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**USES OF EXPLOSIVE SUBSTANCE & ARTICLES  
NATIONAL OCCUPATIONAL STANDARDS**

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## WHY NATIONAL OCCUPATIONAL STANDARDS IN EXPLOSIVE SUBSTANCES AND ARTICLES?

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### *INTRODUCTION*

This paper is intended to describe the uses of National Occupational Standards<sup>1</sup> – in this case, those describing competence in working with Explosive Substances and/or Articles (ESA). It first describes the background to the development of the ESA standards and then explains how standards can be used.

This initiative grew out of an awareness that:

- the current pool of personnel in the UK with explosives competence is shrinking;
- the measurement and assurance of competence is the norm in modern professions;
- UK legislation and regulation increasingly require employers to demonstrate a commitment to quality and effectiveness of their workforces;
- activities with perceived health and safety and public safety risks will be subject to increasingly stringent monitoring and regulation;
- the risk of losses and litigation renders inaction financially and morally unacceptable.

The ESA standards have been developed for the whole UK explosives industry – both civilian and military – by the Standards Setting Body for Explosives, Munitions and Search Occupations (SSB for EMSO). These standards are based on the outcome of a methodical analysis of the roles and functions of people working within the industry.

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<sup>1</sup> Referred to here simply as “standards”

## BACKGROUND TO THE ESA STANDARDS

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The SSB for EMSO was formed in 2000 in order to develop standards and National/Scottish Vocational Qualifications (N/SVQs) for those involved in munition clearance (ie bomb disposal) and search activities. These were launched in October 2003.

Following this launch, the Defence Ordnance Safety Board (DOSG) of the Ministry of Defence (MoD) approached the SSB and asked for help in defining the competences known at the time in the MoD as Ordnance, Munitions and Explosives (OME) but which later became known as Explosive Substances and Articles (ESA). Since the MoD ideally wished its personnel to gain national accreditation for achievement of the resulting standards, the project was therefore widened to include **all** organizations that employed people who needed expertise in dealing with explosives with the exception of those in the mineral exploration and extraction industries.

The project sought to achieve the following:

- provide recognized competence standards for the benefit of the UK workforce and MoD civilian and military personnel;
- ensure that professional training and development is available, and wherever possible, provides individuals with recognized qualifications;
- provide a functional competence framework for the UK MoD OME community;
- set appropriate standards of performance for all levels of competence.

In addition, the project sought to:

- develop supplementary guidance on the nature of acceptable evidence;
- engage as many representatives of the industry as possible through the development process.

## WHAT IS A NATIONAL OCCUPATIONAL STANDARD?

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Standards describe what people need to be able to do to carry out their job well. They might also be referred to as “competences”. If someone is “competent”, it means that they are able to carry out their work tasks to a prescribed standard. In other words, they achieve the expected results. Competence is usually a mixture of skills, knowledge and approach. For example, in the standard overleaf, *ESA 7.9 Supervise the selection, preparation and despatch of explosive substances and articles* involves:

- skills (eg calculating the requirements accurately, ensuring that the workflow is managed efficiently);
- knowledge (eg characteristics of the explosive substance or article, what to do in the event of problems arising, the availability of staff and resources needed to complete the task, applicable health and safety requirements etc);
- attitude (eg conducting the procedure in a manner consistent with organizational values and goals, protecting life and property, observing health and safety requirements, ensuring tools and equipment are well-maintained).

If competence is defined as the ability to do something “well”, the word “well” suggests that a certain standard has been reached. This is something that can usually be observed directly by an assessor, but other relevant forms of evidence may also be assessed. Taking the above example, the requirements for the competent supervision of the selection, preparation and despatch of explosive substances and/or articles are clearly specified in unit 7.9 of the ESA standards. Using this standard, someone assessing this competence should have no difficulty in recognizing the competence in this function or task.

The standards comprise three components:

- the *Criteria* by which someone’s performance would be measured: these are written as outcomes. Hence, they are objective and measurable;
- the *Knowledge* which lists the critical knowledge and understanding needed to fulfil the *Criteria*;

- the *Contexts* which describe the critical parameters of competent performance, which may include internal and external factors, options or situations. Personnel cannot be deemed to be competent unless they can meet the relevant performance criteria in all the situations described in the “contexts”.

The suite of ESA standards describes the competence of people who work with explosives at different levels. Each booklet lists the standards relevant to people who work at operator level, supervisory level and as operational managers.

See the following page for a sample ESA standard.

