



IGas Energy PLC

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NORM Work with Ionising Radiation Procedure



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Document History

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05	Change EPR reference to EPR 16	RR	CB	SR	31.01.17
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**Key parties are specified for ease of reference. But the formal review and approval process is logged within the M-Files systems.*



1. SCOPE

This document applies to IGas Energy plc and its subsidiary companies (IGas) in terms of activities involving work with ionising radiation i.e. the production, processing, handling, use, holding, storage, transport and disposal of radioactive substances. In practice this document is particularly relevant to work with Naturally Occurring Radioactive Material (NORM) contaminated plant, articles and equipment arising from IGas operations within the UK.

2. INTRODUCTION

This document identifies the arrangements for the management of work with ionising radiation made by IGas to ensure that exposures are adequately controlled in accordance with the Ionising Radiations Regulations 2017 (IRR17).

Other applicable legislation is referenced as required: the Environmental Permitting (England and Wales) Regulations 2016 (EPR16) and the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2011 (CDG11).

3. DEFINITIONS

IRR17	Ionising Radiations Regulations 2017
EPR16	Environmental Permitting (England and Wales) Regulations 2016
CDG11	Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 including the 2011 amendment regulations
NORM	Naturally Occurring Radioactive Material
HSEx	Health and Safety Executive
RPA	Radiation Protection Adviser (Aurora)
RWA	Radioactive Waste Adviser (Aurora)
RPS	Radiation Protection Supervisor (IGas)
RMS	Radiation Management System
DGSA	Dangerous Goods Safety Adviser
DRO	Dose Restraint Objective

4. REQUIREMENTS

4.1 Statutory Requirements

The requirements of the Ionising Radiations Regulations 2017 (IRR17) and the systems and processes that IGas have in place to secure compliance with IRR17 are detailed below:

4.1.1 Duties of the Employer engaged in work with ionising radiation

IGas is the principle duty holder for all work with ionising radiation and as such is an 'Employer engaged in work with ionising radiation'. Although responsibilities have been delegated to 'Appointees' through the company's Management arrangements, absolute accountability for all work with ionising radiation remains with the IGas' Management team.

4.1.2 Risk assessment

Before commencing work with ionising radiation, IGas will ensure that a suitable and sufficient assessment of the risk to employees and other persons is carried out. The aim of the risk assessment is to identify the control measures needed to ensure that exposure of affected individuals is adequately controlled. Where the risk assessment identifies a potential accident or incident all reasonably practicable steps will be taken to prevent such an occurrence or to limit the consequences of such an occurrence. In addition, employees will be provided with sufficient information, instruction and training to ensure that any exposures to ionising radiation which occur because of an accident/incident, are restricted as far as reasonably practicable. Assessment of risk shall be carried out in accordance with the IGas Risk Assessment procedure IMS-S-001 and in consultation with the appointed Radiation Protection Adviser (RPA).

4.1.3 Notification of specified work

IGas shall notify, register or obtain consent from the Health and Safety Executive (HSE) before commencing work with ionising radiation (This applies to work not associated with NORM). Notification shall be made by the IGas RPS. IGas will provide information requested by written notices served by the HSE in response to the notification of specified work, and shall provide the information by the time specified in the notice. Where IGas has notified work in accordance with the IRR17 and subsequently makes a material change in that work, notification of the change shall be made to the HSE.

4.1.4 Restriction of exposure

IGas will ensure that all necessary steps are taken to restrict so far as is reasonably practicable the extent to which employees and other persons are exposed to ionising radiation. This will be achieved where practicable by implementing the hierarchy of controls set out below:

- Elimination,
- Substitution,
- Engineering Control,
- Safe System of Work and Procedures,
- Information, Instruction and Training,
- Supervision, and
- Issue and use of Personal Protective Equipment (PPE).

Where IGas is responsible for providing any control measure, including PPE, it will ensure that these are maintained and tested on a regular basis with appropriate records being made and maintained.

