LEVEL 3 NVQ DIPLOMA IN RADIATION PROTECTION

Centre Qualification Handbook

Competence-based Qualifications

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INTRODUCTION TO THE HANDBOOK

This qualification sits within the Regulated Qualifications Framework (RQF).

This Qualification Handbook has been developed to ensure that PAA\VQ-SET Centres understand the requirements of the qualification. The Handbook contains the following information:

- Qualification Structure
- Assessment Requirements
- Assessment Methods
- Glossary
- Qualification Units

This Qualification Handbook has been developed to provide support in the implementation of the qualification as well as giving information to ensure that the assessment and quality assurance is consistent, robust and reliable within each centre and nationally. The handbook also contains details of the skills and/or knowledge the learner must obtain to achieve the units and qualification.

Qualification Structure

This section of the handbook summarises the content of the qualification and the skills and/or knowledge learners that achieve it can be expected to gain. It also outlines the units required to achieve the qualification and will give the learner an idea of how long the qualification will take to achieve through the Total Qualification Time (TQT) and how much contact time they can expect through the Guided Learning Hours (GLH). It also provides information about possible progression opportunities once the qualification has been achieved.

Assessment Requirements

The assessment requirements for the qualification will cover any specific information about how the qualification may be assessed, such as whether assessors require specific qualifications or occupational competence and whether simulation is permitted in the achievement process.

Assessment Methods

This section summarises the different assessment methods and types of evidence that support assessment; these may be used to demonstrate competence or the achievement of knowledge and understanding.

Qualification Units

The unit overview summarises the content of the unit and the skills and/or knowledge the learner will have gained on achievement of the unit. The units may also contain additional information in the assessment context which will describe the areas to be covered and any appropriate assessment guidance and evidence requirements which will outline additional assessment requirements and should be built into assessment plans and included on assessment records. The unit detail will also confirm whether simulation is permitted for that particular unit.

Qualification Assessment and Support Materials

Centres will be sent the following qualification assessment and support materials:

- Assessment Forms – it is not mandatory to use these forms. Centres may wish to use their own assessment documentation – these should be approved by the External Verifier prior to use.
- Learner Guide
- Qualification Handbook
- Registration Spreadsheet & Certification Claim Forms

LEVEL 3 NVQ DIPLOMA IN RADIATION PROTECTION

Qualification Summary

This Diploma is based on the Cogent SSC National Occupational Standards (NOS) for Radiation Protection and will provide recognition of the skills and knowledge of individuals working in radioactive environments. The qualification is aimed at learners who have responsibility for developing and implementing their organisation's radiation protection policy.

Total Qualification Time (TQT) and Guided Learning Hours (GLH)

Guided Learning Hours (GLH)

Guided Learning Hours are the time the learner is under the immediate supervision or guidance of a lecturer, supervisor, tutor or other appropriate provider or education or training.

The GLH for this qualification is 302

Total Qualification Time (TQT)

Total Qualification Time is comprised of 2 elements:

1. GLH
   plus
2. an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by (but not under the immediate supervision of) a lecturer, supervisor, tutor or other appropriate provider or education or training

The TQT for this qualification is 660

Achieving the Qualification

20 Units must be achieved (10 knowledge and 10 competence units).

Mandatory Units: All Mandatory Units must be achieved

Optional Units: Learners must achieve 8 units from four of the Option Groups N218 to N226.
Knowledge and competence units must be taken in combination i.e. if unit N218k is chosen, unit N218c must also be completed; and vice-versa.

Mandatory Units

Unit No.	Unit Name	Credit Value
N212k	How to Implement Radiation Protection Policy within Ionising Radiation Environments	4
N212c	Implement Radiation Protection Policy Within Ionising Radiation Environments	3
N213k	How to Inspect the Operation of Radiation Protection Systems Within Ionising Radiation Environments	3
N213c	Inspect the Operation of Radiation Protection Systems Within Ionising Radiation Environments	3
N214k	How to Implement Radiation Protection Systems Within Ionising Radiation Environments	4
N214c	Implement Radiation Protection Systems Within Ionising Radiation Environments	3
N215k	How to Identify and Quantify Radiation Hazards in the Workplace Within Ionising Radiation Environments	4

Unit No.	Unit Name	Credit Value
N215c	Identify and Quantify Radiation Hazards in the Workplace within Ionising Radiation Environments	3
N216k	How to Designate Work Areas to be Controlled Within Ionising Radiation Environments	4
N216c	Designate Work Areas to be Controlled Within Ionising Radiation Environments	3
N217k	How to Supervise Radiation-Related Work Activities Within Ionising Radiation Environments	4
N217c	Supervise Radiation-Related Work Activities Within Ionising Radiation Environments	4

Optional Units

Unit No.	Unit Name	Credit Value
N218k	How to Specify Dosimetry for Radiation-Related Work Activities Within Ionising Radiation Environments	4
N218c	Specify Dosimetry for Radiation-Related Work Activities within Ionising Radiation Environments	4
N219k	How to Monitor Radiation Doses During Radiation-Related Work Activities within Ionising Radiation Environments	3
N219c	Monitor Radiation Doses During Radiation-Related Work Activities Within Ionising Radiation Environments	3
N220k	How to Assign Radiation-Related Work Activities to Colleagues within Ionising Radiation Environments	3
N220c	Assign Radiation-Related Work Activities to Colleagues Within Ionising Radiation Environments	3
N221k	How to Manage Information on Radiation Protection within Ionising Radiation Environments	3
N221c	Manage Information on Radiation Protection Within Ionising Radiation Environments	3
N222k	How to Deliver Radiation Protection Training Programmes within Ionising Radiation Environments	4
N222c	Deliver Radiation Protection Training Programmes Within Ionising Radiation Environments	4
N223k	How to Assess Colleagues Against Radiation Protection Requirements within Ionising Radiation Environments	4
N223c	Assess Colleagues Against Radiation Protection Requirements within Ionising Radiation Environments	4
N224k	How to Authorise Colleagues to Undertake Radiation-Related Activities within Ionising Radiation Environments	4
N224c	Authorise Colleagues to Undertake Radiation-Related Activities within Ionising Radiation Environments	4

N225k	How to Respond to Radiation Incidents Within Ionising Radiation Environments	4
N225c	Respond to Radiation Incidents Within Ionising Radiation Environments	3
N226k	How to Monitor Radiation Hazards Within Ionising Radiation Environments	3
N226c	Monitor Radiation Hazards Within Ionising Radiation Environments	3

Progression

This Diploma is part of a suite of qualifications developed from the Radiation Protection National Occupational Standards (NOS) at Levels 2 to 3.

Further information can be found on the PAA\VQ-SET website www.paa-uk.org or on the Register of Regulated Qualifications website http://register.ofqual.gov.uk

ASSESSMENT REQUIREMENTS

Assessors must ensure that, when assessing the skills, knowledge and/or understanding, the evidence produced by learners is:

- Valid – does evidence meet the requirements described in the unit?
- Authentic – has the learner produced the evidence?
- Current – has the evidence been produced recently and does it demonstrate current competence?
- Sufficient – is there enough evidence to demonstrate competence?

to enable reliable and consistent judgements to be made about the achievement of all the requirements of the unit(s) and qualification.

PAA\VQ-SET Centres must ensure that people involved in the assessment process have the appropriate expertise and are adequately informed and supported to fulfil their responsibilities.

ASSESSMENT STRATEGY

Below is the information to support the assessment requirements of the qualification:

- Mandatory use of evidence from workplace performance
- Use of Simulation
- Occupational competence of assessors and verifiers

Mandatory use of evidence from workplace performance

a. Unless the use of simulation is expressly permitted within the qualification or unit specific evidence requirements, evidence must demonstrate the learner's competence in a real or realistic environment.

b. Knowledge and Understanding will be assessed via (pre-set and/or free form) questions, or by inference from performance, which cover three primary types of knowledge:

- Knowledge of facts and procedures
- Understanding of principles, concepts and underpinning procedures
- How to apply principles and procedures in specific contexts

All questions must be asked by the assessor at appropriate moments throughout the assessment process, preferably linked to observed activity and/or review of documentary evidence. The questions asked of, and answers provided by, the learner must be recorded.

Use of Simulation

c. The qualification or unit specific assessment requirements will define where evidence from simulation is acceptable, and in which contexts.

Simulation should be used only where direct evidence of learner performance cannot be obtained. Under these circumstances simulation may be used for summative assessment. Reasons for the use of simulation should be made clear to and agreed by the external verifier and should include the following details:

- which competence (and standards) the simulation was designed to assess;
- the kind of equipment, facilities and physical environment proposed for the simulation of performance. It is unlikely that the External Verifier will approve a simulation if it does not involve real plant and equipment;
- how the simulated activity relates to the learner's normal work context in terms of the pressures of time, access to resources and access to information, and the communication media; and

- how the simulation was set up and conducted, preferably supported by physical evidence such as photographs or inspection of a test rig.

