W-CRF
WATER CONTROL ROOM FORUM

ENERGY & UTILITY SKILLS

CONTROL ROOM OPERATIONS COMPETENCE FRAMEWORK

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INTRODUCTION
COMPETENCY FRAMEWORK

The Water Control Room Forum (W-CRF) identified a need for the development of a competence framework specifically for Water Utilities Control Room staff across England, Scotland and Wales.

Water companies across the three nations have collaborated to develop this new competency framework specifically for Control Room staff which will:

- Standardise training and assessment of Control Room Operatives across all water companies
- Support training and development of new and existing staff to aid succession planning
- Help with the challenges associated with the movement of staff
- Provide a formal route to registration on EUSR for Control Room Operatives

There are three levels within the framework – Bronze, Silver and Gold. Each level has the same core topics and they build up quite naturally so that there is a broader and deeper knowledge and understanding as the individual progresses from the entry level Bronze to Silver and then to Gold.

This brochure provides a 'snapshot' of the competency framework at Bronze level.

The completion of the Competence Framework has been a major achievement and a fantastic collaborative effort over the last three years. Energy and Utility Skills would like to thank the following people:

The W-CRF, all of the pioneers who have been involved and contributed to the working group, and in particular Patricia Plummer (Wessex Water).

BRONZE LEVEL

The following definition of achieving Bronze level has been defined as:

Has some autonomy, working at operative level, carrying out scheduled work and responding to incidents. Communication, customer service, IT and problem solving are key requirements of this role. Bronze level candidates will be using their own initiative to make decisions and work as part of a team as well as prioritising and deploying high priority reactive work. They will take ownership of the schedule toensure that all customer promises are met and pro-actively contact customers orthird parties to advise in a timely manner any problems which may impact on delivering what has been agreed.

Five reasons you should use the Competence Assessment tools:

1. Help improve performance in your organisation
2. Quick and easy to use
3. Identify areas for staff development
4. Inform and assess training programmes
5. Use it to career plan

Organisations can use the Framework to:

1. Support job design and recruitment activities
2. Assess the appropriateness and effectiveness of training,
3. in particular induction training
4. Support the identification of areas for development
5. Support ongoing performance management and assessment
6. Inform training needs and training programme design
7. Support career planning

Competence Assessment tool Who is it for?

The assessment tools are designed to help managers, supervisors and team leaders who work in Water Control Rooms to assess their teams against a range of competences and skills relevant to their job roles.

Information can then easily be transferred across onto an easy-to-read dashboard to show areas for development across the team.

For more information about the Water Control Room Licence to Control competence framework please contact **lucy.ritchie@euskills.co.uk** or **denise.mcglynn@euskills.co.uk**

COMPETENCIES

COMPLY WITH REGULATIONS AND LEGISLATION

Introduction to the Law

- Work in accordance with the Water Act to ensure compliance. Understand the importance of compliance and report issues of non-compliance

- Work in compliance with the Data Protection Act (DPA) and understand how it influences how data is stored and protected

- Know the company systems that hold sensitive data and the importance of maintaining accurate and controlled data

- Know when and where to seek support and / or expert / legal advice

- Understand the implications of the working time directive on your working hours

Introduction to the Regulators

- Know who the key regulators are and how they influence the work of the water companies

- Identify reportable supply demand balance outage incidents and regulatory bodies who require notification

- Work in accordance with the key regulations to ensure compliance

- Report non-compliance issues within area of responsibility to appropriate person

- Identify and understand the corporate definition of domestic and commercial compensation standards and their relation to the regulatory requirements

- Understand the corporate definition of both domestic and commercial compensation standards and how these link into the regulatory requirements

- Know the compensation payments for service failures relating to loss of supply and sewerage flooding

- Understand who the DWI / DWQR are and the EA / SEPA are and how water companies interface with them

- Carry out all work in compliance with DWI / DWQR and EA / SEPA

- Report non-compliance issues within area of responsibility to appropriate person

- Understand the relationship between the water company and stakeholders

Compliance and Consent

- Awareness of the compliance and consent arrangements for water supply and waste treatment in your organisation. Understand the implications and consequences of non-compliance

- Utilise approved supply and waste compliance monitoring methods. Understand the functions they perform and consequences of failure

- Report non-compliance issues within area of responsibility to appropriate person

Security and Emergency Measures Direction (SEMD)

- Understand the drivers for SEMD, government threat levels and their meaning for both the water industry and the UK.

