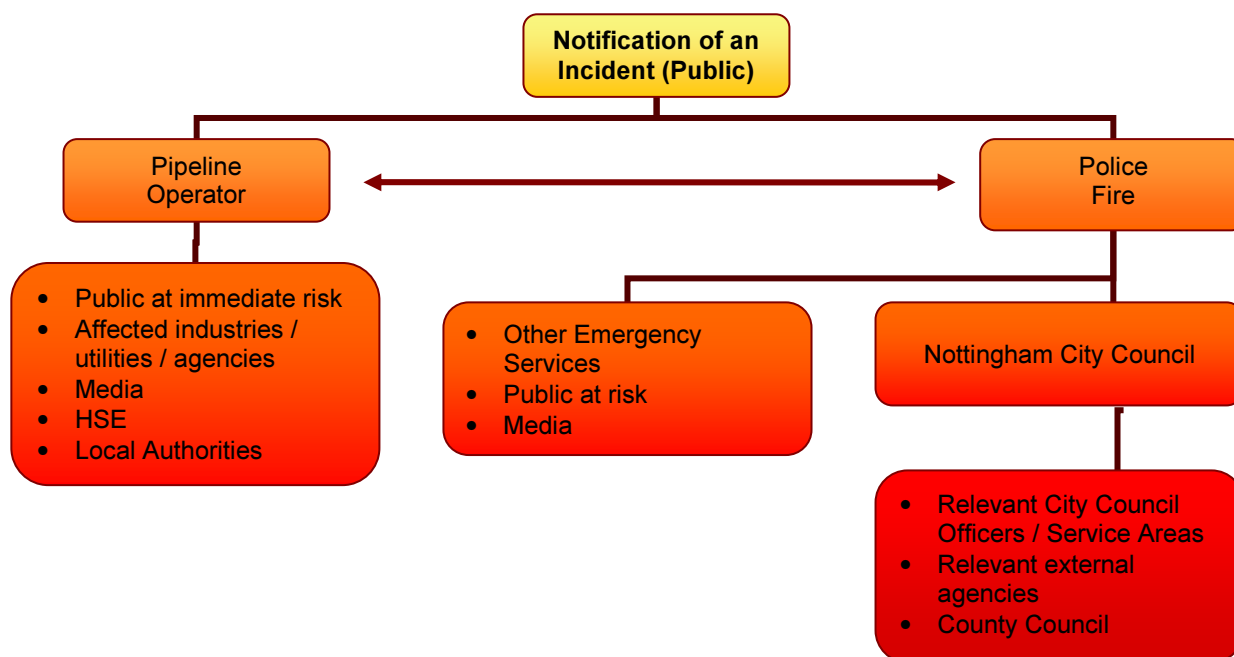
Full contact details for all our partner organisations can be found in “Managing an Emergency” section 2 held by the Emergency Planning Section, Nottingham City On-Call and key senior officers of Nottingham City Council.

Emergency contact numbers below in red and Gas pipeline operators boxed in red.

Plan specific contact details

Not for publication paragraph 14 schedule 12A Local Government Act 1972.

Information Route



All the paths are clearly two way routes and the diagram shows the initial escalation route but this model will remain true during the event.

NB. It is essential that Silver contact number and pipeline operations managers number (The manager that is managing the incident for National Grid) are distributed to all responders.

Papplewick – Basford Pipeline (PSR No 1156)

OPERATORS PARTICULARS	NAME	NATIONAL GRID
	ADDRESS	Brick kiln street, Hinckley, Leicestershire, LE10 0NA.
	CONTACT	Engineering Manager
TYPE – SIZE	'S' TYPE – 610mm; 37.2 bar	
ROUTE	The pipeline runs south from the Balderton – Ashleyhay pipeline (Gedling District Council) into Basford (Nottingham City Council) via Bestwood, Top Valley and Highbury Vale.	