4.1.5 Applications of the As Low as is Reasonably Practicable principle

IGas employees and others under their control, will work closely with all radiation protection personnel (e.g. RPAs, RPSs, etc.) to help to reduce radiation doses by ensuring that all activities which involve personnel working with ionising radiation are adequately planned and that individuals are suitably qualified and experienced. The aim of this coordinated effort is to keep radiation exposures As Low as Reasonably Practicable (ALARP).

The precautions available to meet the ALARP requirement for any defined task involving ionising radiation will be considered at the planning stage. The production of the prior risk assessment and operational method statements will allow the identification of components of the task that will give rise to potential doses or contamination events for which engineering and administrative controls will be designed and implemented to achieve ALARP.

For work with ionising radiation including NORM contaminated items and equipment, IGas will ensure that written procedures (Local Rules) are created and issued to personnel carrying out the work. Work

with ionising radiation will be subject to on-going supervision and review to confirm the adequacy of workplace practices.

4.1.6 Dose assessment and dose limitation

The Radiation Protection Adviser will advise on dosimetry requirements for work with NORM materials and affected plant/equipment. The RPA has advised that the nature of the work and potential exposures are such that no external dosimetry is required. This will be kept under review and advice taken from the appointed RPA.

IGas in association with the Radiation Protection Adviser (RPA) and Radiation Protection Supervisors (RPSs) will periodically review the companies work with radioactive materials and the available data on potential for exposures.

IGas has set company Dose Restraint Objectives (DRO). Details are given in the Table below.

Table 1. IGas Company Dose Restraint Levels	
Catégories	Restraint Level
Young Persons aged less than 18 years	1 milliSievert effective dose per calendar year (Subject to a young person’s risk assessment)
Employees and contractors aged 18 years or over (not being a trainee or other person).	1 milli-Sieverts (mSv) effective dose per calendar year.
Any female employee who has informed her employer that she is pregnant.	0.3 mSv equivalent dose to the surface of the abdomen for the remainder of the pregnancy.

Note that as doses are not monitored, with regards dose investigations, these will be performed when:

- A person suspects that they have received an unexpected radiation dose which causes them concern and may reach or exceed the DRO.

Potential dose will also be assessed prior to work commencing in conjunction with the RPA.

4.1.7 Contingency Plans

Where the assessment of risk shows that a radiation accident is reasonably foreseeable, IGas will prepare a contingency plan designed to secure, so far as is reasonably practicable, the restriction of exposure to ionising radiation and the health and safety of all persons who may be affected by such an accident.

Employees who may be involved or affected by a radiation accident shall receive information, instruction and training on the contingency plan and where appropriate, rehearsals of the arrangements in the plan will be carried out at suitable intervals. The purpose of the rehearsal is to ensure that personnel are aware of the role they will fulfil.

Full details of contingency plans see NORM Local Rules Working with Ionising Radiation Procedure section 5, (HSE.PR.005)

4.1.8 Radiation Protection Advisor & Radioactive Waste Adviser

IGas will appoint both a 'Radiation Protection Adviser' and a 'Radioactive Waste Adviser' in writing and shall include the scope of advice which the RPA and RWA is required to give. For contact details of IGas RPAs and RWAs, see Appendix 2 within HSE.PR.005 NORM Local Rules Working with Ionising Radiation Procedure. The IGas Group HSE Director is responsible for the appointment of an RPA and RWA. Note: the RPA and RWA could be the same individual

IGas will provide the appointed RPA and RWA with adequate information and facilities for the performance of their functions.

4.1.9 Information, instruction and training

IGas will provide appropriate information, instruction and training to personnel engaged in work with ionising radiation (NORM contaminated equipment and items) to ensure they know:

- The risks to health created by exposure to ionising radiation;
- The precautions which should be taken;
- The importance of complying with the medical, technical and administrative requirements of the IRR17.

Line Managers are responsible for identifying employees that require instruction and training.

4.1.10 Cooperation between employers

IGas as part of its risk assessment process will identify those parties that may be affected by its NORM work activities, and will communicate with respective employers affected by the work with NORM materials, to ensure an adequate level of protection and safe working environment is provided for personnel.

