



Higher National Unit specification

General information for centres

Unit title: Wastes Industry: Managing Operations

Unit code: FOVN 34

Unit purpose: This Unit will allow candidates develop a knowledge and understanding of the principles and application of the handling and disposal of wastes as well as the importance of managing facilities within the wastes industry.

On completion of the Unit the candidate should be able to:

- 1 Explain the development and implementation of national wastes strategies.
- 2 Explain the options available for the handling and management of wastes.
- 3 Describe the systems for the Collection and Storage of Wastes.
- 4 Describe methods used to monitor the activities within the wastes industry.

Credit points and level: 2 HN credits at SCQF level 7: (16 SCQF credit points at SCQF level 7*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills:

Access to this Unit is at the discretion of the centre.

Core Skills: There are opportunities to develop the Core Skills of *Written Communication* and *Problem Solving: Critical Thinking* at level 5, in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

General information for centres (cont)

Assessment: This Unit could be assessed by two instruments of assessment that require candidates to answer a series of structured questions based on a case study or on their workplace experience (depending on the current situation of the candidates and their prior experience).

Outcomes 1 and 2 may be assessed together and Outcomes 3 and 4 may be assessed together. Candidates could be given 2 hours for a combined assessment. If Outcomes are assessed as separate assessment events each one may be completed within 1 hour.

Please note that candidates must achieve all the minimum evidence specified for each combination of Outcomes to pass the Unit.

Higher National Unit specification: statement of standards

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The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Explain the development and implementation of national wastes strategies

Knowledge and/or Skills

- ◆ Statutory requirements
- ◆ Wastes hierarchy
- ◆ Wastes management options
- ◆ Local strategies

Evidence Requirements

Evidence for all Knowledge and Skills will be generated. Each candidate will need evidence to show that he/she can provide an accurate and clear explanation of the development and implementation of national strategies for wastes.

A candidate's response will be judged satisfactory where the evidence shows that the candidate can:

- ◆ identify the statutory requirements behind the current national strategy for wastes
- ◆ identify the Wastes Hierarchy and explain the order of priority
- ◆ explain the different options for the management of wastes
- ◆ explain the priorities of a local strategy

Assessment Guidelines

The assessment of this Outcome can be combined with Outcome 2. Candidates could be given 2 hours for a combined assessment. If this Outcome is assessed as a separate assessment event it may be completed within 1 hour. This Outcome could be assessed by requiring the candidates to respond to a series of structured questions based on a case study or scenario(s).

Candidates could be provided with a copy of the National Wastes Plan (or equivalent) at the assessment. Candidates may be permitted to take one sheet of A4 notes to the assessment event.

Higher National Unit specification: statement of standards (cont)

Unit title: Wastes Industry: Managing Operations

Outcome 2

Explain the options available for the handling and management of wastes

Knowledge and/or Skills

- ◆ Types of Wastes
- ◆ Waste Prevention
- ◆ Waste Minimisation
- ◆ Recycling
- ◆ Composting
- ◆ Landfill
- ◆ Waste to Energy

Evidence Requirements

Candidates will need to provide evidence to demonstrate all aspects of the Knowledge and Skills in this Outcome by showing that they can explain accurately and clearly the options available for the handling and management of wastes.

A candidate's response can be judged satisfactory where the evidence shows that the candidate can:

- ◆ define the Types of Wastes
- ◆ describe methods for waste prevention
- ◆ describe methods for wastes minimisation
- ◆ explain the benefits of recycling at least two waste products eg glass, paper
- ◆ explain the benefits of composting in relation to waste
- ◆ explain the need to reduce the amount of wastes going to landfill
- ◆ identify the type of wastes which can go to landfill
- ◆ explain the benefits of converting waste to energy
- ◆ identify at least two waste products which are successfully converted to energy

Assessment Guidelines

The assessment of this Outcome can be combined with Outcome 1. Candidates could be given 2 hours for a combined assessment. If this Outcome is assessed as a separate assessment event it may be completed within 1 hour. This Outcome could be assessed by requiring the candidates to respond to a series of structured questions based on case study or scenario(s).

