

**Gas Safety Management Plan**

**(Section B)**

**Wyvern Barracks**

**ARC UOTC ACI0 ACF ATC**

**18/02/2022**

**Produced to meet the requirements of the Gas Safety (Management) Regulations 1996**

**(Gas Safety Management Plan (Section A) covers the requirements of the Gas Safety (Installation and Use) Regulations 1998**

# Establishment Key Personalities (Gas) Contacts

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| --- | --- | --- | --- |
| **Role** | **Name**  | **Tel No.** | **Email** |
| **Head of Establishment** | Lt Col C Da’pice CO 6 RIFLES | 01392 492444 | Crispin.DApice100@mod.gov.uk |
| **Establishment’s SHEF** | WO2 S Barnes AFPA 6 RIFLES | 07946 720697 | Steve.barnes163@mod.gov.uk |
| **Establishments** **4C’s Coordinator** | Dean Bywood Barrack Manager | 07745 557033 | Dean.Bywood100@mod.gov.uk |
| **Senior DIO Estate Representative or Equivalent**  | Nicola Johns  | 01823 250113 | wx-estates@rfca.mod.uk |
| **Site DIO Estate Representative or Equivalent**  | Kelvin Walker | 07508 130359 | wx-estatess@rfca.mod.uk |
| **MMO Site Manager or equivalent** | Maj Owen Mitchell QM 6 RIFLES | 01392 492445 | Owen.Mitchell455@mod.gov.uk |
| **Gas Safety Manager (GSM)** | Neville King | 07816 168471 | neville.king@dnv.com |
| **Gas Responsible Person (GRP)** | Mitchell Fenwick | 07902 106704 | mitchell.fenwick@dnv.com |

The Content of this Gas Safety Management Plan (GSMP) have been Approved by the Gas Safety Manager:

**Signature: Neville King Date: 22/12/2021**

**Authorisation for Implementation**

The content and format of this GSMP has been agreed and authorised for implementation by Defence Infrastructure Organisation Technical Services Principal Gas Engineer (DIO TS PGE) and a unique reference number has been generated to support this.

**Approved – J Obbard PGE – 18th Feb 2022**

**Caveats:**

**1. Survey to be completed within 3 months of PGE Approval**

**2. Please complete drawings and make any necessary changes to GSMP within 3 months of Survey**

**3. Please add details of NA and NV surveys within 3 months of survey**

The Content of this GSMP have been agreed by the Senior DIO Estate Representative or Equivalent and future works following the findings will be supported:

**Signature:……………………………………………………………Date:………………………**

The content of this GSMP have been agreed by the Head of Establishment and future works following the findings will be supported

**Signature:……………………………………………………………Date:………………………**

**Reviews and Amendments**

GSMPs are ‘living documents’ that should be subject to continual review and updating as required. Although the level of attention required will vary considerably depending on the size and complexity of each site, GSMPs should be reviewed at least once per quarter by the GRP. Although it is likely that changes are not required at each review, the date of review and any changes made should be indicated on the tables below. The review of the GSMP will include a site visit to ensure that the site and the content of the GSMP remain valid. The reviews and amendments made will be deleted during the DIO TS three yearly review when the GSMP is re-authorised by the PGE.

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| **Date** | **Page No.** | **Amendment** |
| 30/11/2021 | All | Initial Development |
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| **Date** | **Reviewed by** | **Authorised by** | **Comments** |
| 22/12/2021 | M Fenwick | N King | Initial Review |
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# FORWARD

MOD, as a gas conveyor within Great Britain, has submitted an Exemplar Gas Safety Case (MOD GSC) to demonstrate compliance with the Gas Safety (Management) Regulations 1996 (GSMR). Maintenance Management Organisations (MMO’s) are engaged who have the overall contractual responsibility to operate and maintain the gas network assets under their Contract, including the management of the safe flow of gas within the system and the provision of an emergency service. The MOD delegate specific duties to the MMO but accountability for gas safety on each site rests with the Head of Establishment.

The MOD GSC considers all parts of the MOD estates gas supply system that forms part of the gas supply network. This includes all parts of the MOD estates network from the External Gas Distribution Network (EGDN) connection point to the emergency control valve (ECV) of individual consumers. The MOD GSC considers primarily those matters that relate to the management of the safe flow of gas within the system and the provision of an emergency service.

The conclusions of the assessments within the MOD GSC are:

* There is an adequate safety management system in place to manage the flow of gas safely in its gas supply system.
* Adequate arrangements are in place to comply with the requirements of GSMR and allow co-operation with other bodies that have duties under the regulations.
* Adequate arrangements are in place for ensuring that gas conveyed within the system meets the standards for composition and pressure.
* Adequate arrangements are in place for dealing with reports of gas escapes and investigation of incidents.
* Adequate arrangements have been made to ensure that the risk of a supply failure is minimised.
* Adequate arrangements have been made to ensure that supply emergencies are managed safely.

The MOD GSC is a generic document that outlines the gas safety systems and processes in place for gas networks within the MOD estate. Site-specific details and arrangements are contained within this establishment Gas Safety Management Plan (Section B) (GSMP). As a site-specific component of the MOD GSC, this GSMP has the same legal standing under GSMR.

The layout and structure of this GSMP mirrors that of its parent GSC

Following initial approval by the DIO PGE, the GSM is required to reapprove this GSMP annually. GSMP must be submitted to DIO TS every three years for PGE authorisation.

The HoE and **Senior DIO Estate Representative or Equivalent would only be required to re-sign this GSMP annually following the GSM reapproval, unless significant changes to the gas system or a change in one of these key personalities occurs.**

GSMP Section A documents detail MOD measures to ensure compliance with the Gas Safety (Installation and Use) Regulations 1998 (GSIUR) for installation pipework (downstream of Emergency Control Valves).

Although the legal status of this document applies in the UK only, the MOD apply the same requirements to the management of natural gas networks on its overseas estate in accordance with the currently published Secretary of State’s Health and Safety policy statement.

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# The duty holder and establishment level key personalities

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| Gas Safety Case Duty Holder.The duty holder for the MOD Gas Safety Case is the Permanent Under Secretary for Defence (PUS). However, day to day responsibility for the preparation and maintenance of the document is delegated to the DIO TS Head of Engineering and Construction, who also has the responsibility for managing the system in accordance with the Safety Case. PUS delegates maintenance responsibility to the Top-Level Budget Holders (TLB’s), to manage safety of the gas network. The TLB’s utilise MOD Contracts i.e. MMOs who have responsibility for maintaining the gas network on behalf of the MOD. |
| Name:Address: | Permanent Under SecretaryMain BuildingHorse Guards ParadeWhitehallLondonSW1A 2HB |

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| DIO Technical Services Principal Gas Engineer (PGE).The PGE assumes the role of Senior Authorising Authority which is a term used within the MOD to recognise the authority of the person responsible for overseeing the appointment of, and auditing Authorising Engineers (AEs). For Gas the AEs are replaced by Gas Safety Managers (GSMs). |
| Name:Address:**🕿:****🖂:** | Jeremy ObbardDIO HQWhittington BarracksLichfieldWS14 9TJ07748 903260Jeremy.obbard100@mod.gov.uk |