4.1.11 Designated areas

IGas will create and control radiological designated areas (under IRR17) on selected oilfield sites as required to prevent, limit and control the potential spread of contamination arising from work activities on the affected site. Various oilfield sites are subject to an EPR16 Permit and controls will be put in place to comply with these Permit requirements as required.

Access to radiologically designated areas will be controlled and the status of the area kept under review.

4.1.12 Local Rules

Local Rules will be created which will cover all work involving the NORM contaminated equipment and materials with advice being taken from the appointed Radiation Protection Adviser (RPA). Specific Local Rules will be drawn up for specific tasks as required in consultation with the RPA.

The Local Rules will cover work in normal circumstances and the particular steps to be taken to control exposures in the event of an accident or incident. It is the responsibility of IGas to ensure that local rules are prepared or are present and that those rules relevant to the work being carried out are observed.

IGas shall take all necessary steps to ensure that the Local Rules are brought to the attention of those employees affected by them and others who are required to observe them.

4.1.13 Radiation Protection Supervisors

IGas will formally appoint in writing, one or more 'Radiation Protection Supervisors (RPS) for the purpose of supervising compliance with the Local Rules (see bullet point below). Discussions on the individual's suitability for appointment as an RPS shall be between the Production Director, HSE Director/Adviser and the RPA. The Production Director is responsible for the appointment of a suitable number of trained RPSs.

The main duty of the RPS is to ensure that work on site is carried out in accordance with relevant Local rules (see below) but also to ensure adherence to other relevant procedures detailed below:

- HSE PR 004 - NORM Assessment and Processing Procedure
- HSE PR 005 - NORM Local Rules Working with Ionising Radiation Procedure
- HSE PR 006 - NORM Work with Ionising Radiation Procedure
- HSE PR 008 – Permit Compliance Document (NORM)

Management may change the duties of the RPS from time to time and he/she will be notified of these changes.

4.1.14 Monitoring of designated areas

IGas will routinely monitor the levels of ionising radiation and will carry out contamination checks as required by the Local Rules. Suitable radiation monitoring equipment will be provided to staff and will be properly maintained, tested, within its annual testing period (12 months). Equipment will be examined prior to use and only used by suitably qualified persons.

IGas shall make suitable records of the results of the radiological monitoring and these will be contained with the Radiation Management File or other appropriate location. Results will be reviewed by an appointed RPS and the HSE Adviser and will be retained for two years from the respective dates on which they were made. The RPS should consult the RPA/RWA where NORM is identified or suspected via monitoring.

The keeping of monitoring records is the responsibility of the Regional HSE Adviser who has delegated the responsibility to the local Radiation Protection Supervisor (RPS) who has a supervisory duty over the designated areas.

4.1.15 Designation of Classified Persons

IGas personnel carrying out work with NORM contaminated equipment and materials do not need to be classified radiation workers. This situation will be kept under review with advice taken from the appointed RPA.

4.1.16 Storage and transportation of radioactive substances

IGas shall ensure that NORM contaminated equipment and materials are transported in accordance with current applicable road transport regulations and will consult with the appointed RPA on transport requirements for radioactive materials (Class 7 Dangerous goods) and IGas internal DGSA. All consignments of radioactive (NORM) items must be carried out in consultation with the IGas DGSA.

The Production Director is responsible for ensuring the safe and compliant movement and transport by road of radioactive substances.

The Operations Managers are responsible for the transportation of radioactive materials, substances and equipment. Advice on the transport of radioactive materials, plant, and equipment will be obtained from the RPA, and the IGas Dangerous Goods Safety Advisor (DGSA).

4.1.16 Investigation and Reporting

Any known or suspected failures to comply with legal requirements, including the occurrence of any accident or incident must be reported to the HSE Adviser as soon as practicable. The HSE Adviser will notify the RPA/RWA and initiate an investigation forthwith and will notify any relevant enforcing authority as required.