  Assessors, internal verifiers and external verifiers should monitor the proportion of evidence generated via simulations to ensure that it is not the primary source of a learner's claim to competence.

d. Under these circumstances simulations are reserved for aspects of competence illustrated by the following contexts:

   a. where demonstration of emergency shutdown and related safety procedures would be; **dangerous and/or disruptive** to plant/environment/individuals; **too costly** such as total plant shutdown or dealing with spillage of dangerous substances; where **issues of confidentiality** restrict access to real work opportunities;
   b. demonstrating specific aspects of the operation which rarely or never occur due to effective quality assurance systems;
   c. the capacity to integrate disparate knowledge to cope with unforeseen events and to solve problems; or
   d. aspects of working relationships and communications for which no opportunity has presented for the use of naturally occurring workplace evidence of learner performance.

e. Simulation must enable the individual to demonstrate competence in a real or realistic work environment. In this context this means in specialist centres which replicate the workplace in terms of equipment and environment, reflect normal working situations and use relevant industrial or commercial standards and procedures. Short work placements or non-realistic work environments which do not replicate the pressures and requirements of normal commercial or industrial activities will not be acceptable. The bulk of the learner's evidence should be drawn from their normal working activity and not consist of artificially contrived opportunities for one-off demonstration of competence. Similarly equipment must be that used in current commercial and industrial contexts. Procedures and standards used should be those which are nationally or internationally recognised or devised by specific companies as standard operating procedure.

f. Simulation must enable the individual to acquire his/her skills and knowledge in a realistic work environment. In this context this means in specialist centres which replicate the workplace in terms of equipment and environment, it reflects normal working situations and uses relevant industrial or commercial standards and procedures. Where possible providers should attempt to replicate the pressures and requirements of normal commercial or industrial activities. Equipment must be that used in current commercial and industrial contexts. Procedures and standards used should be those which are nationally or internationally recognised or devised by specific companies as standard operating procedure.

g. Circumstances outside of those listed in Section D above may also be considered suitable for the use of simulation with the agreement of the External Verifier and PAA\VQ-SET. Under these circumstances simulation may be used for formative assessment only.

Occupational competence of Assessor and Verifiers

h. Assessors:

   - must be competent in the units they are assessing. This is shown through the assessor having achieved the award they are assessing OR providing quality evidence to the external verifier that they are able to make valid judgements of the competence of learners. This could be done through a combination of a) personal interview, b) review of employment histories and/or c) examination of the assessor's judgement during assessments.
   - must have a working knowledge of awards and a full understanding of that part of the award for which they have responsibility.
   - should hold or be working towards suitable qualifications for assessment, as defined by PAA\VQ-SET.

i. Internal verifiers:

- must be either working in the appropriate sector itself OR they must be able to demonstrate they possess practical and up-to-date knowledge of current working practices appropriate to the sector in which they are carrying out verification practices; and
- must be appointed by a PAA\VQ-SET recognised centre
- must have a working knowledge of the awards they are internally verifying
- should hold or be working towards suitable qualifications for verification, as defined by PAA\VQ-SET.

ASSESSMENT METHODS AND TYPES OF EVIDENCE

The following section gives information on the different assessment methods/types of evidence that support assessment. The following assessment methods/types of evidence may be used to demonstrate competence or that the learner has achieved the required level of knowledge and understanding.

Observation of Performance

Observation allows the assessor to see learners carrying out their work activities. It will take place primarily in the workplace but can also be undertaken in a training scheme. Natural discussion should take place where possible during observation, allowing the assessor to ask questions relating to what they are observing at the time. Assessors must capture their observations either by a written report and/or other methods (e.g. video, audio recording).

Questioning

This method of assessment can be used to ensure that the learner has knowledge and understanding to support their skills. Questions can be used to check knowledge - these questions can either be verbal during or at the end of an observation, or they can be set in a written format in formal or informal conditions. As some units may focus entirely on learners' knowledge, assessors may encourage a variety of evidence to meet the requirements of the unit – use of verbal and/or written questions, learner statements and professional discussion (see below). Verbal questioning or professional discussion should be captured, either by written notes or audio recording.

Products

Work product evidence may be generated as a result of work activities undertaken by learners, and could include reports, letters, or records of work carried out.

Witness Statement or Testimony

A Witness Statement or Testimony is confirmation by others that the learner carried out an activity or series of activities relevant to the requirements of the unit. It could be written by the learner and signed by the witness to confirm that it did take place, or the witness may write the statement. Alternatively, the assessor could speak to the witness and record the discussion. The statement can then be used as evidence within an assessment.

There may be occasions when an Expert Witness may be required to contribute to the assessment process. PAA\VQ-SET's definition of an Expert Witness is 'an experienced employee who works in partnership with the assessor, by observing the learner carrying out their duties and recording their observations in line with the assessment procedures'. It should be noted that while the Expert Witness makes a valued contribution to the assessment process, it is the assessor who makes the assessment decision.

Simulation

Simulations are a source of performance evidence showing how an activity is carried out. Simulations require careful planning to ensure that they reflect as near as possible "real life" conditions and the requirements of the qualification(s). As a result of this the costs to set up a simulation may be considerable. Simulations are likely to be used in the following situations:

- they occur infrequently (e.g. dealing with emergencies)
- they involve unusual working conditions (e.g. working in isolation, outside the workplace)
- the work is hazardous
- it is not cost effective

Any use of simulation should be discussed and agreed with the PAA\VQ-SET External Verifier and approved prior to implementation.

Recognition of Prior Learning (RPL)

This is the process whereby credit is given to experienced individuals for their previous achievements. It requires careful mapping of the individual's experience to the unit(s) to ensure that it meets the requirements. This exercise must be referred to the External Verifier to ensure that all the evidence presented is acceptable.

Professional Discussion

A Professional Discussion gives the learner the opportunity to tell their assessor what they are doing and why they are doing it in a particular way. The discussion should be supported by appropriate evidence – an observation report, work product or witness testimony. Professional Discussions should be planned to give the learner the chance to prepare, and should be recorded.

Learner Statements

A Learner Statement is an account of an activity that took place, described by the learner. A detailed statement could demonstrate skill, and also provides evidence of knowledge and understanding. Learner statements should be authenticated by an appropriate person.

Photographs and use of other media

Photographs and use of other media, e.g. video and audio, can provide detail of work activities carried out and questioning. Photographs are more effective when used with supporting statements. Video and audio evidence should be effectively referenced to allow specific activities or questioning to be found easily. It is important to note that if photographs and other media are to be used, the learner and assessor should ensure that permission is gained from all people who may be involved.

GLOSSARY

Term	Definition
Access Arrangements	Arrangements that are approved in advance of an examination or assessment to allow achievement to be demonstrated by learners with a disability, special learning needs (including where the learner's first language is not English, Welsh or Irish) or to avoid unlawful discrimination
Appeal	The process through which an awarding organisation may be challenged on the outcome of an enquiry about results or, where appropriate, other procedural decisions affecting a centre or an individual learner
Assessment	The process of making judgements about the extent to which a learner's work meets the requirements of a unit, or any additional assessment requirements of a qualification
Assessor	A person who assesses a learner's work
Award of Qualifications	A certificate (electronic or paper-based) issued to an individual that recognises their achievement
Award	A qualification with a TQT value between 10 and 129
Awarding Organisation	A body recognised by the qualifications regulators to award qualifications
Centre	An organisation accountable to an awarding organisation for assessment arrangements leading to the award of qualifications
Centre Recognition	A process through which a centre wishing to offer an award or awards is confirmed as being able to maintain the required quality and consistency of assessment, and comply with other requirements of the awarding organisation
Certificate (1) for a Unit or Qualification	A record of attainment of a qualification issued by an awarding organisation
Certificate (2)	A qualification with a TQT value between 130 and 369
Credit	An award that may be made to a learner in recognition of the achievement of a unit or qualification
Credit Value	The number of credits that may be awarded to a learner for the successful achievement of a unit or qualification
Diploma	A qualification with a TQT value of 370 or above
Guided Learning Hours	The number of hours of teacher-supervised or directed study time required to teach a qualification or unit of a qualification
Learning Time	The amount of time a learner at the level of the unit is expected to take, on average, to complete the unit to the standard required
Level	An indication of the relative demand, complexity and/or depth of achievement, and/or the autonomy of the learner in demonstrating that achievement

Term	Definition
Mandatory Units	Units that must be achieved for the qualification to be awarded
National Occupational Standards (NOS)	Describe what a person needs to do, know and understand in a job to carry out the role in a consistent and competent way
Optional Unit	A unit that a learner may choose to complete to achieve the required number of units for award of the qualification
Pathway	A route to the achievement of a qualification that requires particular units to be achieved and is identified by an endorsement to a qualification title
Qualification	An award made to a Learner for the achievement of the required units or other components for that qualification
Qualification Level	An indication of the relative demand, complexity and/or depth of achievement, and/or the autonomy of the learner, represented by a qualification
Qualifications Regulators	Government-designated statutory organisations required to establish national standards for qualifications and secure consistent compliance with them
Recognition of Prior Learning (RPL)	A method of assessment that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and do not need to develop through a course of learning
Sector Skills Council	A body responsible for formulating and reviewing occupational standards for a specific sector across the UK, and for supporting the development of units and qualifications based on these standards. Each SSC is an employer-led, independent organisation and is licensed by government
Standardisation Of Assessment	A process to ensure that assessment leading to the award of qualifications is applied consistently by individuals, centres and awarding organisations
Unique Learner Number (ULN)	The unique number that is used to identify an individual learner
Unit	A component of a qualification

LEVEL 3 NVQ DIPLOMA IN RADIATION PROTECTION

CONTENT OF THE QUALIFICATION

MANDATORY UNITS

UNIT N212K	**HOW TO IMPLEMENT RADIATION PROTECTION POLICY WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**24**

Unit Overview

This unit addresses the knowledge required to implement an existing or new radiation protection policy for an organisation within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the person is a trained operative and that extra training, practice & assessment is required to meet the standards of safety. The main issue in this unit are the knowledge requirements in terms of policy / plans etc.