CONVEYED FLUID DATA

NAME OF SUBSTANCE	Natural Gas: Also known as Methane, Methyl hydride, sludge gas or marsh gas
PHYSICAL PROPERTIES	Lighter than air; Formula: 94% CH ₄ ; 3% C ₂ H ₆ ; 1% C ₃ H ₈ ; 2% N ₂ . Appearance: colourless; Odour: distinctive; Boiling Point: N/A. Specific Gravity: 0.59 relative to dry air at 1013.25 mbar 15.5C. Molecule Weight: 17.18. Latent Heat of Vaporisation at – 161 deg C: N/A

HAZARD DATA

HAZARD	Flammable; asphyxiant; compressed gas; can form explosive mixture with air; heating will cause pressure rise with risk of bursting and explosion; Carbon Monoxide formed when on fire. Contact with Chlorine or Bromine in direct sunlight is explosive.
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SHORT TERM EFFECTS	Will cause loss of consciousness; move patient into fresh air upwind of escape; apply artificial respiration as necessary; obtain medical assistance.
PROTECTIVE CLOTHING	Breathing apparatus and probanised clothing/fire suits (fire or vapour/dust concentrations only)
UNCONTROLLED RELEASE	Vacate area; Inform operator and emergency services.
FIRE	Vacate area; Inform operator and emergency services.

	<p>Flash Point: approx. N/A</p> <p>Auto-ignition Point: approx. 620.5 deg C</p> <p>Flammability Limits: Upper 15.01/2 deg C; Lower 4.91/2 deg C</p> <p>Hydrogen Sulphide: 1 ppm</p>
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EMERGENCY INFORMATION

EMERGENCY PLANNING DISTANCES	Noise: Distance to threshold of pain determined in accordance with methods of IGE/SR/23 (Venting Natural Gas) guidelines.	64 m
	Debris Throw: Distance equal to IBPD based on data relating to actual events. Most debris will be contained within this distance but pipe fragments may travel further.	53 m
	Over Pressure: Estimates based on a high likelihood of window breakage but little structural damage.	26 m
	Thermal Radiation:	
	Normal Localities: Distance to an individual risk of 0.3 cpm in a pipeline designated to minimum TD/1 conditions.	

	<p><u>Sensitive Localities</u>: Distance to an individual risk of 0.3 cpm in a pipeline designated to minimum TD/1 conditions.</p> <p>Thermal Hazard Range: Thermal hazard range equal to 7 BPD for ruptures and escape distance for leaks.</p>	150 m
		170 m
		365 m
<p>CONTROL CENTRE</p> <p>KEY PERSONNEL AND THEIR ROLES</p> <p>PREVAILING WIND</p>	<p>CONTROL ROOM, To be identified at time of incident.</p> <p>NATIONAL GRID MANAGER – Responsible for assessing the scale of the incident in conjunction with the relevant centre</p> <p>NATIONAL GRID INCIDENT CONTROLLER – Responsible for co-ordinating the NATIONAL GRID response to the incident including liaison with Local Authorities and emergency services and welfare organisations (to ensure that adequate provision is made for vulnerable members of the community).</p> <p>NATIONAL GRID MAJOR INCIDENT TEAM – Responsible for managing the gas emergency.</p> <p>South Westerly – For up to date local weather conditions contact the Birmingham Weather Centre.</p>	

EMERGENCY MEDICAL ADVICE	Nottinghamshire Ambulance Service in liaison with the pipeline operator and other emergency services		
LOCAL AUTHORITY AREA AND BOUNDARY	DETAIL	O.S. MAP SERIES LAND-RANGER 120,129 & 130	REMARKS

NOTTINGHAM CITY COUNCIL		SK 5717 4608	Pipeline runs SW to Basford, Nottingham via Bestwood, Top Valley and Highbury Vale
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Thulston – Thane Road (PRS No 2735)

OPERATORS PARTICULARS	NAME ADDRESS CONTACT	NATIONAL GRID Brick kiln street, Hinckley, Leicestershire, LE10 0NA. Engineering Manager
TYPE – SIZE ROUTE	RURAL 'R' – 310mm; 37.2 bar The pipeline runs east from Thulston (Derbyshire), through Rushcliffe Borough Council and Broxtowe Borough Council to Thane Road, Nottingham City Council, crossing the River Trent SE of Long Eaton and again NE of Clifton.	

