



**SECTOR SKILLS COUNCIL FOR SCIENCE,
ENGINEERING AND MANUFACTURING TECHNOLOGIES**

**NATIONAL OCCUPATIONAL STANDARDS:
EXPLOSIVE SUBSTANCES AND ARTICLES (ESA)
TEST & EVALUATION (KEY ROLE 3)**

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Unit 3.1 Establish the performance criteria for explosive substances and/or articles

Contexts

- Explosive substances and/or articles: immediately identifiable; those that require further investigation
 - Information: with access to full information; with access to limited information
 - Range and complexity of technical requirements: single item; part of a complex system
 - Technical, legal and cost implications: safety; environmental impact; value; internal resources; external resources
 - Hazards and risks caused by: complexity of the explosive substances or articles; condition of the explosive substances or articles; primary hazards; secondary hazards
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Performance Criteria

You need to:

- a work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- b obtain sufficient information to understand the customer's objectives
- c identify or confirm the identity and condition of explosive substances or articles
- d ensure that the technical requirements are understood and specified
- e determine how your organisation can respond to the requirements, in terms of workload and resources
- f characterise the hazards pertaining to the test or trial
- g quantify the risks of the test or trial
- h record information, in accordance with organisational procedures
- i check and obtain agreement that the requirements are interpreted correctly
- j adhere to the relevant quality standards
- k maintain the requirements of confidentiality at all times

Knowledge Requirements

You need to know and understand:

- i the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- ii the relevance of personal protective equipment (PPE)
- iii the nature, characteristics, hazards and risks of the explosive substance and/or article
- iv the actions to be taken in response to an unplanned event
- v the functioning of the explosive substance or article
- vi how to carry out a risk assessment
- vii how to identify the hazards (condition, primary and secondary)
- viii the relevant performance specifications for the explosive substances and/or articles
- ix information sources and documents that pertain to the performance criteria
- x previous test results, simulated test results, and manufacturer, design authority and scientific literature
- xi how to interpret, collate and translate data, and manipulate information into suitable formats for comparison
- xii analysis methods and techniques
- xiii the competences of the personnel involved
- xiv your own level of authority, and that of others with whom you work
- xv when and how to challenge a customer's requirement
- xvi the different courses of action you might suggest
- xvii the requirements of confidentiality
- xviii the importance of documenting your actions and your rationale
- xix the relevant quality standards and compliance regime
- xx your organisation's recording procedures

Unit 3.2 Determine the existence of a suitable trial or test procedure for explosive substances and/or articles

Contexts

- Technical, legal and cost implications: safety; environmental impact; value to the customer; value to your organisation; resources
 - Test and evaluation activities relevant to the test or trial being conducted: test methods; analysis methods
 - Sources of information: databases; publications; informal sources of information
 - Information: with access to complete information; with access to incomplete information
-

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- identify the information and factors relevant to the trial or test
- select the most likely trials or tests that meet your criteria
- decide whether an existing trial or test procedure is suitable, on the basis of an analysis of the available evidence
- obtain agreement to your proposal, through a peer and customer review
- identify other potentially valuable tasks that could be carried out concurrently
- determine that this approach meets the customer's requirements, through negotiation
- adhere to the relevant quality standards
- document the agreed process, for audit purposes, in the appropriate format

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the factors relevant to the trial or test
- the test or trial objectives
- the range of test methods that may be relevant
- sources of relevant information
- analysis methods and techniques
- the test facilities and resources available locally and elsewhere
- the resources needed to carry out the trial or test (people, facilities, equipment, etc)
- your own level of authority
- when and why a customer and/or peer review would be appropriate
- what might constitute value to your customer and/or your organisation
- when and how to advise the customer to pursue a different course of action
- when and why it might be appropriate to carry out other tasks concurrently
- the importance of documenting your actions and your rationale
- the relevant quality standards and compliance regime
- your organisation's recording procedures