Significant communication and presentation skills used above normal duties. Policy and planning are about exercising, understanding, using different approaches and communicating this to staff.

The main outcome of this activity is the implementation of an existing or new radiation protection policy for an organisation. An organisation can range from an entire company involving multiple sites, or a small company, department, or single site.

This activity includes establishing an implementation plan; promoting the radiation protection policy and disseminating information on it; reviewing the effectiveness of the implementation plan; improving the radiation protection policy.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to establish an implementation plan	1.1 Explain how to implement radiation protection policy within ionising radiation environments in terms of: a. types of facilities b. materials c. processes d. statutory requirements, regulations, and standards, (international, national, and local) e. people involved 1.2 Describe the structures and procedures within the organisation for implementing radiation protection policy, including; a. Health and Safety issues and requirements b. Radiation protection issues c. Radiation protection systems d. Radiation: types, sources, and hazards 1.3 Evaluate sources of authoritative information on radiation protection
2. Know how to promote the radiation protection policy	2.1 Explain how to promote the radiation protection policy using appropriate communication and presentation methods
3. Know how to disseminate information on the radiation protection policy	3.1 Describe how information on the radiation protection policy would be disseminated within the organisation
4. Know how to review the effectiveness of the implementation plan and improve the radiation protection policy	4.1 Review and revise the radiation protection policy in terms of: a. effectiveness of the implementation plan b. improvements and amendments to the policy

UNIT N212C	**IMPLEMENT RADIATION PROTECTION POLICY WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to implement an existing or new radiation protection policy for an organisation within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

- At least **two** different implementation plans are considered necessary.

This activity includes establishing an implementation plan; promoting the radiation protection policy and disseminating information on it; reviewing the effectiveness of the implementation plan; improving the radiation protection policy.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in their workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N212k - How to Implement Radiation Protection Policy Within Ionising Radiation Environments*.
- The assumption is made that the person is a trained operative and that extra training & practice is required to develop plans, implement, check, and act on information.

The work is both complex and routine, with clear autonomy, and the policy is already clearly defined, thus the work within the plan is Level 3.

The main outcome of this activity is the implementation of an existing or new radiation protection policy for an organisation. An organisation can range from an entire company involving multiple sites, or a small company, department, or single site.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to establish an implementation plan	1.1 Establish a plan for implementing the radiation protection policy 1.2 Identify the people that need to be involved in the implementation of the radiation protection policy 1.3 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems
2. Be able to promote the radiation protection policy	2.1 Identify suitable opportunities for promoting the radiation protection policy
3. Be able to disseminate information on the radiation protection policy	3.1 Disseminate information to all relevant people on the existence and requirements of the radiation protection policy
4. Be able to review the effectiveness of the implementation plan	4.1 Review the effectiveness of the implementation of the radiation protection policy at a suitable time 4.2 Ensure that the implementation of the radiation protection policy complies with all relevant regulations and standards
5. Be able to improve the radiation protection policy	5.1 Identify suitable opportunities to improve the implementation of the radiation protection policy

UNIT N213K	**HOW TO INSPECT THE OPERATION OF RADIATION PROTECTION SYSTEMS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**20**

Unit Overview

This unit addresses the knowledge required to inspect the operation of radiation protection systems within ionising radiation environments. The system will most likely be made up of equipment (single or multiple pieces) and procedures.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner is a trained operative and that extra training, practice and assessment is required to meet the requirements of the unit.

Within this unit, scoping and establishing a schedule with recommended periodicity is more than normal work and reflects significant extra training.

This unit addresses complex and non-routine work with differing approaches and an ability to evaluate information.

The main outcome of this activity is the inspection of a radiation protection system. The system will most likely be made up of equipment (single or multiple pieces) and procedures.

This activity includes confirming the scope of the inspection; planning the inspection; obtaining information on the radiation protection system; assessing the system; providing results and recommending improvements.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to confirm the scope of the inspection	1.1 Explain how to confirm the scope and purpose of the radiation protection system that is being inspected in terms of: a. types of facilities b. materials c. processes d. statutory requirements, regulations, and standards, (international, national, and local)
2. Know how to plan the inspection	2.1 Explain how to plan an inspection with reference to: a. Existing structures and procedures within the organisation b. Health and Safety issues and requirements c. Radiation protection issues d. Radiation protection systems e. Radiation: types, sources, and hazards 2.2 Evaluate different inspection methods
3. Know how to obtain information on the radiation protection system	3.1 Describe how information on the radiation protection system would be obtained 3.2 Evaluate sources of authoritative information on radiation protection
4. Know how to assess the system, provide results and recommend improvements	4.1 Explain how the information gathered from assessing the system can be used to: a. Provide results b. Recommend improvements c. Improve its effectiveness 4.2 Use appropriate communication and presentation methods to provide the results of the inspection to the relevant people

UNIT N213C	**INSPECT THE OPERATION OF RADIATION PROTECTION SYSTEMS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**12**

Unit Overview

This unit addresses the skills required to inspect the operation of radiation protection systems within ionising radiation environments. The system will most likely be made up of equipment (single or multiple pieces) and procedures.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

- At least **two** inspection surveys must be included; the surveys inspected must cover radiation and contamination.

The main outcome of this activity is the inspection of a radiation protection system. The system will most likely be made up of equipment (single or multiple pieces) and procedures.

This activity includes confirming the scope of the inspection; planning the inspection; obtaining information on the radiation protection system; assessing the system; providing results and recommending improvements.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Safety.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N213k - How to Inspect the Operation of Radiation Protection Systems Within Ionising Radiation Environments*.
- The assumption is made that the learner is a trained operative and that extra training, practice and assessment is required to meet the requirements of the unit

This unit is about planning, doing, checking and acting on information. Practice and assessment is required to specify the schedules.

The learner deals with addressing problems, selecting the appropriate methodology, carrying out the tasks and reviewing the results.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to confirm the scope of the inspection	1.1 Confirm the scope and purpose of the radiation protection system that is being inspected
2. Be able to plan the inspection	2.1 Establish a schedule for the inspection of the radiation protection system 2.2 Ensure that the relevant and current inspection criteria and requirements are used 2.3 Identify suitable opportunities for inspecting the radiation protection system
3. Be able to obtain information on the radiation protection system	3.1 Obtain information to assist in the inspection of the radiation protection system 3.2 Inspect the radiation protection system according to the requirements of the inspection
4. Be able to assess the system	4.1 Assess whether the radiation protection system complies with all organisational requirements 4.2 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems
5. Be able to provide results and recommend improvements	5.1 Provide the results of the inspection to the relevant people 5.2 Recommend changes to the radiation protection system which will improve its effectiveness

UNIT N214K	**HOW TO IMPLEMENT RADIATION PROTECTION SYSTEMS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**30**

Unit Overview

This unit addresses the knowledge required to implement a radiation protection system within ionising radiation environments. The system will most likely be made up of equipment (single or multiple pieces) and procedures.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner is a trained operative and that extra training, practice and assessment is required to meet the requirements of the unit.

There is significant training involved in maintaining and testing the different systems and equipment.

This unit deals with understanding and procedures to carry out routine and complex work. The learner needs to be able to interpret and evaluate relevant information.

The main outcome of this activity is the implementation of a radiation protection system. The system will most likely be made up of equipment (single or multiple pieces) and procedures.

This activity includes obtaining information on the radiation protection system and its maintenance; disseminating information on the system; ensuring the equipment and procedures are tested; identifying any problems and confirming that the system works correctly.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to obtain information on the radiation protection system and its maintenance	1.1 Explain how to obtain information on the radiation protection system and its maintenance within an ionising radiation environment in terms of: a. types of facilities b. materials c. processes d. types of equipment 1.2 Describe the structures and procedures within the organisation for implementing radiation protection systems, including: a. Health and Safety issues and requirements b. Radiation protection systems c. Radiation: types, sources, and hazards 1.3 Evaluate sources of authoritative information on radiation protection
2. Know how to disseminate information on the radiation protection system	2.1 Describe how information on the radiation protection system would be disseminated within the organisation
3. Know how to ensure the equipment and procedures are tested	3.1 Explain how equipment and procedures are tested in accordance with statutory requirements, regulations, and standards, (international, national, and local)
4. Know how to identify any problems and confirm that the system works correctly	4.1 Explain how any problems can be identified and how to confirm that the system works correctly

UNIT N214C	**IMPLEMENT RADIATION PROTECTION SYSTEMS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to implement a radiation protection system within ionising radiation environments. The system will most likely be made up of equipment (single or multiple pieces) and procedures.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

- The learner will provide evidence from **three** different protection systems, using at least **two** different types of monitoring equipment.