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| Establishment Personalities. |
| Name of Establishment: | Wyvern Barracks ARC UOTC ACIO ACF ATC |
| Establishment Address: | Wyvern Barracks ARC UOTC ACIO ACF ATCBarrack RoadExeterDevonEX2 6AR |
| Head of Establishment (HoE)(This is the most senior MOD person identified, by the chain of command, as responsible for the establishment. The HoE holds accountability for ensuring site compliance with the requirements of GSMR and the MOD GSC, including this GSMP.) | Name:Position:Organisation:Address:**🕿:****🖂:** | Lt Col C Da’pice CO 6 RIFLES COMoDBN HQ 6 RIFLESBlock 7Wyvern BksExeterDevonEX2 6AR01392 492444 Crispin.DApice100@mod.gov.uk |
| Establishment 4C’s  | Name:Position:Organisation:Address:**🕿:****🖂:** | WO2 S Barnes AFPA 6 RIFLES AFPAMoDBN HQ 6 RIFLESBlock 7Wyvern BksExeterDevonEX2 6AR07946720697 Steve.barnes163@mod.gov.uk |
| Establishment SHEF | Name:Position:Organisation:Address: **🕿:****🖂:** | Dean BywoodBarrack ManagerMoD6th Battalion The Rifles Wyvern BarracksExeterDevonEX2 6AR 07980 722427Dean.Bywood100@mod.gov.uk |
| Senior DIO representative or equivalent(This may be the SEFM, but will vary depending on the contract this establishment falls under) | Name:Position:Organisation:Address:**🕿:****🖂:** | Nicola JohnsHead of EstatesWessex Reserve Forces' & Cadets' AssociationMount HouseMount Street TauntonSomerset TA1 3QE01823 250113wx-estates@rfca.mod.uk |
| Site Guardroom (24 Hours) | **🕿:** | Guardroom – 24/7 Contact: 01392 216980 |
| Site emergency services(Are they 24 Hours?) | Fire **🕿:**Police **🕿:**Medical **🕿:** | 999999999 |

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| Maintenance Management Organisation (MMO). |
| The MMO for this establishment is: | **Wessex Reserve Forces' & Cadets' Association** |
| MMO Customer Services (not 24 hours)  | Organisation:Address: **🕿:****🖂:** | Wessex Reserve Forces' & Cadets' AssociationMount HouseMount StreetTauntonTA1 3QE01823 254571Wessex-rfca.org.uk |
| MMO Helpdesk (24 Hours) Gas as | Organisation:Address:**🕿:****🕿:****🖂:** | Wessex Reserve Forces' & Cadets' AssociationMount HouseMount StreetTauntonTA1 3QE0800 111 999 (Gas Emergencies)01823 254571 (General Enquiries)Wessex-rfca.org.uk |
| Site Contact | Name:Organisation:Address:**🕿:****🖂:** | Dean BywoodBarrack ManagerMoD, 6th Battalion The Rifles, Wyvern Barracks, Barrack Road, Exeter, Devon, EX2 6AR 07980 722427Dean.Bywood100@mod.gov.uk |
| Gas Safety Manager (GSM) | Name:Organisation:Address:**🕿:****🖂:** | Neville KingDNVHolywell Park,Ashby RoadLoughboroughLE11 3GR07816 168471Neville.king@dnv.com |
| Gas Responsible Person (GRP) | Name:Organisation:Address:**🕿:****🖂:** | Mitchell FenwickDNVHolywell Park,Ashby RoadLoughboroughLE11 3GR07902 106704Mitchell.fenwick@dnv.com |

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| Additional Gas Contacts. |
| External Gas Distribution Network (EGDN)  | Organisation:Address:**🕿:****🖂:** | Wales and West UtilitiesWales and West HouseSpooner CloseCeltic SpringsCoedkernewNewportNP10 8FZ0800 912 2999enquiries@wwwutilities.co.uk |
| Meter Asset Manager (MAM) | Organisation:Address:**🕿:****🖂:** | Energy Assets Ltd6 Almondvale Business ParkAlmondvale WayLivingstonScotland. EH54 6GA01506 405 405RalphReekie@EnergyAssets.co.uk |
| Gas Supplier | Organisation:Address:**🕿:****🖂:** | Corona EnergyBuilding 2 Level 2Croxley ParkWatfordWD18 8YA0800 804 8589info@coronaenergy.co.uk |
| DIO SD EUS(Service, Delivery, Energy, Utility and Sustainability) | **🕿:****🖂:** | 01213 113854DIOSDEUS-enaccounts@mod.gov.uk |
| National Gas Emergency Centre (24 Hours) | **🕿:** | 0800 111 999 |
| National Emergency Services (24 Hours) | Fire **🕿:**Police **🕿:**Medical **🕿:**  | 999999999 |