CONVEYED FLUID DATA

NAME OF SUBSTANCE PHYSICAL PROPERTIES	Natural Gas: Also known as Methane, Methyl hydride, sludge gas or marsh gas Lighter than air; Formula: 94% CH ₄ ; 3% C ₂ H ₆ ; 1% C ₃ H ₈ ; 2% N ₂ . Appearance: colourless; Odour: distinctive; Boiling Point: N/A. Specific Gravity: 0.59 relative to dry air at 1013.25 mbar 15.5C. Molecule Weight: 17.18. Latent Heat of Vaporisation at – 161 deg C: N/A
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HAZARD DATA

HAZARD	Flammable; asphyxiant; compressed gas; can form explosive mixture with air; heating will cause pressure rise with risk of bursting and explosion; Carbon Monoxide formed when on fire. Contact with
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SHORT TERM EFFECTS	Chlorine or Bromine in direct sunlight is explosive. Will cause loss of consciousness; move patient into fresh air upwind of escape; apply artificial respiration as necessary; obtain medical assistance.
PROTECTIVE CLOTHING	Breathing apparatus and probanised clothing/fire suits (fire or vapour/dust concentrations only)
UNCONTROLLED RELEASE	Vacate area; inform operator and emergency services.
FIRE	Vacate area; inform operator and emergency services.

	Flash Point: approx. N/A Auto-ignition Point: approx. 620.5 deg C Flammability Limits: Upper 15.01/2 deg C; Lower 4.91/2 deg C Hydrogen Sulphide: 1 ppm
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EMERGENCY INFORMATION

EMERGENCY PLANNING DISTANCES	Noise: Distance to threshold of pain determined in accordance with methods of IGE/SR/23 (Venting Natural Gas) guidelines.	64 m
	Debris Throw: Distance equal to IBPD based on data relating to actual events. Most debris will be contained within this distance but pipe fragments may travel further.	33 m
	Over Pressure: Estimates based on a high likelihood of window breakage but little structural damage.	17 m
	Thermal Radiation:	
	Normal Localities: Distance to an individual risk of 0.3 cpm	

	<p>in a pipeline designated to minimum TD/1 conditions.</p> <p><u>Sensitive Localities</u>: Distance to an individual risk of 0.3 cpm in a pipeline designated to minimum TD/1 conditions.</p> <p>Thermal Hazard Range: Thermal hazard range equal to 7 BPD for ruptures and escape distance for leaks.</p>	<p>75 m</p> <p>105 m</p> <p>230 m</p>
<p>CONTROL CENTRE</p> <p>KEY PERSONNEL AND THEIR ROLES</p> <p>PREVAILING WIND</p>	<p>CONTROL ROOM, To be identified at time of incident.</p> <p>NATIONAL GRID MANAGER – Responsible for assessing the scale of the incident in conjunction with the relevant centre.</p> <p>NATIONAL GRID INCIDENT CONTROLLER – Responsible for co-ordinating the NATIONAL GRID response to the incident including liaison with Local Authorities and emergency services and welfare organisations (to ensure that adequate provision is made for vulnerable members of the community).</p> <p>NATIONAL GRID MAJOR INCIDENT TEAM – Responsible for managing the gas emergency.</p> <p>South Westerly – For up to date local weather conditions contact the Birmingham Weather Centre.</p>	

EMERGENCY MEDICAL ADVICE	Nottinghamshire Ambulance Service in liaison with the pipeline operator and other emergency services		
LOCAL AUTHORITY AREA AND BOUNDARY	DETAIL	O.S. MAP SERIES LAND-RANGER 120,129 & 130	REMARKS

NOTTINGHAM CITY COUNCIL		SK 5319 3415	Pipeline runs NE into Nottingham City
		SK 5471 3539	Pipeline runs NE into Nottingham City

Boots Beeston Tee – Boots Beeston(PSR No 1169)

OPERATORS PARTICULARS	NAME	NATIONAL GRID
	ADDRESS	Brick kiln street, Hinckley, Leicestershire, LE10 0NA.
	CONTACT	Engineering Manager
TYPE – SIZE	RURAL 'R' – 168mm; 37.2 bar	
ROUTE	The pipeline runs in an almost North Westerly direction across the Beeston Canal into the Boots Beeston Site.	