Unit 3.3 Design a new trial procedure for explosive substances and/or articles

Contexts

- Technical, legal and cost implications: safety; environmental impact; value to the customer; value to your organisation; resources
 - Complexity: high negative consequence; numerous interrelated tests or activities; variable outcomes
 - Sources of information: databases; publications; informal sources of information
 - Information: with access to complete information; with access to incomplete information
-

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- confirm with the customer the requirement for the trial to be carried out
- identify the information and factors relevant to the trial
- confirm that there are no suitable existing trial procedures
- ensure that your procedure meets the customer's requirement (including validation protocols and procedures)
- include organisational factors, in addition to the customer's requirements, that are likely to add value to the outline design
- obtain agreement, through a peer and customer review
- design a trial that is fit for purpose (including contingencies, and the disposal of products and residues)
- develop a safe system of work
- identify other potentially valuable outcomes that could be delivered concurrently
- adhere to the relevant quality standards
- document the agreed process, in the appropriate format

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the functioning of the explosive substance or article
- the information and factors relevant to the trial
- the trial objectives
- sources of relevant information (eg technical publications)
- the basis on which explosives trial procedures are designed
- why an existing procedure is not suitable
- document control procedures
- the resources needed to carry out the trial (people, facilities, equipment, etc)
- the features and benefits of cost-benefit analysis
- how to dispose of explosive substances and/or articles residues arising from the trial
- what might constitute value to your customer and/or your organisation
- the role of peer and customer review
- your own level of authority
- the relevant quality standards and compliance regime
- the impact of the hazards and risks associated with the procedure and conditions

Unit 3.4 Design a new test procedure for explosive substances and/or articles

Contexts

- Technical, and legal implications: safety; environmental impact
 - Sources of information: databases; publications; informal sources of information
 - Information: with access to complete information; with access to incomplete information
-

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- confirm with the customer the requirement for the test to be carried out
- identify the information and factors relevant to the test
- confirm that there are no suitable existing test procedures
- ensure that the procedure meets the customer's requirement (including validation protocols and procedures)
- include organisational factors, in addition to the customer's requirements, that are likely to add value to the outline design
- obtain agreement through a peer and customer review
- design a test that is fit for purpose (including contingencies, and the disposal of products and residues)
- develop a safe system of work
- identify other potentially valuable outcomes that could be delivered concurrently
- adhere to the relevant quality standards
- document the agreed process, in the appropriate format

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the functioning of the explosive substance or article
- the information and factors relevant to the test
- the objectives
- sources of relevant information (eg technical publications)
- the basis on which explosives test procedures are designed
- why an existing procedure is not suitable
- document control procedures
- the resources needed to carry out the test (people, facilities, equipment, etc)
- how to dispose of explosive substances and/or articles residues arising from the test
- the role of peer and customer review
- what might constitute value to your customer and/or your organisation
- your own level of authority
- the relevant quality standards and compliance regime
- the impact of the hazards and risks associated with the procedure and conditions

Unit 3.5 Adapt an existing trial procedure for explosive substances and/or articles

Contexts

- Technical, legal and cost implications: safety; environmental impact; value to the customer; value to your organisation; resources
 - Sources of information: databases; publications; informal sources of information
 - Information: with access to complete information; with access to incomplete information
 - Complexity: high negative consequence; numerous inter-related tests or activities; variable outcomes
-

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- confirm with the customer the requirement for the trial to be carried out
- identify the information and factors relevant to the trial
- confirm that there is a suitable existing adaptable trial procedure
- ensure that your adaptation meets the customer's requirement (including validation protocols and procedures)
- include organisational factors, in addition to the customer's requirements, that are likely to add value to the outline changes
- obtain agreement through a peer and customer review
- design a trial that is fit for purpose (including contingencies, and the disposal of products and residues)
- identify other potentially valuable outcomes that could be delivered concurrently
- adhere to the relevant quality standards
- document the agreed process, in the appropriate format

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the functioning of the explosive substance or article
- the information and factors relevant to the trial
- the trial objectives
- sources of relevant information (eg technical publications)
- the basis on which explosives trial procedures are designed
- why an existing procedure is not suitable
- document control procedures
- the resources needed to carry out the trial (eg people, facilities, equipment)
- how to dispose of explosive substances and/or articles residues arising from the trial
- the role of peer and customer review
- what might constitute value to your customer and/or your organisation
- your own level of authority
- the relevant quality standards and compliance regime
- how and why the adaptations proposed will impact on the hazards and risks associated with the procedure and conditions