# Operation Undertaken

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| Site Overview.A brief description of the establishment and its current use. This should include how many separate sites are present, number of buildings being supplied by gas, what the gas is used for and number of personnel who will be affected by a gas outage. Any critical loads should be initial highlighted here (quick reaction forces, large medical facilities, temp controlled ammunition stores etc) |
| Wyvern Barracks ARC UOTC ACI0 ACF ATC is a single site establishment with 17 buildings on site, fourteen of which are supplied by gas.Nine buildings are supplied with gas from the Low Pressure (LP) MoD Network at 37mbar.Building 7 has two metered feeds.Building 1 supplies gas to building 2 via installation pipework.Building 7 supplies gas to building 6 via installation pipework.Building 11 has an MoD supply to the plant room and an EGDN supply to the Kitchen.There are 5 individual Low Pressure (LP) EDGN supplies on site feeding gas to buildings 11 (Kitchen) 18,19 and 22.Building 22 has two EGDN individual supplies.Wyvern Barracks was established as an artillery barracks for the Board of Ordnance under the name of Topsham Barracks around 1800. In 1873 a system of recruiting areas based on counties was instituted under the Cardwell Reforms and the barracks became the depot for the two battalions of the 11th (North Devonshire) Regiment of Foot.Following reforms, the regiment evolved to become the Devonshire Regiment with its depot in the barracks in 1881During the First World War a reserve brigade of the Royal Field Artillery was based at Topsham Barracks and during the Second World War units of the United States Army were based there. After becoming home to the Devonshire and Dorset Regiment in 1958, the barracks went on to become the regional centre for infantry training as the Wessex Brigade Depot under the name of Wyvern Barracks in 1960.Wyvern Barracks is currently home to Battalion HQ, HQ Company and an Assault Pioneer Platoon of 6th Battalion, The Rifles and Exeter UOTC as well as B Detachment of 243 Field Hospital and 72 Military Intelligence Company Detachment of 7 Military Intelligence Battalion.The ATC Devon and Somerset Wing Headquarters and 13 (City of Exeter) Squadron are also based on site.The buildings have a mix of uses and are used primarily for accommodation, storage, MT workshops, offices, catering facilities and meeting/conference rooms.Day to Day there are around 50 people on site and there can be up to 500 people on site when there are functions, events or parades.  |
| Document Centre.Location of the establishment Gas Document Centre containing all information relating to the gas systems at this establishment (Ref: MOD GSC 10.2) and contact details if different to the GRP. |
| The Gas document centre is held electronically by DNV, it can be accessed by the GSM & GRP.\Volunteer Estates\06 - South Area Sites\WX RFCA Gas\WX WYVERN BARRACKS ARMY RESERVE CENTRE\ |
| 2.3 Purpose of Pipeline(s).A brief description of demarcation agreements between the EGDN, MAM and MOD. Number of MOD networks including operating pressures and number of buildings being supplied direct from the EGDN. End users of gas being supplied such as accommodation, workshops, catering facilities etc.  |
| There are 6 EGDN gas meters at Wyvern Barracks fed from 3 separate EGDN supplies on to site. There is one medium pressure supply and two low pressure supplies.There is 1 bulk fiscal meter on site supplied at Medium Pressure (MP) by the EGDN network. This meter then supplies an MoD network at Low Pressure (LP) with a pressure of 37 mbar. This is a twin stream meter installation.The working stream is set at 37mbar.The standby stream is set at 40mbar.There are 9 buildings fed from the MoD network. (1,3, 7 – 2 feeds, 8,9,10,11, ATC Store and ATC Office) The bulk fiscal meter is in a purpose-built meter house to the North West side of the site behind building 3. The meter house is within the wire.There are four buildings each with individual Low Pressure (LP) supplies fed from the EGDN Network, building 22 having two individual EGDN supplies making a total of five individual EGDN supplies.Gas supplied from the MoD gas network is used for Heating, hot water, and commercial catering. The buildings on site are used as offices, accommodation, kitchens, training facilities, meeting rooms, workshop/garages & stores. On the MoD network the MoD is responsible from the meter outlet valve of the Bulk Fiscal meter up to and including the appliances in the buildings.On the EGDN single supply meters the MoD is responsible from the meter outlet / outlet valve up to and including the appliances. |
| 2.4 Consumers.Consumers can be broadly categorised as domestic or industrial / commercial. Gas supplies to domestic consumers are normally prioritised above industrial / commercial consumers. |
| **Domestic consumers supplied from the MOD network:** | 0 |
| **Industrial / commercial consumers supplied from the MOD network:** | 9 |
| 2.5 Description of MOD Gas Networks.A description of the MOD gas network(s) including location of primary meter(s), twin stream or single stream, primary meter kiosk construction and condition. Pipeline length, material, diameter, pressure, age and condition. Are any PRIs present and number of buildings being supplied?  |
| The gas supply feeding the MoD Gas Network at Wyvern Barracks is supplied from the Wales and West MP network and enters the site at the North West side of the site behind building 3. The bulk fiscal meter is in a purpose-built meter house. The meter house is within the wire.There is a 4” steel riser into the gas meter house connecting to a twin stream gas meter rig through the EGDN ECV.The two stream pressures are set as follows:The working stream is set at 37mbar.The standby stream is set at 40mbar.The gas runs through the MAM owned and operated gas meter and regulators and exits the meter house below ground in 4” steel. The meter outlet valve is the demarcation point between the MoD owned and operated Low Pressure (LP) network and the EGDN responsibility.The outlet gas pressure is 37 mbar as per the meter rig working stream.The MoD network is estimated to have been installed in the early 1990’s.The MOD network is buried along its entire length with the exception of building risers and is thought to be made up of PE and steel pipework.The MoD network supplies the following buildings:1 – 63mm PE Riser with building SIV3 – 63mm PE Riser, no SIV found7 - Front Plant Room – 20mm PE Riser, no SIV found7 – Main Plant Room – Riser not yet found8 – 50mm Steel Riser, no SIV found9 – 50mm Steel Riser, no SIV found10 – 50mm Steel Riser, no SIV found11 Plant Room – 50mm PE Riser with building SIVATC Office - 20mm PE Riser, no SIV foundATC Store - 20mm PE Riser, no SIV foundAll of the buildings have MoD owned and operated meters and regulators after each ECV with the exception of building 7, main plant room. Due to access issues within building 7 the MoD owned and operated meter and regulator have been located along with the ECV, however the gas enters the building below ground on the opposite side of the building and the entry point to the building is yet to be located.As referenced in the GSMP Part A there are 4 additional buildings with gas supplies. These are fed from the EGDN Low Pressure (LP) Network and there are a total of five MAM owned and operated meters and regulators to these buildings (11 Kitchen, 18,19 and 22 – 2 feeds)The total network length is an assumed approximate from site drawings and carrying out the leakage survey.A trial hole survey will be carried out to confirm (as far as possible) routes, material and condition of the gas network. Initial pipeline survey works are to be planned in within 3 months of the issue of this Gas Safety Management Plan.**Estimated MoD Network Pipework Length – 732 metres** |

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| 2.6 Primary Meter Details.The following table describes the basic arrangement of the incoming primary meter installation(s). (These are the responsibility of the MAM) |
| **Number of primary meter installations:** | 1 |
| Meter Name / ID | MAM Responsible | Inlet pipeline (responsibility of the EGDN) | Outlet pipeline (responsibility of the MOD) | Max Flow(M3 hr) |
| P tier – HP, IP, MP, LP | Pressure (mbar) | Material (EGDN Network) | Diameter(mm) | P tier – HP, IP, MP, LP | Pressure (mbar) | Material (MOD Network) | Diameter(mm) |
| Wyvern Barracks Bulk Fiscal Meter | Energy Assets | MP | 2 bar | Steel | 100 | LP | 37 | Steel | 100 | 311 |
| EGDN Single Supply 1 | Energy Assets | LP | 27.87 | PE | 63 | LP | 23.16 | Copper | 28 | 16 |
| EGDN Single Supply 2 | Energy Assets | LP | 27.21 | PE | 63 | LP | 21.65 | Steel  | 50 | 25 |
| EGDN Single Supply 3 | Energy Assets | LP | 27.73 | PE | 63 | LP | 22.54 | Steel  | 65 | 40 |
| EGDN Single Supply 4 | Energy Assets | LP | 26.24 | PE | 63 | LP | 21.51 | Steel  | 50 | 25 |
| EGDN Single Supply 5 | Energy Assets | LP | NTP | PE | 20 | LP | 22.36 | Copper | 22 | 6 |
| 2.7 Utilisation Meters (meters supplied directly from the MOD gas network)Utilisation Meter Details can be seen in the GSMP section A. |
| **Number of utilisation meter installations:** | 11 |
| 2.8 Secondary Pressure Regulating Installations (PRIs).The following table describes the basic arrangement of the PRIs. (This does not include utilisation meter governors installed downstream of the consumers ECV) |
| Number of PRI installations: | None |
| PRI Name / ID | Nominal Reg size (mm) | Inlet pipeline | Outlet pipeline | Kiosk construction / condition |
| P tier – MP, LP | Pressure (mbar) | Material (MOD Network) | Diameter(mm) | P tier – MP, LP | Pressure (mbar) | Material (MOD Network) | Diameter(mm) |
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| 2.9 Emergency Control Valves (ECVs).The ECV(s) are included in the scope of the network and are therefore the responsibility of the MOD. |
| **The MOD gas networks at this establishment terminates at:** | **10 ECV’s** |
| Building Name / Number | Incoming Gas Pressure | Appliance / Process / Domestic | ECV No. / Code | Indoors / Outdoors | Key required to access the ECV – Where from? | ECV Location | Handle Fitted | ECV correctly labelled | Nominal Valve Size |
| 1 | 37 mbar | Heating | WX100/ECV/001 | Indoors | Yes, Guardroom | Internal Gas Meter House | Yes | No | 50mm |
| 3 | 37 mbar | Heating, Hot water and Catering | WX100/ECV/002 | Outdoors | Yes, Guardroom | External Gas Meter House | Yes | No | 50mm |
| 7 Front Plant Room | 37 mbar | Heating | WX100/ECV/003 | Outdoors | Triangle Meter Key | External Gas Meter House | Yes | No | 20mm |
| 7 Main Plant Room | 37 mbar | Heating | WX100/ECV/004 | Outdoors | Yes, Guardroom | External Gas Meter House | Yes | No | 80mm |
| 8 | 37 mbar | Heating | WX100/ECV/005 | Outdoors | Yes, Guardroom | External Gas Meter House | Yes | No | 50mm |
| 9 | 37 mbar | Heating | WX100/ECV/006 | Outdoors | Yes, Guardroom | External Gas Meter House | Yes | No | 50mm |
| 10 | 37 mbar | Heating | WX100/ECV/007 | Outdoors | Yes, Guardroom | External Gas Meter House | Yes | No | 50mm |
| 11 Plant Room | 37 mbar | Heating | WX100/ECV/009 | Outdoors | Yes, Guardroom | External Gas Meter House | Yes | No | 50mm |
| ATC Office | 37 mbar | Heating | WX100/ECV/010 | Outdoors | Triangle Meter Key | External Gas Meter House | Yes | No | 20mm |
| ATC Store | 37 mbar | Heating | WX100/ECV/011 | Indoors | Yes, Guardroom | Internal Gas Meter House | Yes | No | 20mm |