The main outcome of this activity is the implementation of a radiation protection system. The system will most likely be made up of equipment (single or multiple pieces) and procedures.

This activity includes obtaining information on the radiation protection system and its maintenance; disseminating information on the system; ensuring the equipment and procedures are tested; identifying any problems and confirming that the system works correctly.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N214k - How to Implement Radiation Protection Systems Within Ionising Radiation Environments*.
- The assumption is made that the learner is a trained operative and that extra training, practice and assessment is required to meet the requirements of the unit.

This unit deals primarily with day to day work. Practice and assessment is essential to cover the range of equipment to be used.

These are normal procedures and are all clearly documented. A wide range of work is covered with both complex and routine work present. The learner is aware of the role and can act on the information received.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to obtain information on the radiation protection system and its maintenance	1.1 Obtain all relevant information on the equipment and procedures used in the radiation protection system 1.2 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems
2. Be able to disseminate information on the system	2.1 Disseminate information on the radiation protection system to all relevant people
3. Be able to ensure the equipment and procedures are tested	3.1 Ensure the radiation protection equipment is tested and maintained according to the relevant maintenance procedures 3.2 Test the effectiveness of radiation protection procedures at appropriate intervals or in response to changed circumstances
4. Be able to identify any problems and confirm that the system works correctly	4.1 Confirm that the radiation protection procedures used with the radiation protection equipment are effective 4.2 Identify any problems with the radiation protection system and ensure the appropriate action is taken 4.3 Review the effectiveness of the implementation of the radiation protection system at a suitable time

UNIT N215K	**HOW TO IDENTIFY AND QUANTIFY RADIATION HAZARDS IN THE WORKPLACE WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**30**

Unit Overview

This unit addresses the knowledge required for the identification and quantification of radiation hazards within ionising radiation environments. The hazards could relate to the activities, equipment, or materials in the workplace.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner is a trained operative and training & knowledge is required to cater for the potential and unknown hazards they will face, plus the different approaches needed to overcomes these.

This unit deals with completing complex and routine work, interpreting and evaluating data, and applying different approaches to information.

The main outcome of this activity is the identification and quantification of radiation hazards. The hazards could relate to the activities, equipment, or materials in the workplace.

This activity includes identifying potential radiation hazards; obtaining information on the hazards, including measuring them; quantifying the hazards, and identifying those that cannot be measured.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to identify potential radiation hazards	1.1 Explain how to identify potential radiation hazards in terms of: a. types of facilities b. materials c. processes d. statutory requirements, regulations, and standards, (international, national, and local)
2. Know how to measure radiation hazards	2.1 Explain how to measure radiation hazards with reference to; a. Existing structures and procedures within the organisation b. Health and Safety issues and requirements c. Radiation protection issues d. Radiation protection systems e. Radiation: types, sources, and hazards 2.2 Evaluate different radiation measurement equipment
3. Know how to obtain information on the hazards	3.1 Describe how the information on hazards would be obtained. 3.2 Evaluate sources of authoritative information on radiation hazards
4. Know how to quantify the hazards, and identify those that cannot be measured	4.1 Explain how the information gathered can be used to; a. Quantify the hazards b. Identify hazards that cannot be measured 4.2 Use appropriate communication and presentation methods to provide the results of the inspection to the relevant people

UNIT N215C	**IDENTIFY AND QUANTIFY RADIATION HAZARDS IN THE WORKPLACE WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required for the identification and quantification of radiation hazards within ionising radiation environments. The hazards could relate to the activities, equipment, or materials in the workplace.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

- This should cover at least **two** occasions where a hazard has arisen.

The main outcome of this activity is the identification and quantification of radiation hazards. The hazards could relate to the activities, equipment, or materials in the workplace.

This activity includes identifying potential radiation hazards; obtaining information on the hazards, including measuring them; quantifying the hazards, and identifying those that cannot be measured.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N215k - How to Identify and Quantify Radiation Hazards in the Workplace Within Ionising Radiation Environments*.
- The assumption is made that the person is a trained operative and that extra training & practice is required to deal with the known and unknown.

This person takes responsibility for complex and non-routine work, exercising judgement and protecting colleagues.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to identify potential radiation hazards	1.1 Identify potential radiation hazards arising from the workplace
2. Be able to obtain information on the hazards and measure them	2.1 Identify appropriate measuring equipment to quantify the radiation hazards 2.2 Obtain all the appropriate records and information relating to the radiation hazards 2.3 Enlist the assistance of all relevant people and resources in the measurement of the radiation hazards
3. Be able to quantify the hazards, identify those that cannot be measured then take appropriate action	3.1 Quantify the radiation hazards according to the requirements of the organisation's radiation protection systems 3.2 Identify any radiation hazards that cannot be measured and take the appropriate action 3.3 Ensure that any problems with the measuring of radiation hazards are identified and resolved promptly 3.4 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems

UNIT N216K	**HOW TO DESIGNATE WORK AREAS TO BE CONTROLLED WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**24**

Unit Overview

This unit addresses the knowledge required to designate work areas as controlled areas for the purposes of radiation protection within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner is a competent operative with specific training and authorisation to specify designated work areas.

The main outcome of this activity is the designation of work areas as controlled areas for the purposes of radiation protection.

This activity includes obtaining information and evidence on radiation hazards and risks in specific work areas; determining which areas need to be controlled, and how this should occur; determining rules and procedures for entry to and activities within the controlled area; clearly identifying the areas and informing all relevant people of them; monitoring compliance with the controls; de-designating areas when there is no further need for the controls.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to obtain information and evidence on radiation hazards and risks in specific work areas	1.1 Describe sources of authoritative information on radiation protection
2. Know how to determine which areas need to be controlled	2.1 Explain how to designate work areas to be controlled in terms of: a. types of facilities b. materials c. processes d. radiation: types, sources and hazards 2.2 Describe existing structures and procedures within the organisation relating to the designation of controlled work areas
3. Know how to determine rules and procedures for entry to and activities within the controlled area	3.1 Explain how rules and procedures are determined for designated work areas to be controlled in terms of: a. Health and Safety issues and requirements b. radiation protection systems c. statutory requirements, regulations, and standards, (including international, national, and local)
4. Know how to clearly identify the areas and inform all relevant people of them	4.1 Select appropriate communication and presentation methods to inform relevant people 4.2 Summarise statutory requirements, regulations, and standards, (international, national, and local) relating to identification of controlled areas
5. Know how to monitor compliance with the controls	5.1 Describe how to monitor compliance with the controls in terms of: a. Radiation protection issues b. Radiation monitoring equipment c. Risk assessment and hazard identification methods

UNIT N216C	**DESIGNATE WORK AREAS TO BE CONTROLLED WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to designate work areas as a controlled area for the purposes of radiation protection within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

The learner should provide evidence from **three** separate work areas or occasions:

- Utilising two different barrier/enclosure systems
- And two types of breathing equipment

The main outcome of this activity is the designation of work areas as controlled areas for the purposes of radiation protection.

This activity includes obtaining information and evidence on radiation hazards and risks in specific work areas; determining which areas need to be controlled, and how this should occur; determining rules and procedures for entry to and activities within the controlled area; clearly identifying the areas and informing all relevant people of them; monitoring compliance with the controls; de-designating areas when there is no further need for the controls.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N216k - How to Designate Work Areas to be Controlled Within Ionising Radiation Environments*.
- The assumption is made that the learner is a trained operative and that extra training, practice and assessment is required to meet the requirements of the unit.

The work is primarily considered to be routine for the learners. The majority of work is routine, but does involve an amount of practice and authorisation.

The unit addresses complex and routine tasks, specifying, designating, & implementing. The learner exercises limited autonomy & judgement.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to obtain information and evidence on radiation hazards and risks in specific work areas	1.1 Identify areas that might need to be controlled or supervised 1.2 Obtain all relevant information and risk assessments on the radiation hazards and activities that occur within the area
2. Be able to determine which areas need to be controlled, and how this should occur	2.1 Determine whether the area needs to be designated as a controlled area 2.2 Consult with all relevant stakeholders on the designation of the area 2.3 Specify the boundaries and access points for the controlled area
3. Be able to determine the rules and procedures for entry to and activities within the controlled area	3.1 Determine the rules and procedures relating to entry to and activities within the controlled area 3.2 Ensure that the people working in the controlled area are informed of its status and all relevant rules and procedures
4. Be able to identify hazards and use the correct protection system	4.1 Ensure that all radiation hazards are clearly identified and that radiation protection systems are applied correctly
5. Be able to monitor compliance with the controls	5.1 Monitor the compliance of the users of the radiation area 5.2 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information system
6. Be able to de-designate areas when there is no further need for the controls	6.1 De-designate the area and remove controls when it is no longer used for potentially hazardous activities

UNIT N217K	**HOW TO SUPERVISE RADIATION-RELATED WORK ACTIVITIES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**30**

Unit Overview

This unit addresses the knowledge required to supervise radiation-related work activities within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the person is a trained operative with supervisory skills, and extra knowledge required for H&S, authorisations, safety documents, and managing people.

The learner implements the extra training & knowledge in practical terms through their team. The learner undertakes complex & non-routine work, manages the team and accepts safety documents.