- Know what the CNI / Water framework is and how they are impacted on

- Understand the purpose of the regulatory requirements for the construction standards of alarm monitoring centre (AMC) and other security mitigation and carry out all work in line with regulatory requirements, reporting any issues of non-compliance within area of responsibility and to the appropriate person

- Understand the possible impacts to water supplies and demand balance following a third party action

- Know the emergency procedures and escalation procedures relating to all SEMD incidents including those affecting all key supply and demand sites

REMOTE ASSET MONITORING AND CONTROL

SCADA, Telemetry and Alarm Management

- Understand the purpose and principles of SCADA and telemetry systems. Work supervised in line with company procedures and service level agreements

- Gather alarm data and history and triage telemetry alarms in line with level of expertise / responsibility. Seek advice when unable to carry out triage successfully. Implement curative actions based on analysis of data

- Be able to identify and allocate an alarm to the appropriate person and confirm details of the situation indicated by the alarm conditions

- Understand and carry out when necessary the telemetry escalation process

- Carry out curative work to approved standards and confirm action has had required effect

- Understand staff availability impact when attending high level alarms

- Define security action alarms and their purpose

Proactive Network and Remote Monitoring

- Understand the principles of network monitoring for water supply and wastewater in own area of work

- Action alarms, alerts and tasks based on predetermined priorities / procedures and service level agreements

- Understand the risks associated with the work being undertaken and the escalation process

Network Monitoring Critical Pressure Points (CPPs)

- Understand CPPs and their functional purpose

- Know the company procedures for asset excursion management

Remote Operation of Assets

- Understand the remote operation of pumps, valves and treatment processes

- Carry out all work in line with company procedures and service level agreements

- Understand the escalation procedures

DEVIATION FROM NORMAL OPERATIONS

Incident Management - General

- Understanding your company's incident categorisation.

- Understand the purpose of continuity and emergency planning in the water industry

- Know where to access business continuity documentation and identify contingency measures and resources

- Know the escalation levels and procedures within your team and organisation

- Understand when an incident management team would be formed

- Work within the incident management team when required

- Understand the relationship with key regulatory stakeholders and how an activation of an incident can affect the business

- Understand the importance of timescales and trigger points during an incident and the importance of collating data, information and situation reports

- Understand the relationship between asset failure and stakeholders impact and operational control and call centre

- Know the governance that is in place to ensure adequate risk management for all supply and waste networks

- Understand the relevant elements of the procedures and the consequences of not adhering to them

- Understand your role and responsibilities in the event of an emergency in the workplace including evacuation and technology system failure

- Know when it is possible for the business to deviate from normal operation and the possible resolutions

Incident Management - Water Supply

- Know what planned and unplanned interruptions to supply are

- Know the impact of poor planning of a planned or unplanned event

- Know the indicators and risks of supply interruption

- Understand the trigger points for the provision of alternative water and the option to maintain supplies and the associated risks

- Know the different types of alternative water supplies and their suitability for deployment to stakeholders

- Understand the regulatory requirements for alternative water supplies

Incident Management - Waste

- Know what planned and unplanned events can impact the wastewater network

- Know the impact of poor planning of a planned or unplanned event

- Know why and when waste tankering would be used

Pollution Management

- Know the impact of a water supply and waste pollution

- Know the company procedures / licensing / regulatory requirements relating to pollution, control and management

ASSET SECURITY

Security Measures, Impact & Control of Information

- Know the nationally recognised threat levels and the impact they can have on the water company

- Know how and why recording devices are used in the Control Room or Incident Centres

- Be able to identify controlled / sensitive data / information in a control room and understand why it is controlled