**A SAMPLE STANDARD**

**7.9 Supervise the selection, preparation and despatch of explosive substances and/or articles**

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**Contexts**

- 1 Orders: single; mixed
- 2 Consignments: single; multiple
- 3 Fulfilment of orders: in part; in full
- 4 Resources: full; limited

**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 the correct items are selected, prepared and despatched in accordance with the order
- c report any shortfalls in the order to the right person
- d ensure that sufficient manpower and equipment are available to enable the goods to be selected and despatched on time
- e determine accurately any requirements for pre-issue inspection, fractioning, re-work and repackaging
- f ensure that any pre-issue activity is completed to meet pipeline times
- g ensure that appropriate action is taken in accordance with organizational procedures where explosive substances and/or articles are reported to be in a suspect or damaged state
- h ensure that all documentation is fully and accurately completed
- i ensure that the order is correctly packaged and labelled to comply with relevant legislation
- j resolve any problems within your level of authority

**Knowledge**

You need to know and understand:

- i 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 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 how to identify alternative sources of supply to accommodate any potential shortfalls
- vi the importance of fulfilling orders accurately and on time
- vii how long it takes to assemble orders
- viii how to identify if pre-issue activity is required
- ix how to progress pre-issue activity
- x the procedure to follow if an order cannot be fulfilled or discrepancies exist
- xi the rules governing mixing hazard divisions and compatibility groups
- xii the staff and resource requirements for the task and the information they need to perform effectively
- xiii how to implement contingency plans
- xiv how to give and receive constructive feedback
- xv your level of authority and to whom to refer for advice or decisions

## WHAT HAS BEEN PRODUCED?

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The SSB has delivered the following outputs:

- the ESA occupational map which scopes the industry, its size, composition, skills issues and key job roles<sup>2</sup>;
- the ESA functional map identifying the technical (ie explosives-specific) functions carried out by practitioners at all levels that required technical expertise written at levels 2 – 4 together with the critical generic functions relevant to the ESA roles identified;
- the suite of ESA standards (around 260 explosives-specific standards in total) covering:
  - Research, Design and Development;
  - Safety Management;
  - Test and Evaluation;
  - Manufacture;
  - Maintenance;
  - Procurement;
  - Storage;
  - Transport;
  - Facilities Management;
  - Commercial use of Explosives;
  - Disposal;
  - Munition Clearance and Search;
  - Generic Support;
- 31 N/SVQ qualifications designs between levels 2 – 4 (ie operators, supervisors and operational managers);
- an assessment strategy;
- a glossary;
- key skills maps for all ESA standards against all Key Skills (eg Communication and the Application of Number).

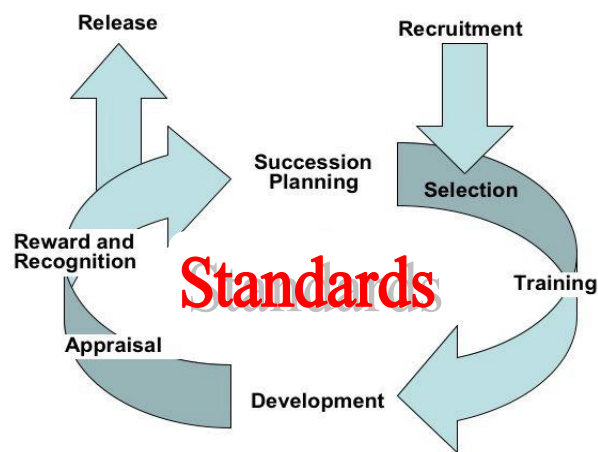
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<sup>2</sup> A pdf file of the occupational map is available on the News Review page at [www.deniseclarke.co.uk](http://www.deniseclarke.co.uk)

## USES OF STANDARDS

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Whilst most people usually focus on the use of standards for qualifications purposes (they are the building blocks of UK vocational competence-based qualifications), there are in fact many other possible uses of standards in a range of HR processes as described by the diagram below.



By describing objectively and in detail what an organization expects of its staff, standards can be used for many different purposes such as:

- recruitment and selection - eg job adverts, interview aide memoires, job descriptions, role profiles;
- appraisal – standards amplify an organization’s expectations; appraisals can be more objective & evidence-based;
- training needs analysis – through self-assessment, development discussions, 360° feedback, Personal Development Plans, audits of team strengths & development needs;
- training syllabus design – based on the requirements of the standards;
- career management – eg career maps, career planning tools;

- succession planning – systematic approaches to talent management based on an organization’s analysis of development needs;

... and many more specific applications within each part of the HR cycle such as the specification of organizational human resource (HR) policies; providing an infrastructure for assuring the competence of staff without costly courses and lost productivity; targeting the use of budgets and human resources; the demonstration of a commitment to quality (eg BS EN IS9000), investment in people, and the ability to comply with Industry Codes of Practice as well as benchmarking tools.

## ASSESSMENT FOR QUALIFICATIONS

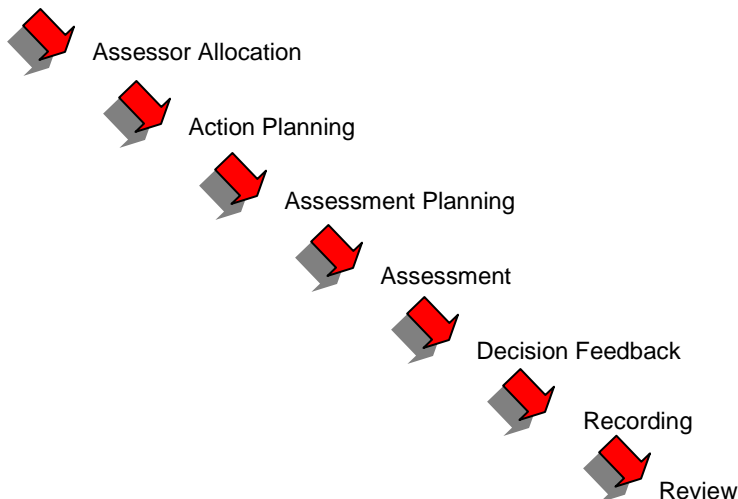
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### ***WORKPLACE COMPETENCE: THE ASSESSMENT PROCESS***