The main outcome of this activity is the supervision of work activities where there are potential radiation hazards.

This activity includes obtaining information on the work activities that are required; reviewing all relevant information relating to the activities, hazards, and risks; ensuring that colleagues are clear about their work assignments; monitoring the work activities; checking that the work activities have been undertaken as agreed; identifying potential improvements in the way the work is carried out.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know the types of potential radiation hazards that could occur	1.1 Explain the work activities undertaken in the specified industry in terms of: a. Types of facilities b. Materials c. Processes 1.2 Analyse the risk assessment and hazard identification methods in the specified industry
2. Know the procedures that need to be considered when supervising radiation-related work activities	2.1 Clarify the structures and procedures within the organisation for supervising radiation-related work activities 2.2 Explain the health and safety issues and requirements within an organisation with regard to: a. Radiation monitoring equipment b. Radiation protection issues c. Radiation protection systems d. Radiation: types, sources and hazards 2.3 Explain the methods of supervision that should be followed
3. Know the types of equipment used when monitoring radiation hazards	3.1 Interpret which equipment should be used when monitoring radiation
4. Know the statutory requirements, regulations and standards regarding radiation protection	4.1 Summarise the sources of authoritative information on radiation protection, including international, national, and local

UNIT N217C	**SUPERVISE RADIATION-RELATED WORK ACTIVITIES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to supervise radiation-related work activities within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

- The learner must provide evidence from **three** different work related tasks.

The main outcome of this activity is the supervision of work activities where there are potential radiation hazards.

This activity includes obtaining information on the work activities that are required; reviewing all relevant information relating to the activities, hazards, and risks; ensuring that colleagues are clear about their work assignments; monitoring the work activities; checking that the work activities have been undertaken as agreed; identifying potential improvements in the way the work is carried out.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N217k - How to Supervise Radiation-Related Work Activities Within Ionising Radiation Environments*.
- The assumption is made that the person is a trained operative with supervisory skills, now dealing with Health & Safety and statutory safety documentation, necessitating relavent authorisations.

The learner needs to address problems, select appropriate methods of work, equipment and people, provide guidance and review results.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to obtain information on radiation-related work activities	1.1 Obtain accurate information and risk assessments on the radiation-related work activities being undertaken
2. Be able to identify radiation hazards	2.1 Ensure that all radiation hazards are identified and that radiation protection systems are applied correctly
3. Be able to make preparations in order to supervise radiation-related work activities	3.1 Ensure the radiation-related work activities that can and cannot be undertaken are identified, including the methods to be used for their duration 3.2 Ensure colleagues are clear on their role and responsibilities for delivering the radiation-related work activities 3.3 Identify suitable methods for monitoring the radiation-related work activities being undertaken
4. Be able to supervise radiation-related work activities	4.1 Monitor the radiation-related work activities at suitable opportunities 4.2 Check the radiation-related work activities are undertaken according to the specified methods, quality measures, and outcomes 4.3 Identify any potential improvements in the way that the radiation-related work activities could be carried out
5. Be able to follow procedures for supervising radiation-related work activities	5.1 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems

OPTIONAL UNITS

UNIT N218K	**HOW TO SPECIFY DOSIMETRY FOR RADIATION-RELATED WORK ACTIVITIES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**30**

Unit Overview

This unit addresses the knowledge required to specify dosimetry for radiation-related work activities within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the person is a trained operative and that extra knowledge and training are required to learn the background skills to be able to specify dosimetry. A formal authorisation is generally required for this role.

The learner addresses complex and routine problems. The learner must be able to interpret ideas and safeguard staff.

The main outcome of this activity is the specification of dosimetry for specific work activities.

This activity includes obtaining information on the work activities being undertaken, including any risk assessments; identifying radiation risks and the radioactive materials that people are exposed to; using appropriate methods to work out the acceptable levels of exposure based on individuals' dose history; specifying limits to exposure; updating dosimetry information.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to identify radiation risks	1.1 Explain how the potential radiation risks could be identified from activities undertaken in the specified industry in terms of: a. Types of facilities b. Materials c. Processes 1.2 Analyse the risk assessment and hazard identification methods in the specified industry
2. Know how to assess acceptable levels of exposure	2.1 Explain the functions of radiation monitoring equipment used within the nuclear industry 2.2 Evaluate how dosimetry assessments are used to monitor the levels of exposure to radiation from activities undertaken
3. Know how to specify limits to exposure based on relevant standards	3.1 Explain the structures and procedures within the organisation for specifying limits to exposure, including: a. Health and Safety requirements b. Radiation protection issues c. Radiation protection systems d. Radiation: types, sources, and hazards
4. Know how to obtain and present information	4.1 Summarise the sources of authoritative information on radiation protection, including international, national, and local 4.2 Analyse the appropriate communication and presentation methods

UNIT N218C	**SPECIFY DOSIMETRY FOR RADIATION-RELATED WORK ACTIVITIES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to specify dosimetry for radiation-related work activities within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

The learner should provide evidence from **three** separate work related tasks:

- Utilising at least **two** different types of dosimetry

The main outcome of this activity is the specification of dosimetry for specific work activities.

This activity includes obtaining information on the work activities being undertaken, including any risk assessments; identifying radiation risks and the radioactive materials that people are exposed to; using appropriate methods to work out the acceptable levels of exposure based on individuals' dose history; specifying limits to exposure; updating dosimetry information.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N218k - How to Specify Dosimetry for Radiation-Related Work Activities within Ionising Radiation Environments*.
- The assumption is made that the person is a trained operative and a radiation protection supervisor.

In this unit, the work is routine and the learner takes responsibility for supervising and guiding others. The learner needs to make decisions and has a degree of autonomy.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to obtain information on radiation-related work activities	1.1 Obtain information on the type of radiation-related work activities being undertaken 1.2 Take account of all relevant risk assessments relating to the radiation-related work activities
2. Be able to identify radiation risks and the radioactive materials that people are exposed to	2.1 Identify the type of radiation risks associated with the radiation-related work activities 2.2 Identify the type of radioactive materials that people could be exposed to during the radiation-related work activities
3. Be able to use appropriate methods to work out the acceptable levels of exposure based on individuals' dose history	3.1 Identify the potential exposure and obtain any relevant previous dose information for the people undertaking the radiation-related work activities 3.2 Use appropriate analysis methods to determine the type of dosimetry for the radiation-related work activities
4. Be able to specify limits to exposure	4.1 Specify clearly the requirements relating to the limits on people undertaking the radiation-related work activities
5. Be able update dosimetry information	5.1 Ensure that all relevant systems on dosimetry are updated with the new requirements 5.2 Review the dosimetry arrangements at an appropriate time 5.3 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems

UNIT N219K	**HOW TO MONITOR RADIATION DOSES DURING RADIATION-RELATED WORK ACTIVITIES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**16**

Unit Overview

This unit addresses the knowledge required to monitor radiation doses during radiation-related work activities within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner is a trained operative with significant background training and practice regarding safety and range of equipment pertinent to potential hazards. The work is well-defined and mainly routine. The learner needs an ability to interpret information and take the necessary actions. The learner needs to be aware of safety for the people around them.

The main outcome of this activity is the monitoring of radiation doses during specific work activities.

This activity includes obtaining information on the work activities being undertaken, and the potential exposure level; monitoring the radiation doses received by workers; comparing doses received to the expected levels; updating dosimetry information.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to identify the potential radiation doses	1.1 Explain the work activities undertaken in the specified industry in terms of: a. Types of facilities b. Materials c. Processes 1.2 Analyse how dosimetry assessments are used to monitor radiation doses in the specified industry 1.3 Critically compare the sources of authoritative information on radiation protection in the specified industry
2. Know the procedures that need to be considered when monitoring radiation doses during radiation-related work activities	2.1 Clarify the structures and procedures within the organisation for monitoring radiation doses 2.2 Explain the health and safety issues and requirements within an organisation with regard to: a. Radiation protection issues b. Radiation protection systems c. Radiation: types, sources and hazards
3. Know the types of equipment used when monitoring radiation doses	3.1 Interpret which equipment should be used when monitoring radiation doses
4. Know the statutory requirements, regulations and standards regarding monitoring radiation doses	4.1 Summarise the statutory requirements, regulations and standards, including international, national, and local

UNIT N219C	**MONITOR RADIATION DOSES DURING RADIATION-RELATED WORK ACTIVITIES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to monitor radiation doses during radiation-related work activities within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

- The learner should provide evidence from **three** separate work areas or occasions.

This activity includes obtaining information on the work activities being undertaken, and the potential exposure level; monitoring the radiation doses received by workers; comparing doses received to the expected levels; updating dosimetry information.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N219k - How to Monitor Radiation Doses During Radiation-Related Work Activities within Ionising Radiation Environments*.
- The assumption is made that the learner is a trained operative with technical and supervisory skills. The work is predominately routine but using wide ranging methods and procedures. Regular practice and assessment takes place within this role.