- Know what the Data Protection Act is and how it impacts on your role and carry out all work in line with data protection requirements

Security Alarm Management - Alarm Triage

- Know the Standard Operating Procedures and understand how they impact on your role

- Know the different types of security alarms and their associated target for response

- Understand the general escalation routes and the conditions that allow for an alarm to be "parked" and monitored

- Be able to identify potential causes of repeat security alarms

- Be able to identify faults that may be found on security equipment

- Communicate information accurately and within agreed timescales, giving due regard to its priority and sensitivity using different but appropriate methods of communication where required

- Identify limitations of poor telecommunications reception areas and actions to address communications issues

Security Alarm Management - Access Control

- Understand the importance of controlling access to a site or asset and the implications of not doing so

- Know what information to get from a caller making a bomb threat

- Know what and how to safely gather information regarding a suspicious package

Security Alarm Management - Field Response

- Clarify and prioritise details of the work to be undertaken and allocate field workers, identifying any authorisations required

- Confirm with the appropriate people that field workers have been dispatched and record and report in line with agreed procedures

- Identify security risks that should be taken into account when a site is being risk assessed

- Monitor work progress of field workers, informing relevant parties where the work they are doing impacts on others and confirming stages which have been complete change to understand

- Update and complete all records in line with agreed procedures

CCTV - Police Response

- Understand the types of information the police would require to attend a verified / confirmed alarm

CCTV CPNI - Counter Terrorism

- Understand the CTSA and their role

CORE SKILLS

Basic Biology and Chemistry

- Know how biology and chemistry is used in the water industry

- Understand and calculate percentages when relating to your work

Basic Operational Maths

- Understand and calculate time differentials relating to your work

- Convert numbers to words in relation to your work

Company Specific IT Systems

- Know the functionality of the control room systems and operate systems effectively

Risk Assessments and Method Statements

- Understand the purpose of risk assessments / method statement, their health and safety implications and effect on site staff

- Know how occupational, environmental, and human factors can impact the level of risk

- Understand the requirements and importance of risk assessment. Know how to carry out a dynamic risk assessment of your own responsibilities and those of the organisation

- Know how to identify a hazard, how to assess and control risks

- Assess the level of risk and eliminate where possible, prioritising hazards which could result in serious harm

- Identify and report those hazards that cannot be eliminated to the appropriate person

Permit to Work

- Understand the reasons for the permit to work and the implications of not complying

- Carry out all work in compliance with the permit to work

- Identify how non-compliance issues are reported within area of responsibility to appropriate person

Problem Solving

- Know how to identify problems

Communication and Customer Service Skills

- Show locations of control room communication strategies, customer service policies and procedures and service level agreements including escalation policies and communication methods

- Know and use different methods of internal and external communication and understand the variances and factors can affect the urgency and importance of information

- Receive and communicate information at the appropriate pace, level, security, sensitivity, clearly, concisely, accurately in a professional timely calm manner, to the appropriate staff and check for understanding

- Provide information and advice to internal and external customers

- Handover and provide operational information at personnel changeover

- Use the appropriate questioning to gather information about the caller's problem. Take ownership of a customer call and in resolving the callers problem. Implement processes to resolve the callers issues accurately and quickly

- Record customer details and query in line with corporate procedures

- Work within own levels of responsibility and understand when and how to implement silver level call escalation

- Understand the purpose of the Wholesale service desk and the impact on the organisation

Corporate Procedures

- Understand the types of procedures used in the control room in relation to different 'control room functions / elements / mechanisms' in the business

- Locate and follow procedures for the control room activities

Data Analysis and Diagnostic Methods

- Locate, understand and utilise the suite of standard operating procedures and other documents as appropriate and provide support for problem resolution

- Identify and interpret trends and calculate a rate of change

- Calculate a time point on a trend which would identify stakeholder impact

- Understand the relationship between metres head and pressure

- Understand different measures of volume

Weather Impact

- How the weather affects the business

- Understand and follow approved escalation / communication procedures and contingency plans in the event of adverse weather conditions