CONVEYED FLUID DATA

NAME OF SUBSTANCE	Natural Gas: Also known as Methane, Methyl hydride, sludge gas or marsh gas
PHYSICAL PROPERTIES	Lighter than air; Formula: 94% CH ₄ ; 3% C ₂ H ₆ ; 1% C ₃ H ₈ ; 2% N ₂ . Appearance: colourless; Odour: distinctive; Boiling Point: N/A. Specific Gravity: 0.59 relative to dry air at 1013.25 mbar 15.5C. Molecule Weight: 17.18. Latent Heat of Vaporisation at – 161 deg C: N/A

HAZARD DATA

HAZARD	Flammable; asphyxiant; compressed gas; can form explosive mixture with air; heating will cause pressure rise with risk of bursting and explosion; Carbon Monoxide formed when on fire. Contact with Chlorine or Bromine in direct sunlight is explosive.
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SHORT TERM EFFECTS	Will cause loss of consciousness; move patient into fresh air upwind of escape; apply artificial respiration as necessary; obtain medical assistance.
PROTECTIVE CLOTHING	Breathing apparatus and probanised clothing/fire suits (fire or vapour/dust concentrations only)
UNCONTROLLED RELEASE	Vacate area; inform operator and emergency services.
FIRE	Vacate area; inform operator and emergency services.

	<p>Flash Point: approx. N/A</p> <p>Auto-ignition Point: approx. 620.5 deg C</p> <p>Flammability Limits: Upper 15.01/2 deg C; Lower 4.91/2 deg C</p> <p>Hydrogen Sulphide: 1 ppm</p>
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EMERGENCY INFORMATION

EMERGENCY PLANNING DISTANCES	Noise: Distance to threshold of pain determined in accordance with methods of IGE/SR/23 (Venting Natural Gas) guidelines.	64 m
	Debris Throw: Distance equal to IBPD based on data relating to actual events. Most debris will be contained within this distance but pipe fragments may travel further.	33 m
	Over Pressure: Estimates based on a high likelihood of window breakage but little structural damage.	17 m
	Thermal Radiation:	
	<u>Normal Localities:</u> Distance to an individual risk of 0.3 cpm in a pipeline designated to minimum TD/1 conditions.	

	<p><u>Sensitive Localities</u>: Distance to an individual risk of 0.3 cpm in a pipeline designated to minimum TD/1 conditions.</p> <p>Thermal Hazard Range: Thermal hazard range equal to 7 BPD for ruptures and escape distance for leaks.</p>	75 m
		105 m
		230 m
<p>CONTROL CENTRE</p> <p>KEY PERSONNEL AND THEIR ROLES</p> <p>PREVAILING WIND</p>	<p>CONTROL ROOM, To be identified at time of incident.</p> <p>NATIONAL GRID MANAGER – Responsible for assessing the scale of the incident in conjunction with the relevant centre.</p> <p>NATIONAL GRID INCIDENT CONTROLLER – Responsible for co-ordinating the NATIONAL GRID response to the incident including liaison with Local Authorities and emergency services and welfare organisations (to ensure that adequate provision is made for vulnerable members of the community).</p> <p>NATIONAL GRID MAJOR INCIDENT TEAM – Responsible for managing the gas emergency.</p> <p>South Westerly – For up to date local weather conditions contact the Birmingham Weather Centre.</p>	

EMERGENCY MEDICAL ADVICE	Nottinghamshire Ambulance Service in liaison with the pipeline operator and other emergency services		
LOCAL AUTHORITY AREA AND BOUNDARY	DETAIL	O.S. MAP SERIES LAND-RANGER 120,129 & 130	REMARKS

NOTTINGHAM CITY COUNCIL		SK 5478 3635 SK 5473 3638	The Pipeline runs across the Beeston Canal in an almost North Westerly direction into the Boots Beeston site.
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Emergency Planning Distances