Unit 3.6 Adapt an existing test procedure for explosive substances and/or articles

Contexts

- Technical, legal and cost implications: safety; environmental impact; value to the customer; value to your organisation; resources
- Sources of information: databases; publications; informal sources of information
- Information: with access to complete information; with access to incomplete information
- Complexity: proven tests; tests not fully proven

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- confirm with the customer the requirement for the test to be carried out
- identify the information and factors relevant to the test
- confirm that there is a suitable, existing, adaptable test procedure
- ensure that your adaptation meets the customer's requirement (including validation protocols and procedures)
- include organisational factors, in addition to the customer's requirements, that are likely to add value to the outline changes
- obtain agreement, through a peer and customer review
- design a test that is fit for purpose (including contingencies, and the disposal of products and residues)
- identify other potentially valuable outcomes that could be delivered concurrently
- adhere to the relevant quality standards
- document the agreed process, in the appropriate format

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the functioning of the explosive substance or article
- the information and factors relevant to the test
- the test objectives
- sources of relevant information (eg technical publications)
- the basis on which explosives test procedures are designed
- why an existing procedure is not suitable
- document control procedures
- the resources needed to carry out the test (eg people, facilities, equipment)
- how to dispose of explosive substances and/or articles residues arising from the test
- the role of peer and customer review
- what might constitute value to your customer and/or your organisation
- your own level of authority
- the relevant quality standards and compliance regime
- how and why the adaptations proposed will impact on the hazards and risks associated with the procedure and conditions

Unit 3.7 Validate a trial or test procedure for explosive substances and/or articles

Contexts

- Trial or test procedures: new procedures; adapted procedures; existing procedures
 - Technical and legal implications: safety; environmental impact; value to the customer; value to your organisation; resources
 - Relevant people: safety officers; test designer; peer review panel
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Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- draft protocols for the conduct of the validation trial or test, in accordance with organisational procedures
- adhere to the requirements of the validation protocols
- record the results of the validation, in a way that makes the results clear and meaningful
- identify any problems or faults, and their causes
- investigate any deviations from expected results, and report them to the relevant people
- evaluate the results, for completeness and validity
- make clear recommendations to address problems and faults
- adhere to the relevant quality standards
- inform those who need to know of your analysis and recommendations

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the factors and information relevant to the validation
- how to set objective success criteria
- the potential deviations that may result from using scaled or inert substitute
- how to write validation protocols, and what they should cover
- documentation control procedures
- the resources needed to carry out the validation (eg people, facilities, equipment)
- the expected outcome(s) of the validation
- your own level of authority
- what might constitute value to your customer and/or your organisation
- the relevant quality standards and compliance regime
- when and how to recommend changes to the trial or test plan

Unit 3.8 Plan the trial of explosive substances and/or articles

Contexts

- Complexity: high negative consequence; numerous interrelated tests or activities; variable outcomes
 - Resources: fully equipped; with limited resources; from other organisations
 - Reviews: where the customer agrees the plan; where changes are needed following discussions with the customer
 - Hazards and risks caused by: complexity of the explosive substances and/or articles; condition of the explosive substances and/or articles; primary hazards; secondary hazards
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Performance Criteria

You need to:

- a work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- b confirm the appropriate trials procedure
- c make effective use of appropriate modelling tools
- d confirm the fitness for purpose of the proposed trial site
- e incorporate the requirements of additional tasks to be carried out concurrently into the trials plan
- f identify and obtain resource requirements that are appropriate to the trial
- g allocate responsibilities appropriately
- h produce a clear and accurate trials plan
- i ensure that hazard and risk assessments are carried out
- j agree deliverables with the customer, with agreed interim reviews
- k obtain the approval to changes made to the plan in the correct format
- l develop contingencies to accommodate identified difficulties
- m ensure that any issues relating to the segregation and disposal of process residues and products have been addressed in the plan
- n maintain the requirements of confidentiality at all times
- o adhere to the relevant quality standards
- p take action to resolve and record problems