- Understand seasonal demand balancing periods to keep the appropriate water pressure

Energy Management

- Understand tariffs, the different charges / times of energy supply and impact and how tariffs can be influenced

- Work in line with the approved processes in relation to energy management

- Understand what is meant by an energy Triad and what the impact could be

Lone Worker

- Understand the importance of lone worker monitoring, the functionality of your corporate system and also the standard operating procedure that governs the response. Carry out all work in compliance with the lone worker policies and procedures

- Understand the arrangements for manual work around in your company should a failure of your corporate lone worker system occur

- Understand the management of escalation process and how accurate records are kept

Health and Safety at Work

- Be trained to corporate H&S competence

NETWORK STRUCTURE AND MANAGEMENT

Water and Wastewater Network Structure

- Understand the hierarchy / structure of the water supply network and the wastewater network

- Know the key components of a water distribution system and their purpose

- Know how the component parts of the network function

- Know what constitutes an asset failure and the impact it may cause stakeholders

Regulatory and Operational Requirements of Abstraction

- Know and follow business and regulatory requirements for monitoring and reporting intakes / abstractions and the systems and data in place in the control room to support these

- Know the types of abstraction in your business and the risks associated with it

- Know and follow precautions to protect raw water supplies

- Know what contingencies are in place in the event of a total loss of abstraction due to drought or pollution

Working on the Network (Planned and Unplanned Works)

- Know and follow approved procedures for planned and unplanned works and understand the consequences of not adhering to these procedures. Know where and how to access information relating to the procedures

- Know the differences between planned and unplanned works, resources required and the impact they can have on the supply / demand balance and the sewer network

Problem Solving on the Network

- Be able to identify issues, communicate the problem and follow approved recording and reporting procedures

Pump Efficiency and Optimisation

- Understand the role of pumps in the water network

- Understand pump function and operations, including a) the pump build b) impact of wear and tear c) types of pumps d) effects of operation e) terminology

- Maintain up to date knowledge of optimiser and software technology

WATER SUPPLY AND WASTE TREATMENT

Principles of Water Treatment

- Understand the hydrological cycle

- Identify water resources

- Know the cycle & impact of water company treatment

- Water Treatment: Identify several abstraction Sources

- Identify and report problems that cannot be resolved

- Identify the water treatment fundamentals including, types of source water, clarification, disinfection, retention times and water quality monitoring

- Understand the consequence of infiltration

- Know what governs these sources and the challenges using these sources

Principles of Waste Treatment

- Understand the waste treatment process

- Know the limitations of different waste treatment sites

- Identify the wastewater treatment fundamentals including, types of source water, clarification, disinfection, retention times and water quality monitoring

Water Transmission

- Understand the principles of having a integrated water supply network

- Know different pipework materials that have been used in the supply network

- Understand the impact of flow reversals on the external domestic and commercial stakeholders

- Understand water quality threshold requirements within the destruction network

Supply Interruptions

- Identify problems during a supply outage and follow the approved method of escalation for resolution

- Know and apply appropriate temporary solutions for supply restoration

- Understand and monitor the impact on service reservoirs water storage in the event of a supply interruption

- Follow approved reporting and recording procedures

- Know and apply appropriate methods of Water Treatment Work supply demand balance in the event of a loss of supply

Supply and Waste Planned and Unplanned Works

- Understand the differences of reactive and planned works, the typical work activities and predicated resources required

- Know the considerations for prioritising planned and reactive work

- Understand the control room process for determining the degree of urgency of work which affect the optimisation of the network

- Know the work activities that require an authorisation process to be completed

- Know the different types of actions required when work activities impact on external residential and commercial stakeholders

- Know which planned and unplanned jobs have an impact on the asset and service to stakeholder

- Know commercial, domestic and those stakeholders requiring additional assistance in line with approved procedures

- Understand and follow the agreed process for dealing with a third party supplier issue which has impacted on an asset or service to a stakeholder

- Follow approved monitoring, recording and reporting procedures when planning field workers activities