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| 2.10 MOD Network Pipeline Details.The table below shows the total pipeline lengths for the different pipe diameters and operating pressures. |
| Network Name / ID | Pressure (mbar) | Pipe Material | Pipe Diameter (mm) | Number of Sections | Total Length (m) |
| Network 001 | 37  | Steel  | 100 | 2 | 485 |
| Network 001 | 37  | Steel | 80 | 1 | 5 |
| Network 001 | 37  | Steel  | 50 | 6 | 125 |
| Network 001 | 37  | Steel | 25 | 3 | 113 |
| Network 001 | 37  | PE | 63 | 1 | 3 |
| Network 001 | 37  | PE | 20 | 3 | 1 |
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| Total length of all MOD networks: | 732 |

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| 2.11 Network Interconnection.The outlet pipework system from each of the primary meter installations can be isolated networks or may be interconnected with other MOD systems. For isolated systems turning off the gas supply at a single primary meter installation will shut off supply to all buildings / processes on that pipe system. Interconnected systems will require two or more primary meter installations to be turned off. Figures 2.1 and 2.2 below show the differences. |
| **The MOD pipework system on this establishment are:** | Isolated  |
| Supply from Primary Meter (Name / ID) | Pressure(mbar) | Can the interconnection be isolated? |
|  None |  |  |
|  |  |  |
|  |  |  |

M

M

MOD NETWORK

ISOLATED MOD

PIPEWORK SYSTEMS

MOD NETWORK

Figure 2.1 – Isolated MOD pipework systems

EGDN GAS NETWORK

M

M

MOD NETWORK

INTERCONNECTED

PIPEWORK

MOD NETWORK

Figure 2.2 – Interconnected MOD pipework systems

|  |
| --- |
| **2.12 Sensitive and Critical Loads.**The MOD does not have any ‘interruptible consumers. Historically large industrial / commercial consumers, who had an alternative fuel supply, could opt to pay a lower rate for an interruptible contract which enabled the supplier to isolate their supply at short notice in order to preserve the gas supply to the public and ‘firm contract’ industrial consumers in the event of a supply shortage.However, all industrial and commercial supplies are, effectively, ‘interruptible’ isolation of these will usually be requested by the supplier in times of supply emergencies in order to preserve domestic supplies for as long as possible.Where Industrial / commercial consumers have particularly sensitive or critical end users these can be taken into consideration by the EGDN when requesting isolation. Sensitive consumers could include supplies such as a school, medical facility, temperature-controlled ammunition stores etc. |
| **The number of sensitive loads at this establishment is:** | None |
| Facility / Consumers | Supplied from primary meter name / ID | Approx. max throughput (m3 hr) |
| None |  |  |
|  |  |  |
|  |  |  |
| 2.13 Standby Alternative fuel Supplies.Where operational critical supplies are present on site a standby alternative fuel supply should be considered which would enable continued operation in the event of either a local or national supply emergency. |
| Facility / Consumers | Supplied from primary meter name / ID | Approx. max throughput (m3 hr) | Alternative fuel supply |
| None |  |  |  |
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# Plant and Premises

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| 3.1 Drawings.The gas layout drawings provide an overview of the gas network and the interfaces(s) with the EGDNs network.The layout drawings should detail:1. The site boundaries.
2. The primary meter installations.
3. Secondary PRIs.
4. Valve locations.
5. Pipeline routes, diameters, material and depth.
6. Operating pressure tier.
7. Demarcations
8. Responsibilities (EGDN / MOD)

The layout drawings are located at Annex B either embed as a PDF or hard copies. The drawings will be subject to the GRP quarterly review and following any physical changes or system updates. Hard copies of the drawings are located in the gas document centre. |
| Gas Layout Drawing Number | Revision Date | Scale | Detail |
| No existing drawing. Drawing shall be produced by DNV within 3 months of first issue of this GSMP B |  |  |  |
|  |  |  |  |
|  |  |  |  |
| 3.2 Additional Drawings.In addition to layout drawings the below additional drawings are available from the gas documents centre and GRP. |
| Additional Drawing Number | Revision Date | Scale | Detail |
|  |  |  |  |
|  |  |  |  |
| 3.3 Responsibility Interfaces and Access Arrangements.For gas incidents or maintenance that affect the EGDN, the EGDN representative will become the network emergency controller. The EGDN establishment direct contact will be the GRP who will make all relevant arrangements for access to the primary meter(s) and plant room access (for emergency isolation etc).As the MOD establishments are high security, all EGDN personnel who attend for gas supply emergencies or to carry out maintenance work will be granted access to site on an individual basis. All EGDN personnel attending this establishment will be subject to site specific security procedures and will be required to be escorted whilst on site, access and escorting may vary depending on the nature of the visit, time of incident etc.Below are the site-specific arrangements in place to allow the EGDN access during an emergency, as agreed by the HOE: |
| Guardroom – 24/7 Contact: 01392 216980 |

# 4. Operation and Maintenance Documentation

|  |
| --- |
| 4.1 MOD Network Maintenance.Network maintenance is mandated in GSMR and all network maintenance requirements and tasks on MOD establishments are detailed in the MOD Gas Network Technical Standard TS/GAS-01. TS/GAS-01 has been written in line with legislation, industry standards and guidelines. The testing, inspecting and maintenance frequencies vary depending on the task, the table below shows the intervals at which it should be conducted and the date the tasks have been complete. |
| TS/GAS-01Job No. | Maximum Interval Period | Brief Description of Task | Task was completed on |
| **1** | **General** |
| 1.1 | 5 Years | Network Analysis – to model the adequacy of network design | To be completed by DNV as part of the network survey for the site – due in 3 months |
| 1.2 | 5 Years | Network Validation Survey – to check network analysis model with measured data | To be completed by DNV as part of the network survey for the site – due in 3 months |
| **2** | **Iron Pipelines, mains and services (includes buried outlet pipework from Primary Meter Installations and PRIs.)**Note: iron pipes are not permitted for use with LPG – any such pipes must be immediately scheduled for replacement |
| 2.3 | 12 Month | FIM (or similar) leakage survey – Pipes within 30m of a building | N/A |
| 2.4 | 12 Month | Over line pipe survey – Pipes within 30m of a building | N/A |
| 2.5 | 5 Years | FIM (or similar) leakage survey – all pipe routes within site, regardless of proximity to buildings | N/A |
| 2.6 | 5 Years | Over line pipe survey – all pipe routes within site, regardless of proximity to buildings | N/A |
| **3** | **Steel Pipelines, mains and services (includes buried outlet pipework from Primary Meter Installations and PRIs.)**Note: buried steel pipes are not permitted for use with LPG – any such pipes must be immediately scheduled for replacement, and the SME(Gas) informed |
| 3.1 | 12 Month | Cathodic Protection (CP) monitoring survey  | N/A |
| 3.2 | 12 Month | Leakage survey (where no CP installed) – pipes within 5m of buildings | 29/11/2021 |
| 3.3 | 5 Years | Leakage survey (where no CP installed) – regardless of proximity to buildings | N/A |
| 3.4 | 5 Years | Over line pipe survey (where no CP installed) – regardless of proximity to buildings | 29/11/2021 |
| 3.5 | 10 Years | Close Interval Potential Survey (CIPS) – for buried pipelines, mains and services with CP installed | N/A |
| **4** | **Polyethylene (PE) Pipelines, mains and services** |
| 4.1 | 5 Years | Leakage survey – All pipes within site regardless of proximity to buildings | 29/11/2021 |
| 4.2 | 5 Years | Over line pipe survey – All pipes within site regardless of proximity to buildings | 29/11/2021 |
| **5** | **This section refers to LPG installations only – refer to TS/GAS-01** |
| **6** | **Secondary Pressure Regulating Installations (PRIs).**Note: this is for secondary network PRIs only – it does not include the PRIs associated with the Primary Meter Installation(s), first-stage LPG regulators or the Meter regulator(s) installed downstream of the consumers / user ECVs |
| 6.1 | 12 Month | Functional check of PRI including safety / redundant systems | N/A |
| 6.2 | 12 Month | Visual inspection of pipework within PRI housing | N/A |
| **7** | **Meter and PRI Housings**Scope for this activity includes the housing of all meter and PRI installations |
| 7.1 | 12 Month | Inspection of PRI housing (where present) | N/A |
| **8** | **Valves** |
| 8.1 | 12 Month | Inspection of valve chambers | 29/11/2021 |
| 8.2 | 12 Month | Leakage detection survey within valve chamber | 29/11/2021 |

