



SHROPSHIRE

Fire and Rescue Service

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			Gas pipeline

Reference

Author

Status

Date

OPS14PT7

Ken Holder

New

05/07

Part 7 – Gas pipeline

Purpose

The purpose of this order is to outline the mobilisation and operational procedure for dealing with incidents that involve gas pipelines.

Strategic aims and objectives

This Brigade Order supports the following strategic aims:

Strategic Aim 1 “Reduce the risk to life and material loss from fire and other emergencies in the community”

Strategic Aim 2 “Protect life, property and the environment from fire and other emergencies”

Strategic Aim 3 “ Secure the highest level of safety and welfare for all staff by providing effective supervision, training, equipment and systems of work”

Roles, responsibilities and review

The **Head of Operations** is responsible for ensuring this Order is implemented across the Brigade.

Incident Commanders will be responsible for the day to day operation of the Order.

The **Head of Operations** will review this Order biennially in May and when organisational changes take place.

Introduction

The Public Gas Transporter (PGT), National Grid (previously called Transco and before that British Gas) operates a nationwide gas distribution network consisting of about 271,000kms of pipelines, almost all of which are laid underground.

About 6,000km of the National Grid network, National Transmission System (NTS), operates at pressures up to 85 bar; the pipelines are made from high quality steel and can be as large as 1.2m in diameter. Pressure changes within the system are closely monitored so that an accurate assessment of the pipes fatigue life can be made.

More than 120 offtake installations take the NTS supply directly to very large users of gas, such as power stations and industrial consumers, as well as to local distribution zones transmission systems, which continue the distribution network.

The entire NTS is monitored and controlled from a central operations room and in an emergency more than four hundred remotely operated valves, can be actuated to isolate any section of the network.

The County of Shropshire has many kilometres of gas pipelines running through it. Further information on locations can be obtained from Brigade Control, and Incident Command, that hold a copy of the Emergency Plan for Major Accident Hazard Pipelines for the County of Shropshire.

Types of pipeline failure

The safety record of pipelines operated by central networks in England and Wales is good, notwithstanding the fact that pipeline failures have occurred in other areas. It is generally considered that third party intervention accounts for the majority of pipeline failures. However, other causes including materials failure and, where appropriate, earthquakes should not be discounted.

At the point of failure in a pipeline, the pressure exerted by the escaping gas is likely to cause a crater to form, due to the displacement of the contents of the pipeline trench. The resulting high velocity emission of backfill will represent a significant risk to anyone in the vicinity. Properties in the vicinity may suffer structural or superficial damage, depending on their position relative to the pipeline failure.

The sudden loss of containment, due to a pipeline failure, is likely to produce an overpressure of sufficient magnitude to cause casualties and damage adjacent structures. The overpressure pulse, due to the escape of gas at high velocity, will produce a relatively steady state rushing noise.

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Should ignition follow a pipeline failure, there will be a thermal radiation hazard. That hazard may be of sufficient scale, to result in injuries to people and or damage to property, services and the environment.

The scale and duration of a pipeline fire will be governed by the diameter of the pipe, gas pressure the nature and extent of the failure. Ignition following a gas release may not be a short duration event, as the gas pressure reduces and the flow control measures are implemented the burn time will be reduced.

Above ground installations

Although this Brigade Order is focusing on gas pipelines, it is important that crews are aware of the above ground hazards that are associated with the gas pipeline network.

The vast majority of pipelines run underground, some sections that are above ground. These areas are generally fenced off and are at National Grid managed sites. Where this is not the case “up and over” pipe work is constructed to a more rigorous specification.

General considerations

On being informed of an incident involving failure of a major gas pipeline National Grid will activate the procedures laid down in the Emergency Plan for Major Accident Hazard Pipeline.

Mobilisation

On notification of an incident involving a major gas pipeline Fire Control will mobilise:

Two major pumping appliances
Level 2 Incident Commander

In addition, Brigade Control will inform the Shropshire County Council or the Telford and Wrekin Emergency Planning Unit (EPU) Duty Officer and the County Emergency Planning Officer.

Contact the Meteorological Officer at RAF Shawbury and gather information on weather and wind speed/direction.

Initial attendance

Rendezvous points will be determined by the location, nature and scale of the incident. Guidance on this matter will be provided by National Grid working in consultation with the Police.

The Incident Commander attending the incident will, in consultation with the on site National Grid representative and the National Grid District Incident Controller, assess the severity of the incident. The scale and nature of the pipeline failure will dictate what further actions are deemed necessary. This may include activation and deployment of additional specialist equipment and personnel to assist in the containment and control of the incident.

Liaison with other agencies

An incident involving a major pipeline has the potential to become a major incident therefore it is important that we liaise with all the relevant agencies, including National Grid, Police and Ambulance Service.

The Fire and Rescue Service are ultimately responsible for the health and safety of all personnel operating at the incident site in the 'hot zone'.

Safety of Brigade personnel

The safety of Brigade personnel is of paramount importance at this type of incident and the Incident Commander should:

- conduct a Dynamic Risk Assessment throughout the entire period of the incident
- liaise with the Police to cordon off the area taking into consideration wind speed and direction
- use only intrinsically safe hand held radios when operating within the hazard area if there is no fire
- the correct level of PPE must be worn at all times. Consider the use of breathing apparatus
- appoint a safety officer to monitor crew safety.

Points of reference

Specific Incident Procedures (SIP) Pipelines
Fire Service Manual Volume 2 Operations Natural gas incidents
Emergency Plans Major Incident Hazard Pipelines

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