Knowledge Requirements

You need to know and understand:

- i the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- ii the relevance of personal protective equipment (PPE)
- iii the nature, characteristics, hazards and risks of the explosive substance and/or article
- iv the actions to be taken in response to an unplanned event
- v the anticipated results of the trial
- vi the factors relevant to the trial (eg location, meteorological, environmental)
- vii the agreed trials procedure
- viii the objectives of the trial
- ix trial resources needed, and any constraints attached to them (eg people, facilities, equipment)
- x the competences of the personnel involved
- xi the types of test equipment, and their application
- xii planning tools and project management principles
- xiii how to write trial plans (including the disposal of items remaining at the end of the trial)
- xiv why hazard and risk assessments are required, and how to get them produced pre- and post-trial
- xv the control of business risk and contingency/emergency planning
- xvi how to dispose of explosive substances and/or articles residues arising from the trial
- xvii the role of peer review
- xviii your own level of authority, and that of others with whom you work
- xix any confidentiality requirements
- xx the relevant quality standards and compliance regime
- xxi when to refer to others for more information or a second opinion

Unit 3.9 Plan the test of explosive substances and/or articles

Contexts

- Resources: fully equipped; with limited resources
 - Complexity of the test: new tests; existing tests
 - Reviews: where the customer agrees the plan; where changes are needed following discussions with the customer
 - Hazards and risks caused by: condition of the explosive substances and/or articles; primary hazards; secondary hazards
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Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- ensure you have the correct test procedure
- confirm the fitness for purpose of the proposed trial site
- incorporate into the test plan the requirements of additional tasks to be carried out concurrently
- identify and obtain resource requirements that are appropriate to the test
- ensure that the facilities are fit for purpose
- allocate responsibilities appropriately
- produce a clear and accurate test plan, that is capable of delivery within the constraints of cost and timescale
- ensure that hazard and risk assessments are carried out
- confirm the deliverables with the customer, with agreed interim reviews
- ensure that any issues, relating to the segregation and disposal of process residues and products, have been addressed in the plan
- obtain agreement to the plan
- maintain the requirements of confidentiality at all times
- adhere to the relevant quality standards
- take action to resolve and record problems

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the anticipated results of the test
- the factors relevant to the test (eg location, meteorological, environmental)
- the agreed test procedure
- the objectives of the test
- test resource constraints
- the competences of the personnel involved
- the types of test equipment, and their application
- planning tools and project management principles
- how to write test plans (including how to dispose of items remaining at the end of the trial)
- why hazard and risk assessments are required, and how to get them produced
- contingency/emergency planning
- how to dispose of explosive substances and/or articles residues arising from the test
- the role of peer review
- your own level of authority and those of others with whom you work
- the relevant quality standards and compliance regime
- any confidentiality requirements
- when to refer to others for more information or a second opinion

Unit 3.10 Manage the trial of explosive substances and/or articles

Contexts

- Resources: full; limited; external
- Maintaining the integrity of the process: quality assurance; trial plan
- Relationships: the customer; external organisations; your organisation; the trial team
- Complexity: high negative consequence; numerous inter-related tests or activities; variable outcomes

Performance Criteria

You need to:

- a work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- b ensure that safe systems of work are in place
- c approve and/or authorize trial plans that are fit for purpose and meet the specified requirements
- d review the conduct of the trial and deliverables with the customer
- e communicate the plan appropriately
- f allocate responsibilities appropriately
- g deliver the objectives within budget and/or timescale
- h respond to developing events and priorities in accordance with procedures
- i obtain approval to amendments made to the trial plan
- j co-ordinate the activities of other resources
- k segregate and dispose of the process residues and products in accordance with approved procedures
- l ensure that the site is suitably remediated and the equipment recovered post-task
- m give clear and accurate technical advice
- n maintain the requirements of confidentiality at all times
- o adhere to the relevant quality standards
- p report your findings in the correct format