|  |
| --- |
| 4.2 Iron Pipework.Where cast iron (including spun iron) or ductile iron pipework exists on an MOD establishment it is to be risk assessed in accordance with section 4.3 of the MOD GSC and, where required, entered into a mains replacement programme in order to comply with the UK mains replacement enforcement policy.Below is the amount of Cast Iron and / or Ductile Iron pipe, and details, identified at this establishment from a survey: |
| **Cast Iron (m):** | Not Applicable |
| **Ductile Iron (m):** |  |
| Pressure (mbar) | Nominal Diameter (“) | Cast Iron orDuctile Iron | Total Length (m) | Closet Proximity to buildings (m) | Risk Score | Planned Replacement Date |
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# 5. Risk Assessments

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| 5.1 Model Risk Assessments.The Model Risk Assessment (RA) shown in the table below, highlight the factors that will affect the safe management of the flow of gas, and the provision of the emergency response service. These RA, reviewed and modified as appropriate to this establishment, are shown at Annex C. (These RA must be reviewed and authorised by the GRP as being correct for this establishment with the date entered at the top of the RA). |
| RA No. | Title (Model Risk Assessments) |
| 1 | Any gas leak considered hazardous to persons or property (Under med/low pressure conditions). |
| 2 | Fire or explosion near to, or directly involving, a pipeline or gas facility. |
| 3 | A failure of operation of pipeline/plant onsite, or immediately downstream of site, that is maintained by the gas transporter. |
| 4 | A failure of operation of pipeline/plant onsite that is maintained by site services. |
| 5 | Failure of safety critical equipment. |
| 6 | Under-pressure in the gas system. |
| 7 | Over-pressure in the gas system. |
| 8 | Failure in system during load shedding. |
| 9 | General changes to the gas network. |
| 10 | Failure of PPM, general operation of the gas network plant/equipment and safety inspections. |
| 11 | Emergency Shutdowns. |
| 12 | Interface with Gas Transporter. |
| 13 | Interface with the consumers. |
| 14 | Interface with Emergency Services. |
| 15 | Natural Disasters, civil disturbances, other unforeseen events. |
| 5.2 Additional Site-Specific Risk Assessments.In addition to the model RA shown above, the site-specific RAs shown below have been identified. These RA are shown in Annex D (As with the Model RAs above, these must be reviewed and authorised by the GRP as being correct for this establishment with the date entered at the top of the RA). |
| 16 |  |
| 17 |  |
| 18 |  |
| 19 |  |

# 6. Safety ManagemeNT Systems

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| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 6) unless stated below: |
|  |

# Employee Competence

|  |
| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 7) unless stated below: |
|  |

# Contractors

|  |
| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 8) unless stated below: |
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# 9. Health and Safety Communication – Internal

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| 9.1 Health and Safety CommunicationThis section describes the systems in place to enable effective communications within this establishment. Different forms of communication are used to pass information to people within the MOD/MMOs depending on the type of information and the audience including in the event of an emergency.  |
| **9.1.1 Public Address System.**The public address arrangements for this establishment are shown below |
| There is no public address system on site |
| **9.1.2 Internal Electronic Correspondence.**Details of any internal email or intranet correspondence are shown below  |
| The site has the facility for email to be used for communication. Email addresses for Key site personalities are listed in section 1 of this document. |
| **9.1.3 Direct Contact.**Details of any site-specific arrangements for direct MOD / MMO contact with site personnel and families are shown below |
| Face to face meetings with key personnel are possible on a regular basis if required.  |
| **9.1.4 Emergency Plans.**Details of any site-wide emergency plans and arrangements, including MMO documents are shown below |
| No specific gas emergency plan for the establishment is in place. MOD Exemplar Gas Safety Case to be used as guidance. |
| **9.1.5 On-Site Emergency Services.**Details of site-specific arrangements for communication with site emergency services, such as fire, are shown below  |
| There are no on-site emergency services. Site personnel will dial 999 for Police, Fire and Emergency Medical services. For Gas Emergencies site will dial 0800 111 999. |

# HEALTH AND SAFETY COMMUNICATION – EXTERNAL

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| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 10) unless stated below: |
|  |

# 11. Audits

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| --- |
| 11.1 GSM Audit.The audit process in place monitors and measures compliance with legislation and company policy and is aimed at ensuring the safe flow of gas within the MOD networks and downstream of the consumers ECV.The GSM audit role is primarily concerned with assuring that the GRP duties are being effectively undertaken and that the gas risks are being effectively managed on the site. All GSM Audits will be carried out using the standard audit template prepared by the DIO PGE. Every site with gas networks shall be audited as frequently as practicable, ideally annually and in accordance with a programme agreed with the DIO PGE. Every site shall be audited at least once every three years. Each GSM shall implement an audit programme which must be agreed by the DIO PGE. All completed audit reports shall be sent to the DIO PGE for review and filing. |
| **As agreed with the PGE, GSM audits on this establishment will be carried out:** | On a three-yearly basis |
| **The last GSM audit was conducted on:** | No previous GSM audit |
| **The last GSM audit was carried out by:** |  |
| **The qualitive assessment of the GSM audit concluded this establishment is:** **(safe to continue / safe to continue subject to caveats / unsafe to continue)** |  |
| **Audit findings:** |  |
| **Points addressed following last audit:** |  |

# 12. CO-OPERATION

|  |
| --- |
| 12.1 Emergency Exercises.On MOD networks, the MMO utilises EGDN to provide a gas emergency response service for dealing with reported gas escapes. However, the EGDN response would normally be to isolate MOD supplies at the incoming meter installation(s). As this is likely to cause considerable inconvenience and expense to MOD facilities, where possible MMO staff / contractors would attempt to attend the emergency in advance of the EGDN personnel to assess the emergency and advise EGDN accordingly.It is the responsibility of the HoE to ensure that a gas emergency exercise is conducted on the establishment at least once in a three-year period. The HoE will require the support and involvement of the MMO and all key stakeholders such as the EGDN. Lessons learnt should be actioned and kept within the gas document centre. |
| **Date of last emergency exercise:** | No previous emergency exercises |
| **Date of next planned emergency exercise:** | From Q4 2022 |
| **Date of last actual emergency involving EGDN:** | No previous actual emergency reporting |
| **Were the EGDN involved in the last emergency exercise:** |  |
| **Were the MOD emergency services involved in the last emergency exercise or actual emergency:** |  |
| **Summary of lessons learnt from the last emergency exercise or actual emergency:** |  |
| **Date MMO emergency contact numbers and procedures were last tested:** |  |