The Interactions between Water Supply Flow and Pressure

- Know the causes of low flow and low pressure

- Identify if there is a relationship between seasonal demands and impact on water supply pressure

Water Quality

- Identify causes which can affect the water quality of a service reservoir

- Know the methods of monitoring of water quality at a water treatment works and in the distribution network and they key risks for water quality

- Identify the appropriate methods for managing Water Quality on a water treatment works

- Know and work to the recognised disinfection policy at a water treatment works

- Know the issues that can affect water quality and the recognised methods of resolution

- Carry out all work in line with approved regulations and company policies and procedures

- Identify different causes of discolourations and the information required from the external stakeholders during discolouration water investigations

- Be able to identify if the problem is internal to the stakeholder's property or water utility

- Follow company recording and reporting procedures

- Know and implement the appropriate methods for resolving discoloured water issues taking into account the needs of the water utility and the stakeholder

LICENCE TO CONTROL COMPETENCE FRAMEWORK ASSESSMENT TOOL
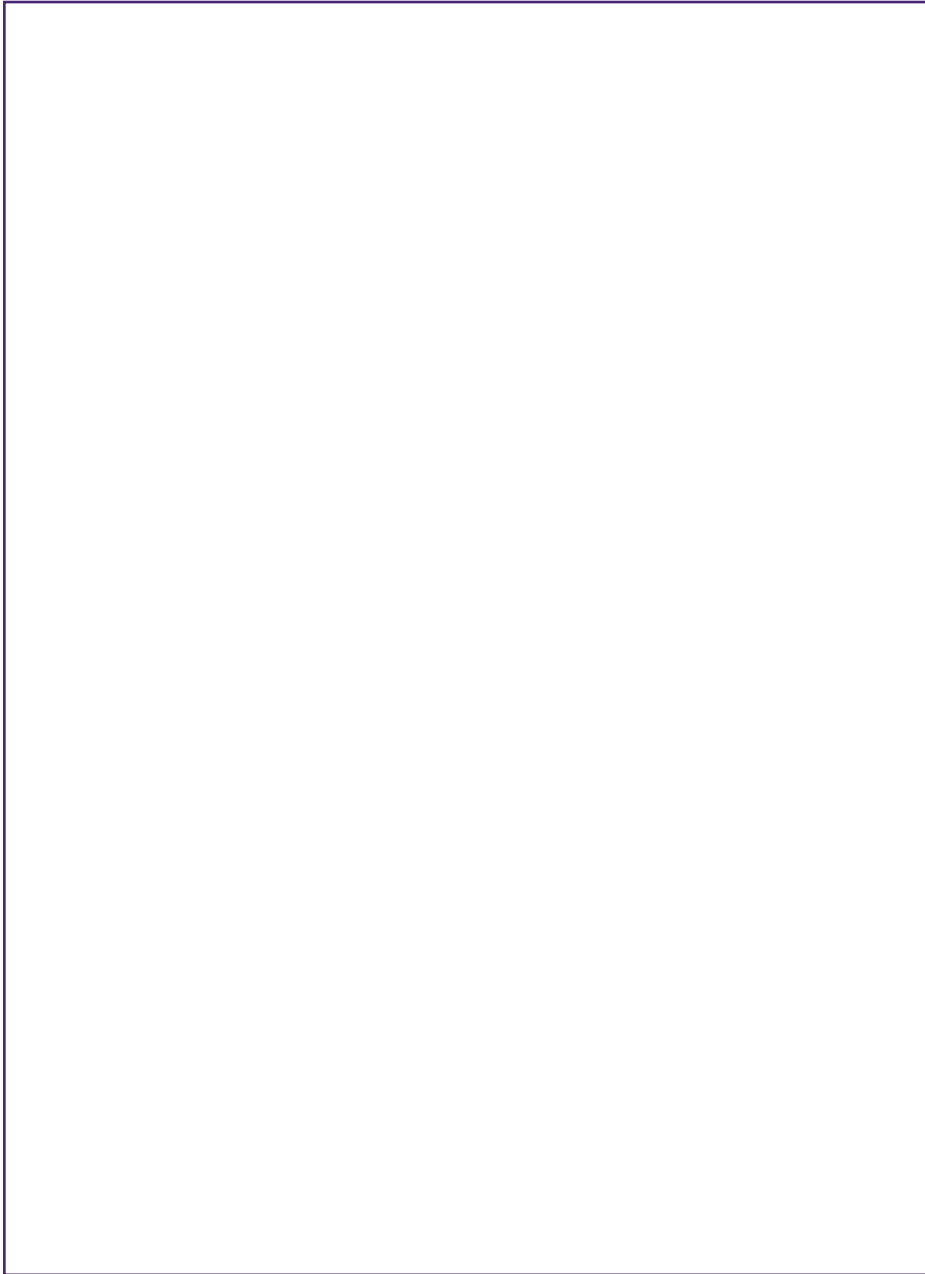
EMPLOYEE NAME	L2C

Please read the requirements for each of the competencies shown below that are applicable to your job role.

For each requirement rate yourself using the following descriptors (1, 2, 3 or n/a).
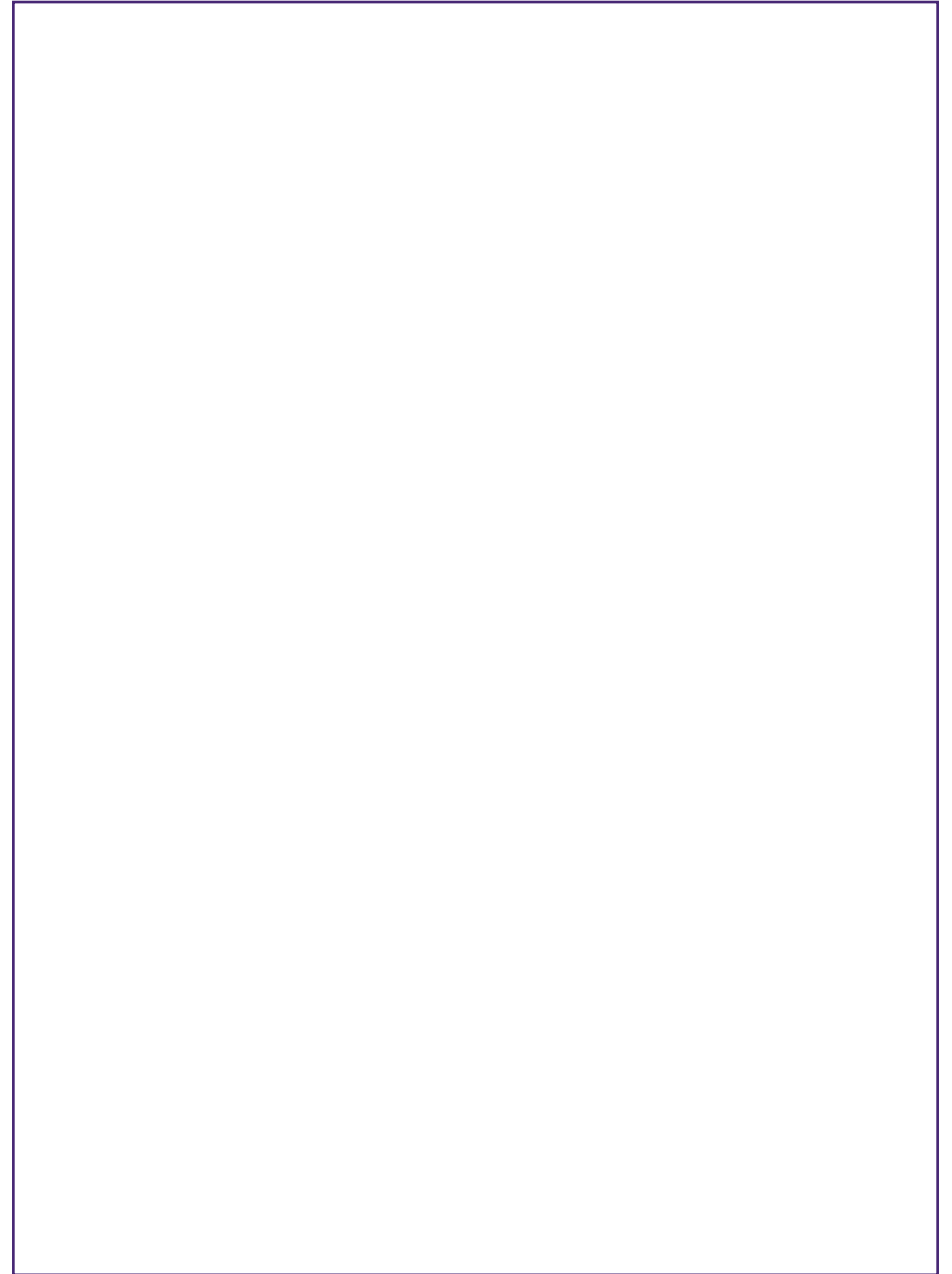
COMPETENCE RATING DESCRIPTIONS