'S' AREA DESIGN PIPELINES OPERATING UP TO 75 BAR

Type of Event	Pipeline Diameter (mm)	Pipeline Pressure (bar)	Emergency Planning Distances				Thermal Hazard Range (m) (5)
			Noise (m) (1)	Debris Throw (m) (2)	Over-pressure (m) (3)	Thermal 0.3 cpm (m) (4)	
0 – 25 mm Leak	All	75	3	5	5	5	5
		40	2	5		5	5
25 – 75 mm Leak	All	75	5	12	6	24	48
		40	3	8		15	35
75 – 150 mm Leak	All	75	18	20	10	35	60
		40	13	15		20	33
Rupture	168	75	40	20	10	60	80
		40	26	15		48	55
	324	75	64	33	17	60	90
		40	40	22			70
	457	75	64	37	21		126
		40	40	28			90
	610	75	64	53	26		165
		40	40	36			130
	762	75	64	64	33		230
		40	40	45			190
	914	75	64	80	40		250
		40	40	57			205
	1067	75	64	95	48		250
		40	40	70			215
	1219	75	64	117	58		315
		40	40	90			225

Notes:

Distance to threshold of pain determined in accordance with methods of IGE/SR/23 (Venting Natural Gas) guidelines.

Distance equal to $I \times BPD$ based on data relating to actual events. Most debris will be contained within this distance but pipe fragments may travel further.

Estimates based on a high likelihood of window breakage but little structural damage.

Distance to an individual risk of 0.3 cpm in a pipeline designed to the minimum TD1 conditions or the hazard range for a 75-150 mm leak if rupture does not reach this level.

Distances to zero casualty probability.

Note that the hazard range is less than that for rural areas due to the increased shelter provided by housing in the more densely populated areas.

'R' AREA DESIGN PIPELINES OPERATING UP TO 75 BAR

Type of Event	Pipeline Diameter (mm)	Emergency Planning Distances					Thermal Hazard Range (m) (6)
					Thermal Radiation		
		Noise (m) (1)	Debris Throw (m) (2)	Over-pressure (m) (3)	Normal Localities (m) (4)	Sensitive Localities (m) (5)	
0 - 25 mm leak	All	3	5	5	4	5	5
25 - 75 mm leak	All	5	12	6	9	10	11
75 - 150 mm leak	All	18	20	10	72	81	90
Rupture	168	40	20	10	75	85	140
	324	64	33	17	75	105	230
	457	64	37	21	108	117	290
	610	64	53	26	150	170	365
	762	64	64	33	195	260	455
	914	64	80	40	220	265	560
	1067	64	95	48	230	275	665
	1219	64	117	58	250	340	812

Notes:

1. Distance to threshold of pain determined in accordance with methods of IGE/SR/23 (Venting Natural Gas) guidelines.
2. Distance equal to $l \times BPD$ based on data relating to actual events. Most debris will be contained within this distance but pipe fragments may travel further.
3. Estimates based on a high likelihood of window breakage but little structural damage.
4. Distance to an individual risk of 0.3 cpm in a pipeline designed to the minimum TD1 conditions or the hazard range for a 75-150 mm leak if rupture does not reach this level.
5. Distances to zero casualty probability.
6. Thermal hazard range equal to 7 BPD for ruptures and escape distance for leaks.

References

Title	Publication No.
1. Pipelines Safety Regulations 1996	SI 825 ISBN 0-11-054373-4
2. A guide to the Pipelines Regulations 1996 Guidance on Regulations - HSE	L82 ISBN 0-7176-1182-5
3. Further guidance on emergency plans for major accident hazard pipelines – HSE (final draft-revised 1st May 1997)	ISBN 0-7176-1393-3
4. Information for Local Authority Emergency Planners Part 1 2004 – Management procedures for ensuring compliance with Pipeline Safety Regulations 1996 for above 7bar natural gas pipelines.	T/PM/PSR/4 Appendix C
5. The Health and Safety at Work etc. Act 1974 – Chapter 37	ISBN 0-10-543774-3
6. Gas Safety (Management) Regulations 1996	ISBN 0-11-054-184-7
7. Control of Major Accident Hazards Regulations 1999	SI 743
8. The Institute of Petroleum Model Code of Safety Practice Part 6 Pipeline Safety Code	ISBN 0-471-26139-4
9. British Standard Code of Practice for Pipelines Part 2 on Land: design, construction and installation Section 2.8: Steel for oil and gas	ISBN 0-580-20996-2
10. The Institute of Gas Engineers Recommendations on Transmission and Distribution Practice, Steel Pipelines for High Pressure Gas Transmission – IGE/TD/1 Edition 4 2001	ISBN 0-367-7850
11. Risk criteria for land use planning in the vicinity of major industrial hazards – HSE	ISBN 0-11-885491-7
12. Managing An Emergency – Nottingham City Council	
13. Emergency Procedures Manual – Nottinghamshire Police	
14. Major Incident Plan – Nottinghamshire Fire & Rescue Service	