# 13. Emergency service response to gas escapes

|  |
| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 13) unless stated below: |
|  |

# Investigations

|  |
| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 14) unless stated below: |
|  |

# Gas quality

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| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 15) unless stated below: |
|  |

# Continuity of supply

|  |
| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 16) unless stated below: |
|  |

# 17. Adequate Network Pressure

|  |
| --- |
| 17.1 Network Analysis.Network Analysis is the primary tool by which the MOD satisfies itself that anticipated levels of demand can be supplied from its MP and LP networks to gas consumers. It allows different scenarios to be examined. The technique ensures the efficient management and operation of the MP and LP gas supply systems. It enables a detailed understanding of the gas supply system to be developed upon which cost effective planning and operating decisions can be made. In accordance with industry recommendations Network Analyses must be repeated at every site containing an MOD Network at least five-yearly, or sooner, if for gas system modification purposes or when demand profiles have changed, or are expected to change. |
| **For this establishment the network analysis was undertaken by:** | TBA |
| **For this establishment the network analysis was undertaken on:** | TBA |
| 17.2 Design Minimum Pressure.The MOD utilises nominal minimum design pressures, in compliance with IGE/GL/1. These minimum pressures will be seen at the extremities of the systems under extreme conditions. To ensure that all gas equipment downstream of the meter can be safely operated, it is a gas industry recommendation that the network should maintain a minimum of 20.75 mbar at the end of any service pipe. However, for existing networks, it is permitted to have a pressure as low as 19 mbar at the end of any service under 1 in 20 peak six-minute conditions. This value must also include any temporary contingencies to support maintenance activities. Where any appliances have elevated minimum recommended operating pressures (Pign), the DmP must allow for this, taking into account any pressure losses across the meter (4mbar) and through installation pipework (10% of Pign). |
| **The minimum modelled pressure (based on 1:20 peak 6 minutes flow conditions) at the outlet of the consumers ECV at the system extremity is:** | mbar |
| **The location of the minimum pressure is:** |  |
| **The declared minimum pressure (DmP) is:** | mbar |
| 17.3 Network Analysis Results. A brief description of the network analysis results is below; |
| No network analysis available. To be completed by DNV within 3 months of network survey. |

|  |
| --- |
| 17.4 Network Validation Survey.As part of the network analysis validation procedure, pressure monitoring points are to be installed on MOD networks to enable pressure surveys to be conducted. In accordance with the recommendations of Section 8.3.2. of IGE/GL/1, pressure surveys will need to be carried out on MOD networks to verify that the results from the network models were indicative of the recorded pressures on the network. This is a practice which is widely used throughout the gas industry to check network models provide realistic results.It is the responsibility of the MMO to ensure adequate pressure surveys are conducted at regular intervals to validate the pressures predicted by network analysis results. This must be conducted at a minimum of once every five years, in conjunction with a Network Analysis or when demand profiles on the network have changed. Similarly, if the results of a previous Network Analysis are suspected to be inaccurate (for example, low extremity pressures being experienced), a repeat Network Analysis should be undertaken. |
| **For this establishment the latest validation survey was undertaken by:** | TBA |
| **For this establishment the latest validation survey was undertaken on:** | TBA |
| 17.5 Network Validation Survey Results.A brief description of the network validation survey results is below which includes a comparison of the modelled pressure and actual pressure record; |
| No network analysis available. To be completed by DNV within 3 months of network survey. |
| 17.6 Corrective measures.Following the network analysis and network validation survey the below corrective or mitigation measures have been planned at this establishment; |
| **MOD network name / ID:** |  |
|  |

#

# Gas supply emergencies

|  |
| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 18) unless stated below: |
|  |

# Gas quality – sole conveyer

|  |
| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 19) unless stated below: |
|  |

# Discontinuing gas supply

|  |
| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 20) unless stated below: |
|  |

# Restoration of supplies

|  |
| --- |
| No site-specific considerations (refer to MOD Gas Safety Case Section 21) unless stated below: |
|  |

# ANNEX A

# ANNEX A - Abbreviations

4C’s Co-ordination, Co-operation, Communication and Control

AE Authorising Engineer

CI Cast Iron

CIPS Close Interval Potential Survey

CP Cathodic Protection

DI Ductile Iron

DIO SD EUS Defence Infrastructure Organisation Service Delivery, Energy, Utility and Sustainability

DIO TS Defence Infrastructure Organisation Technical Services

DIO Defence Infrastructure Organisation

DmP Design Minimum Pressure

ECV Emergency Control Valve

EGDN External Gas Distribution Network

FIM Functional Independence Measure

GRP Gas Responsible Person

GSIUR Gas Safety (Installation and Use) Regulations1998

GSMR Gas Safety (Management) Regulations 1996

GSC Gas Safety Case

GSM Gas Safety Manager

GSMP Gas Safety Management Plan

HoE Head of Establishment

HP High Pressure

IGEM Institute of Gas Engineers and Managers

IP Intermediate Pressure

LP Low Pressure

LPG Liquified Petroleum Gas

MAM Meter Asset Manager

MMO Maintenance Management Organisation

MOD Ministry of Defence

MP Medium Pressure

NA Network Analysis

NG Natural Gas

NVS Network Validation Survey

PE Polyethylene

PGE Principal Gas Engineer

PRI Pressure Reduction Installation

PUS Permanent Under Secretary

RA Risk Assessment

SHEF Safety, Health, Environment and Fire

TLB Top Level Budget Holder

**ANNEX B**

# ANNEX B - Site Layout Drawings.

Drawing shall be produced by DNV within 3 months of first issue of this GSMP B.