The main outcome of this activity is the monitoring of radiation doses during specific work activities.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to obtain information on radiation-related work activities	1.1 Obtain information on the type of radiation-related activities being undertaken, and the potential level and rate of exposure to radioactive materials
2. Be able to identify the potential exposure level	2.1 Confirm the radiation dose and exposure limits that are acceptable for the people undertaking the radiation-related work activities 2.2 Select suitable systems for monitoring the radiation dose received by the people undertaking the radiation-related work activities
3. Be able to monitor the radiation doses received by workers	3.1 Monitor the dose received by people undertaking the radiation-related work activities by using the appropriate systems and/or equipment 3.2 Ensure that any problems with the monitoring of radiation doses are identified and resolved promptly
4. Be able to compare doses received to the expected levels	4.1 Compare the doses received by people with the expected dose, and investigate any unexpected differences
5. Be able to update dosimetry information	5.1 Ensure that all relevant dosimetry systems are updated with information on the doses received by the people undertaking the radiation-related work activities
6. Be able to follow procedures for monitoring radiation doses during radiation-related work activities	6.1 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems

UNIT N220K	**HOW TO ASSIGN RADIATION-RELATED WORK ACTIVITIES TO COLLEAGUES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**20**

Unit Overview

This unit addresses the knowledge required to assign radiation-related work activities to colleagues within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner is a trained operative and that extra training, practice and assessment is required to meet the requirements of the unit. The learner will need communication, negotiating and motivational skills. They will also need safety training and have the authority to carry out the role.

This work becomes routine over time. The learner needs to act on information and feedback.

The main outcome of this activity is the assignment of work activities where there are potential radiation hazards.

This activity includes obtaining information on the work activities that are required; reviewing all relevant information relating to the activities, hazards, and risks; selecting appropriate colleagues to undertake the work activities, including optimising their exposure to radiation; providing information to colleagues on what is required; providing feedback to colleagues, and recognising their achievements.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to identify radiation hazards involved in the work activities	1.1 Explain how potential radiation hazards vary from work activities undertaken in the specified industry in terms of: a. Types of facilities b. Materials c. Processes
2. Know the procedures that need to be followed when assigning radiation-related work activities to colleagues	2.1 Evaluate the structures and procedures within the organisation for assigning radiation-related work activities, including: a. Health and safety requirements b. Use of radiation monitoring equipment c. Radiation protection issues d. Radiation protection systems e. Radiation: types, sources and hazards f. Relevant personal authorisations 2.2 Judge what the safe systems of work within the organisation are 2.3 Summarise the statutory requirements, regulations and standards, including international, national and local

UNIT N220C	**ASSIGN RADIATION-RELATED WORK ACTIVITIES TO COLLEAGUES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to assign radiation-related work activities to colleagues within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

The learner should provide **three** examples of assigning work to colleagues covering:-

- Routine and non routine work
- Dose control and relevant skills

This activity includes obtaining information on the work activities that are required; reviewing all relevant information relating to the activities, hazards, and risks; selecting appropriate colleagues to undertake the work activities, including optimising their exposure to radiation; providing information to colleagues on what is required; providing feedback to colleagues, and recognising their achievements.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N220k - How to Assign Radiation-Related Work Activities to Colleagues Within Ionising Radiation Environments*.
- The assumption is made that the person is a trained operative with additional practical, people and safety skills for this role. The learner will need the necessary authorisations. The learner will be a competent person applying technical / safety and supervisory skills to routine and complex work. They will need to be able to interpret results and review actions.

The main outcome of this activity is the assignment of work activities where there are potential radiation hazards.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to obtain information on the work activities that are required	1.1 Confirm that the radiation-related work activity is necessary for achieving organisational objectives 1.2 Obtain accurate information and risk assessments on the radiation-related work activity
2. Be able to select appropriate colleagues to undertake the work activities	2.1 Consult the organisational criteria and procedures relating to the selection and use of colleagues for undertaking radiation-related work activities 2.2 Select colleagues with the appropriate knowledge, skills, qualifications, fitness and experience to undertake the radiation-related work activity 2.3 Optimise the exposure to radiation by colleagues by reviewing their exposure history
3. Be able to provide information to colleagues on what is required	3.1 Agree assignments with colleagues within the agreed boundaries of their role responsibilities 3.2 Provide colleagues undertaking the radiation-related activity with the information, resources and support to achieve their work objectives 3.3 Identify and resolve any problems that arise during the assignments as effectively as possible
4. Be able to provide feedback to colleagues and recognise their achievements	4.1 Provide feedback on the delivery of assignments to the relevant people 4.2 Ensure that the achievement of assignments are recognised, and colleagues are commended in a way that motivates them to continue their success
5. Be able to follow procedures for assigning radiation-related work activities to colleagues	5.1 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems

UNIT N221K	**HOW TO MANAGE INFORMATION ON RADIATION PROTECTION WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**18**

Unit Overview

This unit addresses the knowledge required to manage information on radiation protection within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the person is a trained operative with extra training on the types and forms of information needing storage as lifetime records.

This work becomes routine over time but detailed training is required on the background and reasons for storage. In addition, the learner needs to know how to collate, use, store and retrieve this information.

The main outcome of this activity is the management of information relating to radiation protection.

This activity includes specifying the information that needs to be recorded; obtaining and collating the information; ensuring records are maintained and secured; controlling access to them, including maintaining confidentiality.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to specify the information that needs to be managed	1.1 Summarise the information that needs to be managed within the specified industry in terms of: a. Types of facilities b. Materials c. Processes d. Personal dosage
2. Know how to obtain and collate the information	2.1 Explain the information systems within the specified industry 2.2 Distinguish between the contrasting communication and presentation methods of relevant information 2.3 Interpret where the most appropriate sources of information on radiation protection can be found
3. Know the procedures that need to be followed when managing information	3.1 Analyse the importance of understanding organisational structures and procedures when managing information, including: a. Health and safety issues and requirements b. Radiation protection issues c. Radiation protection systems d. Radiation: types, sources and hazards 3.2 Clarify what the statutory requirements, regulations and standards are, including international, national and local

UNIT N221C	**MANAGE INFORMATION ON RADIATION PROTECTION WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to manage information on radiation protection within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

- The learner should provide evidence from **three** different sources from the following: Dose records; statutory records; survey records; databases; source records; radiation equipment records.

The main outcome of this activity is the management of information relating to radiation protection.

This activity includes specifying the information that needs to be recorded; obtaining and collating the information; ensuring records are maintained and secured; controlling access to them, including maintaining confidentiality.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N221k - How to Manage Information on Radiation Protection Within Ionising Radiation Environments*.
- The assumption is made that the learner is a competent person who wants to add skills to specify, monitor, collate and retrieve information.

This is mainly routine work with skills needed in assessing and interpreting information, then using this for work activities.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to specify the information that needs to be recorded	1.1 Specify the information relevant to radiation protection that needs to be recorded and secured
2. Be able to obtain and check the information	2.1 Obtain and collate all relevant information on radiation protection for recording in the information systems 2.2 Ensure that records on radiation protection are clear, complete and legible
3. Be able to maintain, secure and retrieve information according to specified procedures	3.1 Ensure the records on radiation protection are maintained and secured according to the specified procedures 3.2 Control access to the records on radiation protection according to the specified procedures 3.3 Maintain the confidentiality of radiation protection information in the organisation 3.4 Identify any problems with the maintenance and security of records and resolve them promptly
4. Be able to follow procedures for managing information on radiation protection	4.1 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems

UNIT N222K	**HOW TO DELIVER RADIATION PROTECTION TRAINING PROGRAMMES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**30**

Unit Overview

This unit addresses the knowledge required to deliver radiation protection training programmes within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner is a trained operative with significant knowledge input and practice required to plan lessons, deliver, assess the outcomes and approve colleagues.

The work involves a complete understanding of the role at this level, with the added responsibility of imparting this knowledge and these skills to colleagues.

The main outcome of this activity is the delivery of a radiation protection programme, which will cover relevant aspects of radiation protection for different groups of workers.

This activity includes confirming the learning outcomes required by the radiation protection training programme; selecting and delivering training methods; providing colleagues with learning opportunities; encouraging learners' development with constructive feedback; reviewing colleagues' development needs, and providing options for improving their performance.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know the appropriate training methods for the particular organisation	1.1 Evaluate the types of learning outcomes appropriate for the organisation, taking into account: a. Types of facilities b. Materials c. Processes 1.2 Interpret the appropriate methods in terms of organisational structures and procedures 1.3 Critically compare the various training and development methods
2. Know how to deliver radiation protection training	2.1 Evaluate the appropriate communication and presentation methods to follow 2.2 Explain the importance of organisational structures and procedures when delivering radiation protection training programmes, including: a. Health and safety requirements b. Radiation protection issues c. Radiation protection systems d. Radiation: types, sources and hazards 2.3 Clarify what the statutory requirements, regulations and standards are, including international, national and local
3. Know how to source information to inform delivery of training	3.1 Summarise the sources of authoritative information on radiation protection

UNIT N222C	**DELIVER RADIATION PROTECTION TRAINING PROGRAMMES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to deliver radiation protection training programmes within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

The main outcome of this activity is the delivery of a radiation protection programme, which will cover relevant aspects of radiation protection for different groups of workers.

This activity includes confirming the learning outcomes required by the radiation protection training programme; selecting and delivering training methods; providing colleagues with learning opportunities; encouraging learners' development with constructive feedback; reviewing colleagues' development needs, and providing options for improving their performance.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N222k - How to Deliver Radiation Protection Training Programmes Within Ionising Radiation Environments*.
- The assumption is made that the learner is a trained operative but that extra skills are needed to become an approved trainer. Practice and assessment are essential to take on this role.