15. Major Incident Operational Plan – Nottinghamshire
Ambulance Service NHS Trust

16. PowerGen's notification document to the HSE

7501-LST-P003 Rev 0

Useful Terms of Reference

Pressure ranges under which major accident hazard pipelines operate are from above 7 bar to 35 bar and the maximum design pressure is from 19 bar to 70 bar (these figures relates to Pipelines in the City of Nottingham only).

Depths of underground pipelines are between 1.0m and 2.0m. Surface located pipelines and points where pipelines cross overhead or over obstacles such as railways are protected.

Inspection Patrols are operated by the operators and pipelines are inspected regularly by vehicle, helicopter or by foot to detect unauthorised engineering works, which might damage the pipeline.

Emergency Personnel including professional engineers, technologists and scientists are available 24 hours a day.

Major Accident means death or serious injury involving a dangerous fluid (HSE definition – ‘A Guide to the Pipelines Safety Regulations 1996’).

Major Environmental Accident is an incident likely to cause permanent or long term damage to a particular unique, rare or otherwise valued component of the man made or natural environment, or if there is widespread environmental damage.

Hazard Range is the maximum distance from the pipeline within which the surrounding population could suffer a specific level of harm in the event of release of pipeline fluids/gas following a pipeline failure.

Emergency Planning Distance is that distance where a detailed emergency plan has to be prepared for the worst credible, or reference accident and should be agreed by the local authority and pipeline operator.

Sensitive Centre of Population includes hospitals, schools, and residential homes for the elderly, the handicapped and such other premises for ‘vulnerable’ persons.

Glossary

Appendix 9

MAHP	Major Accident Hazard Pipelines
SSSI	Site of Special Scientific Interest
ESSSI	European Site of Special Scientific Interest
AONB	Area of Outstanding Natural Beauty
NGG	National Grid Gas
cpm	Casualties per million
BPD	Building Proximity Distance
TD/1	Recommendations on Transmission and Distribution Practice, Steel Pipelines for High Pressure Gas Transmission

Plan Distribution

Appendix 10

Plan No.	Organisation	No. of copies
1	NOTTINGHAMSHIRE POLICE: <ul style="list-style-type: none">- Force Control Room Inspector- Emergency Planning Officer	2
2	NOTTINGHAMSHIRE FIRE AND RESCUE SERVICE <ul style="list-style-type: none">- Group Fire Control Officer- Emergency Planning Officer	2
3	NOTTINGHAMSHIRE AMBULANCE SERVICE NHS TRUST <ul style="list-style-type: none">- Assistant Director of Operational Services	1
4	NATIONAL GRID <ul style="list-style-type: none">- 2 x Emergency Rooms	2
5	NOTTINGHAM CITY COUNCIL – Emergency Planning Officers <ul style="list-style-type: none">- Paul Millward- Cherry Brandon- Sarah Southwell- Vacant- Anthony Walker- James Farmer- Paul Scragg- Lorraine Shawky- Emergency Planning Office (Ground Floor)- Emergency Planning Office (First Floor)	10
6	NOTTINGHAM CITY COUNCIL – Other Departments <ul style="list-style-type: none">- All “Managing an Emergency” book holders- Steve Sole, Neighbourhood Services, Highway Network Co-ordinator- Richard Digby-Taylor Pollution Control	1each