***ANNEX C***

# ANNEX C - MODEL RISK ASSESSMENTS

|  |
| --- |
| **Site Reviewed Model Risk Assessment - 01** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Any gas leak considered hazardous to persons or property**  |
| **Risk** | Any leak at any pressure can be quantified as a hazard. The higher the pressure and/or depending on the location of the leak the risk to the surrounding area varies |
| Depending on the severity of the leak, other hazards such as explosions, fires, supply failures, pollution and associated financial implications could arise |
| Depending on how quickly & thoroughly the gas leak is dealt with the resulting hazards from the incident will vary. |
|  |
| **Caused By** | Damage to pipelines from digging |
| Failure of control equipment |
| Damage caused by general construction |
| Corrosion of pipelines  |
| Failure of mechanical joints and seals |
| Deterioration or rupture of pipeline |
| Poor communication between involved parties can exacerbate the problem |
| Length of response time by first responders |
|  |
| **Hazards Resulting from Risk** | Damage to pipelines caused by uncontrolled escaping gas |
| Risk of causing a supply emergency |
| Damage to persons & property |
| Risk of Explosions & Fire |
| Pollution of environment |
| Purging maybe required after corrective action |
|  |
| **Current Preventative Methods** | Permits to Dig |
| Planned Preventative Maintenance |
| Type & Quality control of materials used in gas network |
| Strict adherence to emergency procedures in the event of an emergency |
| Isolation via emergency stops |
| Installation of gas network to industry standards |
|  |
| **Further Required Preventative Methods** | Pressure monitoring |
| More accurate gas network layout drawings |
| Use of the gas safety management plan |
| Training of all involved parties |
| Training and simulated gas emergency drills |
|  |
| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |
| **Site Reviewed Model Risk Assessment - 02** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Fire or explosion near to, or directly involving, a pipeline or gas facility** |
| **Risk** | Any fire or explosion directly involving a gas pipeline or facility could cause a major incident. |
| Any fire or explosion near to a gas pipeline or facility may cause personal injury and or damage to property. |
|  |
| **Caused By** | Undetected trapped gas |
| Unresolved gas leaks |
| Failure of control equipment, pipelines, seals, joints etc. |
| Damage to gas pipelines through digging and/or general construction |
| Incorrect initial procedure when dealing with a gas leak |
| Inadequate action by first responder |
|  |
| **Hazards Resulting from Risk** | Fire and/or explosions causing death and/or injury to general populous |
| Damage and/or destruction of surrounding properties |
| Damage to gas pipelines, gas control centres & other gas related equipment |
| Disruption of gas supply |
| Secondary Explosions & Fire resulting from inaction |
|  |
| **Current Preventative Methods** | Scheduled Maintenance |
| Designed for purpose |
| Permits to Dig |
| Strict adherence to emergency procedures, including ventilating and evacuating area |
|  |
| **Further Required Preventative Methods** | Pressure monitoring |
| Use of the gas safety management plan |
| Training and simulated gas emergency drills |
|  |
| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| --- |
| **Site Reviewed Model Risk Assessment - 03** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **A failure of operation of pipeline/plant onsite, or immediately downstream of site, that is maintained by the EGDN** |
| **Risk** | Any incident directly involving the medium pressure pipelines onsite can only be dealt with by Wales and West Utilities in the event of a leak the response time by Wales and West Utilities has an impact on the severity of the incident |
| The level of cooperation and communication between EGDN and the onsite parties has an impact on the eventual severity of the incident |
|  |
| **Caused By** | Poor response time by Wales and West Utilities |
| Poor communication between onsite parties and Wales and West Utilities |
| Poor coordination of onsite parties and Wales and West Utilities |
| Poor communication of procedures |
| Lack of supply resulting in drop in supply pressure, resulting in site wide gas supply failure |
|  |
|  |
| **Hazards Resulting from Risk** | Disruption of gas supply to whole site |
| Re-commissioning & purging after corrective action |
| Re-ignition of non-automatic ignition systems |
| Long down time due to above hazards |
|  |
| **Current Preventative Methods** | General communication between site and Wales and West Utilities |
|  |
|  |
|  |
|  |
| **Further Required Preventative Methods** | Communication of site procedures to Wales and West Utilities |
| Understanding Wales and West Utilities procedures |
| Training and simulated gas emergency drills |
| Training for quicker response time |
| Pressure monitoring |
| Planning for load shedding (reduces the risk of site wide gas failure) |
| Fitting automatic ignition systems as standard |
| Use of the gas safety management plan |
|  |
| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| --- |
| **Site Reviewed Model Risk Assessment - 04** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **A failure of operation of pipeline/plant onsite that is maintained by site services** |
| **Risk** | Any incident directly involving the low or medium pressure pipelines onsite can be dealt with by the onsite gas operatives. In the event of a leak the response time by the onsite operatives has an impact on the severity of the incident |
| The level of cooperation and communication between onsite parties such as emergency services and gas operatives has an impact on the eventual severity of the incident |
|  |
| **Caused By** | Poor response time by site services |
| Poor communication between onsite parties |
| Poor coordination of onsite parties |
| Poor communication of procedures |
|  |
| **Hazards Resulting from Risk** | Disruption of gas supply to whole site |
| Re-commissioning & purging after corrective action |
| Re-ignition of non-automatic ignition systems |
| Long down time due to above hazards |
|  |
| **Current Preventative Methods** | Scheduled Maintenance |
| Designed for purpose |
| Permits to Dig |
| Strict adherence to emergency procedures |
|  |
| **Further Required Preventative Methods** | Pressure monitoring |
| Use of the gas safety management plan |
| Training and simulated gas emergency drills |
| Training for quicker response time |
| Planning for load shedding (reduces the risk of site wide gas failure) |
| Fitting automatic ignition systems as standard |
|  |
| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 05** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Failure of safety critical equipment** |
| **Risk** | Failure of safety critical equipment can have a severe impact on the safety of the gas network. |
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|  |
| **Caused By** | Lack of/or poor maintenance |
| Incorrect use of equipment |
| Ageing equipment |
|  |
|  |
| **Hazards Resulting from Risk** | Lack of control over gas network, resulting in a gas incident |
| Lack of control over gas network during a gas incident |
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|  |
| **Current Preventative Methods** | Scheduled Maintenance |
| Designed for purpose |
| Regular operational training |
|  |
|  |
| **Further Required Preventative Methods** | Pressure monitoring |
| Further training of gas operatives |
| Replacing old equipment where required |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 06** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Under-pressure in the gas system** |
| **Risk** | If at any point the pressure in a gas network drops below a certain level, gas safety regulators will stop the flow of gas. These regulators are fitted to gas appliances and in some instances will also be downstream of the gas meter into individual houses. There is also a regulator on the main intake to the site. |
| If the pressure in a gas network, leading into a house or facility, drops below a certain level a gas safety regulator will terminate the flow of gas. This will cause the pilot lights to be extinguished. On this site, due to the multitude of buildings and houses, it may take up to 3 days to re-ignite all the systems. |
|  |
| **Caused By** | Gas leaks |
| Poor gas network management |
| Failure of Compressors |
| Inadequate supply of gas in the system |
| Failure of pressure control system |
|  |
| **Hazards Resulting from Risk** | Loss of gas supply |
| Gas safety regulators being tripped (requires manually resetting on older models) |
| Long recovery period |
| Potential for air in the gas network |
|  |
| **Current Preventative Methods** | Scheduled Maintenance |
| Designed for purpose |
|  |
|  |
|  |
| **Further Required Preventative Methods** | Pressure monitoring |
| Regular training of gas operatives |
| Replacing old equipment where required |
| Fitting automatic ignition systems as standard |
| Replacing manual gas safety regulators with automatic cut-outs |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 07** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Over-pressure in the gas system** |
| **Risk** | If at any point the pressure in a gas network climbs above a certain level, gas safety regulators will stop the flow of gas. These regulators are fitted to gas appliances and in some instances will also be downstream of the gas meter into individual houses. There is also a regulator on the main intake to the site |
| If the pressure in a gas network, leading into a house or facility, climbs above a certain level a gas safety regulator will terminate the flow of gas. This will cause the pilot lights to be extinguished. On this site, due to the multitude of buildings and houses, it may take up to 3 days to re-ignite all the systems. |
|  |
| **Caused By** | Failure of pressure control system |
| Incorrect pipe/valve sizing |
| Blockages in system |
| Poor gas network management |
|  |
|  |
| **Hazards Resulting from Risk** | Rupture of gas pipes due to high pressure related |
| Damage to valves and other control equipment |
| Damage to seals and joints |
| Loss of gas supply |
|  |
| **Current Preventative Methods** | Scheduled Maintenance |
| Designed for purpose |
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|  |
| **Further Required Preventative Methods** | Pressure monitoring |
| Regular training of gas operatives |
| Use of the gas safety management plan |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 08** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Failure in system during load shedding** |
| **Risk** | In the event of a gas supply emergency, load shedding can be used to stabilise the pressure in the system. However, if a section is isolated and the consumers on that branch use their gas supply the pressure in that branch will drop below acceptable levels and the pressure safety regulators will trip |
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| **Caused By** | Insufficient communication between onsite parties and the end user |
| Insufficient means of monitoring pressure |
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|  |
| **Hazards Resulting from Risk** | Loss of gas supply |
| Gas safety regulators being tripped (requires manually resetting on older models) |
| Long recovery period |
| Potential for air in the gas network |
|  |
| **Current Preventative Methods** |  |
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| **Further Required Preventative Methods** | Better communication |
| Pressure monitoring |
| Use of the gas safety management plan |
| Fitting automatic ignition systems as standard |
| Replacing manual gas safety regulators with automatic cut-outs |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 09** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **General changes to the gas network** |
| **Risk** | If during the design phase the sizing of the system is under/oversized, it could result in under/over pressure scenarios. |
| If during the installation of a gas network, the work is not carried out to the relevant British Standards and if the work is not undertaken by operatives trained and skilled to the same British Standards, failure may take place. |
|  |
| **Caused By** | Incorrect pipe sizing at design phase |
| Underestimating impact on overall site gas supply |
| Incorrect installation of plant and pipelines |
| Under qualified gas operatives used for gas works |
|  |
|  |
| **Hazards Resulting from Risk** | Damage to pipelines and gas network plant and equipment |
| Risk of causing a supply emergency |
| Damage to persons & property |
| Risk of Explosions & Fire |
|  |
| **Current Preventative Methods** | Using trained individuals to carry out work to the gas network |
| Checking credentials of design authority for gas network redesign |
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|  |
| **Further Required Preventative Methods** | Monitoring competence of gas network operatives |
| Use of the Gas Safety Management Plan |
| Further checking/commissioning of completed works |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 10** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Failure through PPM, general operation of the gas network plant/equipment and safety inspections** |
| **Risk** | Inadequate action during maintenance can cause failure in the system |
| If safety inspections are not carried out regularly, the system may be vulnerable to failure |
| The day-to-day operation of the system is vital to the overall performance of the gas network. If the day-to-day operation is not undertaken to industry standards, the gas network could be vulnerable to failure |
|  |
| **Caused By** | Gas plant & pipelines are not sufficiently maintained |
| Scheduled activities do not take place. |
| Operatives are insufficiently trained |
| Inadequate co-ordination of operation |
| Inadequate communication between onsite parties |
| Inadequate planning of scheduled activities |
| Inadequate inspection and testing of equipment |
|  |
| **Hazards Resulting from Risk** | Damage to pipelines and gas network plant and equipment |
| Risk of causing a supply emergency |
| Damage to persons & property |
| Risk of Explosions & Fire |
|  |
| **Current Preventative Methods** | Monitored and maintained |
| Using trained individuals to carry out work to the gas network |
| Following PPM schedules to carry out works |
| Awareness Training, drills and exercise |
| Using qualified operatives |
|  |
| **Further Required Preventative Methods** | Monitoring competence of gas network operatives |
| Checking credentials of design authority for gas network redesign |
| Employ better lines of communication between parties |
| Compliance with the Gas Safety Management Plan |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 11** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Emergency Shutdowns** |
| **Risk** | Emergency shutdowns can be used in the event of a gas incident which warrants the gas network or part thereof to be shut down. If this process fails, it can have a severe impact on the resolution of the incident |
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| **Caused By** | Failure of emergency shutdown valves |
| Ageing emergency shutdown valves |
| Lack of sufficient facilities for segregated shutdowns |
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|  |
| **Hazards Resulting from Risk** | Escalating hazard cause by existing emergency |
| Damage to pipelines and gas network plant and equipment |
| Risk of causing a supply emergency |
| Long down time |
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| **Current Preventative Methods** |  |
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| **Further Required Preventative Methods** | Use of the Gas Safety Management Plan |
| Providing strategically placed emergency shutoff valves |
| Scheduled PPM |
| Checking credentials of design authority for gas network redesign |
| Replacing old equipment where required |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 12** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Interface with Gas Transporter** |
| **Risk** | If interfaces between the site team and the gas transporter are not managed carefully, the fallout from gas incidents can become more pronounced |
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| **Caused By** | Poor response time by EGDN |
| Poor communication between onsite parties and EGDN |
| Poor coordination of onsite parties and EGDN |
| Poor communication of procedures |
|  |
| **Hazards Resulting from Risk** | Damage to pipelines |
| Resultant hazards from any gas incident can escalate |
| Risk of causing a supply emergency |
| Damage to persons & property |
| Risk of Explosions & Fire |
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| **Current Preventative Methods** |  |
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| **Further Required Preventative Methods** | Communication of site procedures to EGDN |
| Understanding EGDN procedures |
| Training and simulated gas emergency drills |
| Regular communication through fixed procedures |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 13** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Interface with Consumer** |
| **Risk** | If communication between the site team and the end user are not carefully established, the fallout from gas shortages could result in the system having to be purged and the pilot lights re-ignited. On a large site such as this, it could take up to three days to re-ignite all pilot lights. |
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| **Caused By** | Poor communication |
| Lack of understanding |
| No method of checking on gas usage |
|  |
|  |
| **Hazards Resulting from Risk** | Risk of causing a supply emergency |
| Loss of pressure in system |
| Long recovery period |
| Potential for air in the gas network |
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|  |
| **Current Preventative Methods** |  |
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| **Further Required Preventative Methods** | Pressure monitoring system |
| Use of the Gas Safety Management Plan |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 14** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Interface with Emergency Services** |
| **Risk** | The first responder has a duty to minimise the risk to the surrounding area upon arrival. If the gas incident is within an enclosed area, isolating the system is the correct course of action. However, in a open, well ventilated area, isolating the system may not be necessary, and could cause secondary hazards |
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| **Caused By** | Poor communication |
| Lack of understanding |
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| **Hazards Resulting from Risk** | Risk of causing a supply emergency |
| Causing the need to purge systems |
| Long downtime of gas network |
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| **Current Preventative Methods** |  |
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| **Further Required Preventative Methods** | Providing training to the Emergency Services, so that they will be able to better tackle gas incidents |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