The assessment process recognizes the importance of preparing the individual prior to assessment, the need for fair and consistent assessment and the provision of informed constructive feedback. To ensure that this is achieved, all assessors must be occupationally competent in the area that they are assessing and should be trained and qualified to the UK national standards for assessment. The assessment process can be met by using the delivery model illustrated below.

### ***ASSESSMENT MODEL***

Induction and initial assessment



### ***STAGES OF THE N/SVQ ASSESSMENT PROCESS: A BRIEF EXPLANATION***

The assessment of competence in the workplace is usually carried out in the workplace. There are several different models, but essentially, employers normally obtain approval from the awarding body to operate an approved centre. Each approved centre appoints its own assessors (ie those who will make judgements as to whether candidates are or are not deemed to be competent) and internal verifiers – ie those who assure the consistent quality of assessment between different assessors to

maintain rigorous standards and to ensure that all candidates are treated equitably.

Unlike many other qualifications, the burden of proof of competence lies with the candidate. However, the achievement of competence-based qualifications is often considered a partnership between the assessor who guides the candidate, helps plan the assessment and evidence-gathering process and suggests possible sources of evidence.

Following assessment planning, the candidate will assemble a portfolio of evidence that demonstrates how they have met the requirements specified by the standards. Candidates would be expected to submit a variety of different types of evidence to prove their competence (being observed carrying out a task, testimony from witnesses that they had performed competently, work that the candidate had produced as part of their normal workplace activities and records of having acquired the relevant knowledge). Provided that they meet the requirements of the relevant standards, candidates may also provide other relevant forms of evidence (eg photographs, videos and sketches).

When the assessor deems the candidate to be ready, their evidence will be assessed and a decision will be made as to whether the candidate is considered competent or not yet competent. Assessment decisions are verified by the approved centre's internal verifiers. The awarding body's external verifier makes sample verifications of assessment decisions across all approved centres to ensure that each centre is operating the system correctly.

### **KEY PLAYERS IN THE UK N/SVQ ASSESSMENT PROCESS**

A number of different organizations are involved in the NVQ system. The key players in the development and delivery of ESA N/SVQs are described below.

#### **Ofqual/Scottish Qualifications Authority (SQA)**

Ofqual regulates qualifications in England and Wales. It does not itself award NVQs. SQA has a similar role in Scotland to that of Ofqual, but it is also an awarding body.

#### **UK Commission for Employment and Skills (UKCES)**

The UKCES works with Sector Skills Councils (SSCs) and other significant bodies to develop and promote high quality National Occupational Standards and qualifications, and to influence the effective delivery of education and training relating to the needs of employers.

## **Cogent**

Cogent was one of the first Sector Skills Councils to be licensed by government. Cogent SSC is the national strategic focus for training, skills and accreditation issues in the industries that it covers which includes explosive substances and articles.

## **Standards Setting Body for Explosives, Munitions & Search Occupations (SSB for EMSO)**

This voluntary body – which represents the explosives industry – is charged with the development, maintenance and review of National Occupational Standards and N/SVQs for the various occupational roles within the industry. SSBs are assigned to one of the Sector Skills Councils (SSC), each of which has responsibility for a group of broadly related industrial and commercial activities (see Cogent above).

The ESA development work was carried out by the ESA Occupational Working Group (OWG) of the SSB. This group comprised senior representatives of those organizations involved in ESA activities.

## **Awarding bodies**

Awarding bodies, such as Homeland Security Qualifications Ltd, are organizations that provide a one-stop shop for developing marketing and qualifications support materials, registering candidates, processing candidate achievement through to issuing certificates, and co-ordinating quality assurance activities such as external verification and promoting quality networks.

## **Approved centres**

An approved centre is an organization that has been granted permission by an awarding body to register and assess candidates for awards. Approved centres for Explosive Substances and Articles N/SVQs may include appropriate Armed Forces, civilian employers and commercial operational and training establishments.

## USEFUL LINKS

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National Database of Accredited Qualifications	<a href="http://www.ndaq.org.uk">www.ndaq.org.uk</a>
National Occupational Standards Directory	<a href="http://www.ukstandards.org">www.ukstandards.org</a>
Ofqual	<a href="http://www.ofqual.org.uk">www.ofqual.org.uk</a>
Cogent	<a href="http://www.cogent-ssc.com">www.cogent-ssc.com</a>
UK Commission for Employment & Skills	<a href="http://www.ukces.org.uk">www.ukces.org.uk</a>
Denise Clarke Ltd	<a href="http://www.deniseclarke.co.uk">www.deniseclarke.co.uk</a>