Knowledge requirements

You need to know and understand:

- i the health, safety and environmental and other statutory legislation, regulations, safe working practices and procedures governing explosives, and their implications for your area of work
- ii the relevance of personal protective equipment (PPE)
- iii the nature, characteristics, hazards and risks of the explosive substance and/or article
- iv the trial objectives
- v the functioning of the item being trialled
- vi how to assess hazards and mitigate risk
- vii how to adapt, design and validate trial procedures
- viii the competences of the personnel involved
- ix the availability of resources and any constraints attached to them
- x monitoring techniques relevant to the trial
- xi the actions that may be appropriate in response to unplanned or developing events and imperatives
- xii who needs to be informed of the trial plan, and the nature of their interest
- xiii how to consign residues and other products for disposal
- xiv your own level of authority
- xv the relevant quality standards and compliance regime
- xvi any confidentiality requirements
- xvii the factors relevant to assuring quality

Unit 3.11 Manage the test of explosive substances and/or articles

Contexts

- Resources: full; limited; external
- Maintaining the integrity of the process: quality assurance; test plan
- Relationships: the customer; external organisations; your organisation; the test team
- Complexity: new tests; existing tests

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- ensure that safe systems of work are in place
- approve and/or authorise test plans, that are fit for purpose and meet the specified requirements
- review the conduct of the test and deliverables with the customer
- communicate the plan appropriately
- allocate responsibilities appropriately
- deliver the objectives, within budget and/or timescale
- respond to developing events and priorities, in accordance with procedures
- obtain approval to amendments made to the test plan
- co-ordinate the activities of other resources
- segregate and dispose of the process residues and products, in accordance with approved procedures
- ensure that the site is suitably remediated, and the equipment recovered post-task
- give clear and accurate technical advice
- maintain the requirements of confidentiality at all times
- adhere to the relevant quality standards
- report your findings, in the correct format

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations, safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the test objectives
- the functioning of the item being tested
- how to assess hazards and mitigate risk
- how to adapt, design and validate test procedures
- the competences of the personnel involved
- the availability of resources, and any constraints attached to them
- monitoring techniques relevant to the test
- the actions that may be appropriate in response to unplanned or developing events and imperatives
- who needs to be informed of the test plan, and the nature of their interest
- how to consign residues and other products for disposal
- your own level of authority
- the relevant quality standards and compliance regime
- any confidentiality requirements
- the factors relevant to assuring quality

Unit 3.12 Carry out pre-trial or pre-test tasks relating to explosive substances and/or articles

Contexts

- Resources: equipment; consumables; services; work environment
- Trial or test plan: where no changes are needed; where minor changes are needed¹; where significant changes are needed²

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- allocate responsibilities appropriately
- confirm the availability and suitability of the equipment, consumables and services needed to complete the task
- ensure that any necessary tests of the equipment have been carried out correctly
- check that the work environment is suitable for the trial or test
- ensure that any necessary logistic arrangements are in place, in accordance with your organisation's procedures and the trial or test plan
- confirm the fitness for purpose of the trial or test plan, and make any necessary amendments in the light of changes required, within your level of authority
- adhere to the relevant quality standards
- obtain approval or authorisation for any necessary changes to the plan, beyond your level of authority

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations, safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the trial or test objectives
- the trial or test plan
- the way in which the trial or test plan may need to be changed, and the process for doing so
- the competences of the personnel involved
- the equipment, consumables and services needed to complete the task
- the potential hazards associated with the trial or test
- the relevant quality standards and compliance regime
- your level of authority

¹ ie where changes may be made within the agreed level of authority

² ie where referral to management is needed

Unit 3.13 Contribute to pre-trial or pre-test tasks relating to explosive substances and/or articles

Contexts

- Resources: equipment; consumables; services; work environment
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Performance Criteria

You need to:

- a work safely at all times, complying with health and safety and other relevant regulations, legislation and guidelines
- b confirm the suitability of the equipment, consumables and services needed to complete the task
- c carry out any necessary tests of the equipment
- d advise on the use and disposition of equipment, within your level of authority
- e check that the work environment is suitable for the trial or test, as directed, and make recommendations
- f contribute to the trial or test plan (including the hazard and risk assessments)
- g make logistic arrangements, as directed, in accordance with your organisation's procedures and the trial or test plan
- h maintain the requirements of confidentiality at all times
- i adhere to the relevant quality standards
- j report problems beyond your level of authority to the appropriate person

Knowledge Requirements

You need to know and understand:

- i the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- ii the relevance of personal protective equipment (PPE)
- iii the nature, characteristics, hazards and risks of the explosive substance and/or article
- iv the actions to be taken in response to an unplanned event
- v the trial or test plan, and your role in it
- vi the objectives of the trial or test
- vii the roles and responsibilities of team members
- viii the equipment, consumables and services needed to complete the task
- ix how to assemble, check and use the equipment
- x the correct functioning of equipment, and how to identify when it does not work properly
- xi why hazard and risk assessments are required, and your role in contributing to them
- xii reporting lines and procedures
- xiii the relevant quality standards and compliance regime
- xiv any confidentiality requirements
- xv your own level of authority

Unit 3.14 Carry out trials of explosive substances and/or articles

Contexts

- Complexity: high negative consequence; numerous interrelated tests or activities; variable outcomes
- Resources: fully equipped; with limited resources
- Level and extent of responsibility: completing trials yourself; supervising other competent personnel engaged upon multiple or other inter-related tasks

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- ensure that all preparatory work has been carried out
- ensure that all safety precautions are in place
- take suitable precautions to prevent damage to test and monitoring equipment
- confirm that the correct explosive substances and/or articles have been selected for testing
- ensure that all explosive substances and/or articles are protected from all forms of contamination and/or damage
- ensure that you, and those under your control, carry out the trial procedure and the plan correctly
- respond to developing events and priorities, in accordance with procedures
- segregate and dispose of the process residues and products, in accordance with approved procedures
- adhere to the relevant quality standards
- maintain the requirements of confidentiality at all times
- maintain documentation, in accordance with organisational procedures

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the characteristics and nature of other hazardous materials with which you are working
- the customer's objectives and needs
- the trial procedure and plan
- the design, characteristics and potential hazards of the trial
- safety constraints
- types of equipment relevant to the task, and their application, capabilities and limitations
- procedures for calibration and authorisation of equipment
- special designated responsibilities (eg emergency response)
- environmental controls (eg temperature, humidity)
- how to consign residues and other products for disposal
- trials reporting documentation
- the roles and responsibilities of team members
- the competences of the personnel involved
- reporting lines and procedures
- how to communicate clear instructions
- your own level of authority
- the relevant quality standards and compliance regime
- the requirements of confidentiality

Unit 3.15 Carry out tests of explosive substances and/or articles

Contexts

- Resources: fully equipped; with limited resources
 - Complexity of the test: new tests; existing tests
 - Level and extent of responsibility: completing tests yourself; supervising other competent personnel
-

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- ensure that you, and those under your control, carry out the test procedure and the plan correctly
- ensure that all preparatory work has been carried out
- ensure that all safety precautions are in place
- confirm that the correct explosive substances and/or articles have been selected for testing
- ensure that all explosive substances and/or articles are protected from all forms of contamination and/or damage
- take suitable precautions to prevent damage to the test and monitoring equipment
- respond to developing events and priorities, in accordance with procedures
- segregate and dispose of the process residues and products, in accordance with approved procedures
- adhere to the relevant quality standards
- maintain documentation, in accordance with organisational procedures
- maintain the requirements of confidentiality at all times

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the characteristics and nature of other hazardous materials with which you are working
- the customer's objectives and needs
- the test procedure and plan
- the design, characteristics and potential hazards of the test
- safety constraints
- types of equipment relevant to the task, and their application, capabilities and limitations
- procedures for calibration and authorisation of equipment
- special designated responsibilities (eg emergency response)
- environmental controls (eg temperature, humidity)
- how to consign residues and other products for disposal
- test reporting documentation
- the competences of the personnel involved
- reporting lines and procedures
- how to communicate clear instructions
- your own level of authority
- the roles and responsibilities of team members
- the relevant quality standards and compliance regime
- the requirements of confidentiality