1	I have very little knowledge or experience of this and would need some guidance or further training to achieve it
2	I have enough skill and / or knowledge to do this confidently on a regular basis without any support
3	I am very confident I can do this and feel I have developed such a high level of knowledge and / or experience that I could help others do this also
n/a	Competence not required for my job role

COMPETENCE	I know about or am able to:	Select your rating	Average Rating
1. COMPLY WITH LEGISLATION	1.1. Introduction to the Law		
	1.2 Introduction to the Regulators		
	1.3 Compliance and Consent		
	1.4 Security and Emergency Measures Direction (SEMD)		
2. REMOTE ASSET MONITORING AND CONTROL	2.1 SCADA, Telemetry and Alarm Management		
	2.2. Proactive Network and Remote Monitoring		
	2.3. Network Monitoring Critical Pressure Points		
	2.4 Remote Operation of Assets		
3. DEVIATION FROM NORMAL OPERATION	3.1 Incident Management - General		
	3.2 Incident Management - Water Supply		
	3.3 Incident Management - Waste		
	3.4 Pollution Management		
4. ASSET SECURITY	4.1 Security Measures, Impact & Control of Information		
	4.2 Security Alarm Management - Alarm Triage		
	4.3 Security Alarm Management - Access Control		
	4.4 Security Alarm Management - Field Response		
	4.5 CCTV - Police Response		
	4.6 CCTV CPNI - Counter Terrorism		

COMPETENCE	I know about or am able to:	Select your rating	Average Rating
5. CORE SKILLS	5.1 Basic Biology and Chemistry		
	5.2 Basic Operational Maths		
	5.3 Company Specific IT Systems		
	5.4 Understand and can comply with traffic management systems and procedures in my area of work		
	5.5 Risk Assessments and Method Statements		
	5.6 Permit to Work		
	5.7 Problem Solving		
	5.8 Communication and Customer Service Skills		
	5.9 Corporate Procedures		
	5.10 Data Analysing and Diagnostic Methods		
	5.11 Weather Impact		
	5.12 Energy Management		
	5.13 Lone Worker		
	5.14 Health & Safety at Work		
6. NETWORK STRUCTURE AND MANAGEMENT	6.1 Water and Wastewater Network Structure		
	6.2 Regulatory and Operational Requirements of Abstraction		
	6.3 Working on the Network (Planned and Unplanned)		
	6.4 Problem Solving on the Network		
	6.5 Pump Efficiency and Optimisation		
7. WATER SUPPLY AND WASTE TREATMENT	7.1 Principles of Water Treatment		
	7.2 Principles of Waste Treatment		
	7.3 Water Transmission		
	7.4 Supply Interruptions		
	7.5 Supply and Waste Planned and Unplanned Works		
	7.6 The Interactions Between Water Supply Flow and Pressure		
	7.7 Water Quality		

NOTES

**ENERGY &
UTILITY SKILLS**