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| **Site Reviewed Model Risk Assessment - 15** |
| **For: Wyvern Barracks ARC UOTC AC10 ACF ATC** | **Approved by:****Mitchell Fenwick****Date reviewed:****30/11/2021** |
| **Natural Disasters, civil disturbances, other unforeseeable events** |
| **Risk** | The risk of unforeseeable events causing gas related incidents cannot be planned for. However, it is possible to minimise the impact of the resulting hazards |
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| **Caused By** | Explosions |
| Ground tremors |
| Gas pipe sabotage |
|  |
|  |
| **Hazards Resulting from Risk** | Damage to pipelines caused by uncontrolled escaping gas |
| Risk of causing a supply emergency |
| Damage to persons & property |
| Risk of Explosions & Fire |
| Pollution of environment |
| Purging maybe required after corrective action |
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| **Current Preventative Methods** | High security levels |
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| **Further Required Preventative Methods** | Use of the Gas Safety Management Plan |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |

**ANNEX D**

# ANNEX D - ADDITIONAL SITE-SPECIFIC RISK ASSESSMENT TEMPLATE

Please copy and add further sheets as required

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| **Additional Site-specific Risk Assessment 16** |
| **For:**  | **Approved by:****Date reviewed:** |
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| **Risk** |  |
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| **Caused By** |  |
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| **Hazards Resulting from Risk** |  |
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| **Current Preventative Methods** |  |
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| **Further Required Preventative Methods** |  |
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| **Audits** | In the event of an incident, near miss or any other hazardous occurrence this RA must be reviewed and updated as appropriate. |