This unit includes dealing with and supervising others. The learner exercises judgement and autonomy.

This activity is likely to be undertaken by someone whose work role is working in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to prepare to deliver radiation protection training programmes	1.1 Confirm the learning outcomes required by the radiation protection training programmes 1.2 Select appropriate training methods to deliver specific learning outcomes to colleagues 1.3 Ensure the training methods comply with all relevant regulations and standards for radiation protection
2. Be able to deliver radiation protection training programmes	2.1 Deliver the training methods effectively in accordance with the requirements of the radiation protection training programme 2.2 Provide colleagues with suitable learning opportunities to enable them to improve their knowledge and understanding of radiation protection 2.3 Encourage colleagues to maintain their knowledge of radiation protection 2.4 Provide colleagues with constructive feedback on their performance during the training
3. Be able to carry out post-training analysis	3.1 Review the development needs of colleagues at regular intervals 3.2 Provide colleagues who are not able to improve their performance with suitable options
4. Be able to follow procedures for delivering radiation protection training programmes	4.1 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems

UNIT N223K	**HOW TO ASSESS COLLEAGUES AGAINST RADIATION PROTECTION REQUIREMENTS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**24**

Unit Overview

This unit addresses the knowledge required to assess colleagues against radiation protection requirements within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner is a trained operative requiring formal training to develop assessing skills.

Different approaches are needed to assess staff and this role carries much responsibility. However, the tasks are well-defined and the learner will work within clear guidelines.

The main outcome of this activity is the assessment of colleagues in relation to radiation protection, as part of a formal training programme or for regulatory activities.

This activity includes identifying assessment opportunities and obtaining relevant information; assessing colleagues objectively; identifying factors affecting the performance of colleagues; providing constructive feedback and motivation; incorporating results in personal development plans, and informing the appropriate people.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know the methods for assessing colleagues against radiation protection requirements	1.1 Discuss how to assess colleagues against radiation protection requirements within the specified industry, taking into account: a. Types of facilities b. Materials c. Processes 1.2 Determine the appropriate assessment methods taking the organisational structures and procedures into account
2. Know how to assess colleagues objectively	2.1 Explain the importance of organisational structures and procedures when assessing colleagues against radiation protection requirements, including: a. Health and safety requirements b. Radiation protection issues c. Radiation protection systems d. Radiation: types, sources and hazards 2.2 Clarify the sources of authoritative information on radiation protection
3. Know the factors that will affect the results of the assessments	3.1 Identify the appropriate communication and presentation methods 3.2 Critically compare the training and development methods within the specified industry 3.3 Summarise what the statutory requirements, regulations and standards are, including international, national and local

UNIT N223C	**ASSESS COLLEAGUES AGAINST RADIATION PROTECTION REQUIREMENTS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to assess colleagues against radiation protection requirements within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

- **Two** different methods of assessment should be used.

This activity includes identifying assessment opportunities and obtaining relevant information; assessing colleagues objectively; identifying factors affecting the performance of colleagues; providing constructive feedback and motivation; incorporating results in personal development plans, and informing the appropriate people.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N223k - How to Assess Colleagues Against Radiation Protection Requirements within Ionising Radiation Environments*.
- The assumption is made that the learner is a trained operative, who is developing skills in competence testing by practice and assessing.

This requires detailed knowledge of work/hazards/legislation and equipment, with the competence to assess learners and give feedback.

The main outcome of this activity is the assessment of colleagues in relation to radiation protection, as part of a formal training programme or for regulatory activities.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to identify assessment opportunities and obtain relevant information	1.1 Identify suitable opportunities for assessing colleagues against radiation protection requirements 1.2 Obtain relevant information to assist in the assessment of colleagues
2. Be able to assess colleagues objectively	2.1 Assess colleagues by using suitable methods with clearly defined and relevant criteria and objectives 2.2 Ensure the assessments are objective, non-discriminatory, and based on sufficient and reliable information 2.3 Ensure assessments identify which colleagues are achieving the radiation protection requirements effectively and which are not
3. Be able to identify factors affecting performance of colleagues	3.1 Identify any factors affecting the quality of performance
4. Be able to provide constructive feedback and motivation	4.1 Provide constructive feedback on performance to colleagues and relevant people 4.2 Motivate colleagues to improve their performance in the future
5. Be able to undertake follow on actions based on the results of the assessment	5.1 Incorporate the results of assessments into personal development plans and other organisational procedures for dealing with performance issues 5.2 Inform the appropriate people of the results of the assessment
6. Be able to follow procedures for assessing colleagues against radiation protection requirements	6.1 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems

UNIT N224K	**HOW TO AUTHORISE COLLEAGUES TO UNDERTAKE RADIATION-RELATED ACTIVITIES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**4**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**30**

Unit Overview

This unit addresses the knowledge required to authorise colleagues to undertake radiation-related activities within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner is a trained operative with significant formal training. The learner should themselves be authorised and be acceptable to the Regulatory Bodies to carry out this role.

The safety and responsibility ramifications of this role are important. In practice, this role might be undertaken by a junior engineer/physicist, or a specifically appointed Supervisor.

The main outcome of this activity is the authorisation of work activities where there are potential radiation hazards.

This activity includes obtaining information on the colleagues and work activities that are being undertaken; reviewing all relevant information relating to the activities, hazards, and risks; specifying the activities and methods that can be used; authorising colleagues to undertake the activities; reviewing the achievement of activities.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to obtain information on activities to be undertaken	1.1 Summarise the sources of authoritative information on radiation protection
2. Know how to authorise colleagues to undertake radiation-related activities within ionising radiation environments	2.1 Explain and justify the steps needed to authorise colleagues to undertake radiation-related activities within the specified industry, taking into account: a. Types of facilities b. Materials c. Processes 2.2 Evaluate the authorisation methods taking the organisational structures and procedures into account 2.3 Explain the appropriate communication and presentation methods when giving authorisation 2.4 Evaluate the importance of the appropriate training and development methods
3. Know how to specify the activities and methods that can be used	3.1 Explain the importance of organisational structures and procedures when authorising colleagues to undertake radiation-related activities, including: a. Health and safety requirements b. Radiation protection issues c. Radiation protection systems d. Radiation: types, sources and hazards
4. Know how to follow procedures for authorising colleagues to undertake radiation-related activities	4.1 Summarise what the statutory requirements, regulations and standards are, including international, national and local

UNIT N224C	**AUTHORISE COLLEAGUES TO UNDERTAKE RADIATION-RELATED ACTIVITIES WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**4**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to authorise colleagues to undertake radiation-related activities within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

The main outcome of this activity is the authorisation of work activities where there are potential radiation hazards.

This activity includes obtaining information on the colleagues and work activities that are being undertaken; reviewing all relevant information relating to the activities, hazards, and risks; specifying the activities and methods that can be used; authorising colleagues to undertake the activities; reviewing the achievement of activities.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Safety.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N224k - How to Authorise Colleagues to Undertake Radiation-Related Activities within Ionising Radiation Environments*.
- The assumption is made that the learner is a trained operative, with skills beyond a supervisor. Only specified people are approved to authorise staff. Significant practice and assessment is required before fulfilling the role.

Traditionally this has been done by a Level 3 Radiation Protection Advisor who is generally a junior engineer/physicist, specialised Supervisor , not a standard operative.

This activity is likely to be undertaken by someone whose work role is focused on radiation protection.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to obtain information on the colleagues and work activities that are being undertaken	1.1 Review the organisational criteria and procedures relating to the authorisation of colleagues to undertake radiation-related activities 1.2 Obtain accurate information on the colleague and the radiation-related activities being undertaken
2. Be able to review all relevant information relating to the activities, hazards and risks	2.1 Review all relevant risk assessments relating to the radiation-related activities 2.2 Ensure that all radiation hazards are identified and that radiation protection systems are applied correctly 2.3 Consult with all relevant people on the radiation-related activities
3. Be able to specify the activities and methods that can be used	3.1 Specify the radiation-related activities to be undertaken by the colleague, including the methods to be used and their duration
4. Be able to authorise colleagues to undertake the activities	4.1 Authorise the colleague to undertake the radiation-related activities in accordance with organisational procedures
5. Be able to review the achievement of activities	5.1 Review the achievement of the radiation-related activities at an appropriate time
6. Be able to follow procedures for authorising colleagues to undertake radiation-related activities	6.1 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems

UNIT N225K	**HOW TO RESPOND TO RADIATION INCIDENTS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**24**

Unit Overview

This unit addresses the knowledge required to respond to radiation incidents within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the person is a trained operative and that extra training and practise is required in incident and emergency procedures.

Discussion should take place with the assessor to demonstrate learner knowledge of relevant documentation;

- Health Physics procedures
- Emergency procedures

The main outcome of this activity is responding to radiation incidents, which could have an impact on the site or the surrounding area.