Unit 3.16 Contribute to conducting trial or test of explosive substances and/or articles

Contexts

- Resources: equipment; consumables; services; work environment

Performance Criteria

You need to:

- a work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- b confirm that you have the correct trial or test plan
- c carry out final pre-task checks, as directed
- d use the equipment, consumables and services correctly during the task
- e confirm that the correct explosive substances and/or articles have been selected
- f protect explosive substances and/or articles from all forms of contamination and/or damage
- g identify and label explosive substances and/or articles, according to the plan
- h ensure that the controlled conditions are as specified in the trial or test plan
- i record data and information, as directed
- j adhere to the relevant quality standards
- k maintain the requirements of confidentiality at all times
- l report problems beyond your level of authority to the appropriate person

Knowledge Requirements

You need to know and understand:

- i the health, safety and environmental and other statutory legislation, regulations, safe working practices and procedures governing explosives, and their implications for your area of work
- ii the relevance of personal protective equipment (PPE)
- iii the nature, characteristics, hazards and risks of the explosive substance and/or article
- iv the actions to be taken in response to an unplanned event
- v the nature of other hazardous materials with which you are working
- vi the trial or test plan and procedures, and your role in them
- vii the expected outcomes of the task
- viii the roles and responsibilities of team members
- ix the equipment, consumables and services needed to complete the task
- x how to use the equipment
- xi types of labelling used
- xii the consequences of incorrect/adverse conditions
- xiii the consequences of taking wrong actions
- xiv the importance of adhering to clear instructions, and of seeking clarification when necessary
- xv reporting lines and procedures
- xvi the relevant quality standards and compliance regime
- xvii your own level of responsibility and competence
- xviii the documentation requirements
- xix any confidentiality requirements

Unit 3.17 Evaluate the results of trials of explosive substances and/or articles

Contexts

- Analytical techniques: application to the trial; application to inter-related tests
 - Information: where there are inconsistencies; where there are no inconsistencies
-

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- ensure that you have the necessary data on which to conduct the analysis
- resolve any inconsistencies in the data
- analyse the data, using accepted methods and procedures
- check that the data analysis is accurate, and takes account of the trial conditions
- reach valid and logical conclusions from the available evidence, and make appropriate recommendations
- record the results of the analysis, in the correct format, and report your findings
- report the evaluation, in accordance with your organisation's procedures
- adhere to the relevant quality standards
- maintain the requirements of confidentiality at all times

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the design of the item
- the customer's objectives and needs
- the composition and functioning of explosive substances and articles under trial
- the relevant performance specifications for the explosive substances and articles
- the tolerances defined by the performance specification
- the trial criteria
- the limitations of test/trial equipment
- the capabilities and limitations of data analysis methods and techniques
- how to interpret, collate information from different sources into suitable formats for comparison
- trial documentation and procedures
- reporting lines and procedures
- any confidentiality requirements
- the relevant quality standards and compliance regime
- your own level of competence

Unit 3.18 Evaluate the results of tests of explosive substances and/or articles

Contexts

- Information: where there are inconsistencies; where there are no inconsistencies
-

Performance Criteria

You need to:

- a work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- b ensure that you have the necessary data on which to conduct the analysis
- c resolve any inconsistencies in the data
- d analyse the data, using accepted methods and procedures
- e check that the data analysis is accurate, and takes account of the test conditions
- f reach valid and logical conclusions from the available evidence, and make appropriate recommendations
- g record the results of the analysis, in the correct format, and report your findings
- h report the evaluation, in accordance with your organisation's procedures
- i adhere to the relevant quality standards
- j maintain the requirements of confidentiality at all times

Knowledge Requirements

You need to know and understand:

- i the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
- ii the relevance of personal protective equipment (PPE)
- iii the nature, characteristics, hazards and risks of the explosive substance and/or article
- iv the actions to be taken in response to an unplanned event
- v the design of the item
- vi the customer's objectives and needs
- vii the composition and functioning of the explosive substances and articles under test
- viii the relevant performance specifications for the explosive substances and articles
- ix the tolerances defined by the performance specification
- x the test criteria
- xi the limitations of the test equipment
- xii the capabilities and limitations of the data analysis methods and techniques
- xiii how to interpret, collate information, from different sources, into suitable formats for comparison
- xiv test documentation and procedures
- xv reporting lines and procedures
- xvi the relevant quality standards and compliance regime
- xvii your own level of competence
- xviii the requirements of confidentiality

Unit 3.19 Carry out post-trial or post-test tasks relating to explosive substances and/or articles

Contexts

- Resources: people; equipment; consumables; services
- Trial or test plan: where no changes are needed; where significant changes are needed³; where minor changes are needed⁴

Performance Criteria

You need to:

- work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guideline
- confirm that your test or trial objectives have been met, and take follow-up action
- allocate tasks appropriately
- allocate the equipment, consumables and services needed to complete post-trial or post-test tasks
- ensure that the equipment is maintained, in accordance with your organisation's procedures
- ensure that the work environment has been remediated
- ensure that explosive substance and/or article residues and products have been disposed of correctly
- ensure that the arrangements for recovery have been carried out, in accordance with your organisation's procedures and the trial or test plan
- write the post-trial or post-test report, in accordance with your organisation's procedures

Knowledge Requirements

You need to know and understand:

- the health, safety and environmental and other statutory legislation, regulations, safe working practices and procedures governing explosives, and their implications for your area of work
- the relevance of personal protective equipment (PPE)
- the nature, characteristics, hazards and risks of the explosive substance and/or article
- the actions to be taken in response to an unplanned event
- the trial or test plan and procedure(s)
- how to confirm that the trial or test objectives have been met
- the actions you should take if the trial or test objectives have not been met
- the roles and responsibilities of team members
- the importance of completing post-trial or post-test tasks
- the purpose and format of the trial or test report
- the procedures for disposing of explosive substance and/or article residues and products, and any associated restrictions
- the condition in which the site must be left
- the equipment, consumables and services needed to complete post-trial or post-test tasks
- reporting lines and procedures
- your level of authority, and that of others with whom you work

³ *ibid*

⁴ *ibid*

Unit 3.20 Contribute to post-trial or post-test tasks relating to explosive substances and/or articles

Contexts

- Resources: equipment; consumables; services; work environment

Performance Criteria

You need to:

- a work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
- b carry out final post-trial or post-test checks, as directed
- c use the equipment, consumables and services correctly during post-trial or post-test tasks
- d maintain the equipment, in accordance with your organisation's procedures
- e remediate the work environment, as directed, disposing of explosive substance and/or article residues and products, within the limits of your responsibility
- f recover, return and report faulty equipment, in accordance with your organisation's procedures and/or the manufacturer's instructions
- g report data and information, as directed
- h segregate and dispose of the process residues and products, in accordance with approved procedures
- i adhere to the relevant quality standards
- j deal with any problems, within your level of authority
- k report problems beyond your level of authority to the appropriate person

Knowledge Requirements

You need to know and understand:

- i the health, safety and environmental and other statutory legislation, regulations, safe working practices and procedures governing explosives, and their implications for your area of work
- ii the relevance of personal protective equipment (PPE)
- iii the nature, characteristics, hazards and risks of the explosive substance and/or article
- iv the actions to be taken in response to an unplanned event
- v the trial or test plan and procedures, and your role in them
- vi the roles and responsibilities of team members
- vii post-trial or post-test tasks
- viii how to collect and dispose of residues and products
- ix the condition in which the site must be left
- x the equipment, consumables and services needed to complete post-trial or test tasks
- xi how to recover, return, and report faults in, the test equipment
- xii how to use, maintain, and report faults in, the post-trial equipment
- xiii how to consign residues and other products for disposal
- xiv reporting lines and procedures
- xv the relevant quality standards and compliance regime
- xvi your level of responsibility