This activity includes obtaining information on potential radiation incidents and how they could develop; identifying actual incidents; following procedures for responding to radiation incidents; applying the organisation's radiation protection systems; identifying problems with the response and suggesting improvements.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how potential radiation incidents could develop	1.1 Describe the activities undertaken in the specified Industry in terms of: a. Types of facilities b. Materials c. Processes 1.2 Explain how potential radiation incidents could occur from activities undertaken in the specified Industry
2. Know the procedures for responding to radiation incidents	2.1 Describe the structures and procedures within the organisation for responding to radiation incidents, including: a. Health and Safety requirements b. Radiation incidents c. Radiation protection issues d. Radiation protection systems e. Radiation: types, sources and hazards
3. Know the organisation's radiation protection systems	3.1 List the radiation protection systems within an organisation
4. Know the statutory requirements, regulations, and standards regarding radiation	4.1 List the sources of authoritative information on radiation protection, including international, national and local

UNIT N225C	**RESPOND TO RADIATION INCIDENTS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to respond to radiation incidents within ionising radiation environments

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

The learner should provide typical evidence for the following Learning Outcomes:

Learning Outcome 1

Worked examples of incidents or potential incidents learners have used, these are to include;

- Spread of radioactive contaminants
- High air sample counts
- High radiation dose rates

Information sources learners have used;

- Health Physics procedures
- Safe system of work/Permit to work
- Risk assessments
- Survey records or schedules

Learning Outcome 2

Worked examples showing learner involvement in an incident or exercise, identifying who was informed.

Learning Outcome 3

Worked example showing learner involvement in an incident or exercise.

Examples of completed set of records detailing learner involvement that is relevant to the process.

Witness statement to identify the consultation process learners used to seek advice from relevant personnel (e.g. Supervisor, Radiation Protection Supervisor (RPS), Radiation Protection Adviser (RPA)).

Learning Outcome 4

Worked examples showing learner involvement in an incident or exercise showing application of the radiation protection system.

Learning Outcome 5

Worked examples detailing problems learners identified with the response to the incident and actions taken by learners to inform the appropriate people.

Operating experience feedback examples that learners have been involved with, lessons learnt and improvements identified.

Assessment Guidance

- The use of simulation is acceptable in the assessment of this unit.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N225k - How to Respond to Radiation Incidents within Ionising Radiation Environments.*
- The assumption is made that the person is a trained operative and that extra training and practise is required to meet the requirements of radiation incidents.

The person will be working to clearly defined procedures using relevant skills and information for routine work.

The main outcome of this activity is responding to radiation incidents, which could have an impact on the site or the surrounding area.

This activity includes obtaining information on potential radiation incidents and how they could develop; identifying actual incidents; following procedures for responding to radiation incidents; applying the organisation's radiation protection systems; identifying problems with the response and suggesting improvements.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to obtain information on potential radiation incidents	1.1 Obtain information of how potential radiation incidents could develop as a result of the work activities being undertaken
2. Be able to identify actual incidents	2.1 Identify the radiation incident correctly and inform the relevant people
3. Be able to follow procedures for responding to radiation incidents	3.1 Follow the procedures, regulations, and guidelines for responding to the radiation incident 3.2 Seek advice to deal with any requirements beyond own technical competence 3.3 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems
4. Be able to apply the organisation's radiation protection systems	4.1 Apply promptly the relevant radiation protection systems to respond to the radiation incident
5. Be able to identify problems with the response and suggest improvements	5.1 Identify any problems with the response to the radiation incident and inform the appropriate people as soon as possible 5.2 Identify any potential improvements in the response to the radiation incident

UNIT N226K	**HOW TO MONITOR RADIATION HAZARDS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**16**

Unit Overview

This unit addresses the knowledge required to monitor radiation hazards within ionising radiation environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet **all** the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

The learner should demonstrate understanding of:

- The organisations radiation protection systems & responsibilities, legal and local exposure limits, relevant Action Levels, the ALARP principle and dose records.
- Hierarchy of engineering controls.
- Monitoring equipment appropriate to the work, different types of radiation & nuclides.
- Need for different types of monitoring equipment, limitations of use, awareness of potential changes in environmental conditions and identifying abnormal conditions.
- When conditions change and what actions should be taken.
- Understanding of monitoring radiation conditions during work activities and the process of identifying potential improvements.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.

- The assumption is made that the person is a trained operative and more training and assessment is necessary to cope with the potential hazards and safety requirements.

The significant learning in this unit is about the uncontrolled hazard and the safety of the plant, equipment and people implicit with this.

This unit requires significant training and input. The actions are clearly defined, with clear limits and reporting lines.

The main outcome of this activity is the monitoring of radiation hazards. The hazards could relate to the activities, equipment, or materials in the workplace.

This activity includes obtaining information on the activities being undertaken, including any risk assessments; identifying any potential radiation hazards and their effects; applying radiation protection systems; identifying and responding to any uncontrolled hazards.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to identify any potential radiation hazards and their effects	1.1 Explain how potential radiation hazards could be identified from activities undertaken in the specified industry in terms of: a. Types of facilities b. Materials c. Processes 1.2 List the effects of potential radiation hazards that could occur from activities undertaken in the specified industry
2. Know the radiation protection systems within the organisation	2.1 List the radiation protection systems within an organisation
3. Know how to identify and respond to any uncontrolled hazards	3.1 Describe the structures and procedures within the organisation for responding to uncontrolled hazards, including: a. Health and Safety requirements b. Radiation protection issues c. Radiation protection systems d. Radiation: types, sources, and hazards e. Risk Assessments
4. Know the statutory requirements, regulations, and standards regarding radiation protection	4.1 List the sources of authoritative information on radiation protection, including international, national, and local

UNIT N226C	**MONITOR RADIATION HAZARDS WITHIN IONISING RADIATION ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to monitor radiation hazards within ionising radiation environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet all the assessment criteria within this unit.

The evidence must reflect, at all times, the policies and procedures of the workplace, as linked to current legislation and the values and principles for good practice in Radiation Protection.

If the assessor is unable to observe learners they will identify an expert witness in the workplace who will provide testimony of work-based performance. Usually, the assessor or expert witness will observe learners in real work activities and this should provide most of the evidence for the assessment criteria in this unit.

The learner should provide typical types of evidence for the following Learning Outcomes:

Learning Outcome 1

Relevant documentation learners have used;

- Health Physics procedures
- Safe system of work/Permit to work
- Risk assessments
- Survey records or schedules
- Report to identify types of work activities

Learning Outcome 2

Worked examples learners have used to identify radiation hazards and exposure to radioactive materials for at least **three** of the following areas;

- Normal working conditions
- Potential airborne radioactivity
- Potential surface contamination
- High skin doses
- High radiation dose rates

The examples used should include;

- Reference to different types of radiation & nuclides
- A representative number of survey records undertaken during at least **three different tasks**
- A report covering aspects of exposure giving examples of doses accrued and internal/external exposure
- Air sampling results (including calculations)

Learning Outcome 3

Relevant documentation learners have used;

- Health Physics Procedures
- Safe system of work/Permit to work
- Risk Assessments
- Local Rules.
- A report detailing different types of dosimetry available and questioning to ensure learner understanding.
- Operating experience feedback examples that learners have been involved with, lessons learnt and improvements identified.

Learning Outcome 4

- Direct workplace observation of learners monitoring the work activity or carrying out a survey and exercising contamination and radiation dose control measures.
- Worked examples detailing problems learners have identified with the radiation conditions, the monitoring of those conditions (including problems with the monitoring equipment) and the actions taken.

Learning Outcome 5

Relevant documentation learners have used;

- Safe system of work/Permit to work
- Health Physics procedures indicating relevant standards
- Survey report
- Log record showing measured levels against expected standard levels

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking *N226k - How to Monitor Radiation Hazards within Ionising Radiation Environments*.
- The assumption is made that the person is a trained operative and more training and assessment is necessary to cope with the potential hazards and safety requirements.

In this scenario the person does not make any decisions, other than assessing the area efficiently and taking simple, immediate action.

The main outcome of this activity is the monitoring of radiation hazards. The hazards could relate to the activities, equipment, or materials in the workplace.

This activity includes obtaining information on the activities being undertaken, including any risk assessments; identifying any potential radiation hazards and their effects; applying radiation protection systems; identifying and responding to any uncontrolled hazards.

This activity is likely to be undertaken by someone whose work role is exercised in an environment where radiation protection is important.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO THE LEARNER.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to obtain information on the activities being undertaken	1.1 Obtain all relevant information on the work activities being undertaken and the radioactive materials and equipment being used, including any risk assessments
2. Be able to identify any potential radiation hazards and their effects	2.1 Identify any potential radiation hazards resulting from the activities being undertaken, and their potential effects if not controlled
3. Be able to apply radiation protection systems	3.1 Apply the organisation's radiation protection systems to monitor the radiation hazards 3.2 Comply with all relevant regulations and standards, and record all relevant actions and outcomes in the appropriate information systems
4. Be able to identify any uncontrolled hazards and respond accordingly	4.1 Assess whether the radiation hazards are being suitably controlled by the radiation protection systems 4.2 Identify any radiation hazards that are not being controlled and promptly take the appropriate action 4.3 Seek advice to deal with any requirements beyond own technical competence
5. Be able to identify potential improvements to identification and monitoring of radiation hazards	5.1 Identify any potential improvements to the identification and monitoring of radiation hazards that could be made