Candidates may be permitted to take one sheet of A4 notes to the assessment event.

Higher National Unit specification: statement of standards (cont)

Unit title: Wastes Industry: Managing Operations

Outcome 3

Describe the systems for the Collection and Storage of Wastes

Knowledge and/or Skills

- ◆ Wastes collection
- ◆ Segregation and Sorting
- ◆ Wastes transfer
- ◆ Treatment and Disposal

Evidence Requirements

Candidates will need to provide evidence to demonstrate all aspects of the Knowledge and Skills by clearly and accurately describing the systems for the collection and storage of wastes.

A candidate's response can be judged satisfactory when the candidate shows that he/she can describe:

- ◆ the systems used for the collection of two types of wastes
- ◆ at least two systems for the segregation and sorting of wastes
- ◆ the systems for the transfer of at least two types of wastes
- ◆ the systems for the treatment and disposal of two different types of wastes

Evidence should be generated through assessment under supervised conditions. Candidates are permitted to take one sheet of A4 notes to the assessment event.

Assessment Guidelines

The assessment of this Outcome can be combined with Outcome 4. This Outcome could be assessed by requiring the candidates to respond to a series of structured questions based on case study or scenario(s). Candidates could be given 2 hours for a combined assessment. If this Outcome is assessed as a separate assessment event it may be completed within 1 hour.

Outcome 4

Describe methods used to monitor the activities within the wastes industry

Knowledge and/or Skills

- ◆ Risk Assessment
- ◆ Environmental impact
- ◆ Pollution control and monitoring
- ◆ Licences, permitting and exemptions
- ◆ Record-keeping

Higher National Unit specification: statement of standards (cont)

Unit title: Wastes Industry: Managing Operations

Evidence Requirements

Evidence for all Knowledge and Skills will be generated. This evidence will be presented as a response to specific questions.

A candidate's response can be judged satisfactory where the evidence shows that the candidate can:

- ◆ identify the impact of the five steps to risk assessment:
 - look for hazard
 - decide who might be harmed and how
 - evaluate the risks
 - record your findings
 - review your assessment

- ◆ identify the environmental impact of uncontrolled disposal of two types of wastes
- ◆ describe methods used to control pollution and monitor activities in three different wastes management activities
- ◆ identify three different situations for which licences and permits or exemptions would be applicable to the monitoring of activities within the wastes industry
- ◆ explain the importance of record-keeping within wastes management activities

Evidence should be generated through assessment under supervised conditions. Candidates are permitted to take one sheet of notes to the assessment event.

Assessment Guidelines

The assessment of this Outcome can be combined with Outcome 3. Candidates should complete a combined assessment in 2 hours. If this Outcome is assessed as a separate assessment event it may be completed within 1 hour. This Outcome could be assessed by requiring the candidates to respond to a series of structured questions based on case study or scenario(s).

Administrative Information

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Unit title: Wastes Industry: Managing Operations
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Version	Description of change	Date

Source: SQA

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Higher National Unit specification: support notes

Unit title: Wastes Industry: Managing Operations

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 80 hours.

Guidance on the content and context for this Unit

The aim of this Unit is to give candidates knowledge of managing the handling and disposal of wastes within the wastes industry.

It is intended that the laws, regulatory bodies, the national strategies relating to the Wastes Industry have not been identified by name in most cases. This is to ensure that any changes can be addressed within the framework of this descriptor. There is therefore an onus on tutors and candidates to ensure that the most recent legislation and institutions are the focus of the work required for this Unit.

Outcome 1

Candidates should gain knowledge and understanding of the current national and local strategies for wastes. This should include an understanding of the wastes disposal hierarchy and disposal options. They will also examine the use of landfill, incineration, composting and re-cycling as part of the strategy at national and local level.

The emphasis and context should be on the application or relevant importance of the different disposal options to the national strategy. Current EU directives and legislation should be considered.

At the end of this Outcome candidates should be able to explain the development and implementation of national wastes strategies.

Outcome 2

Candidates should gain knowledge of, and be able to discuss the constituents of controlled wastes such as plastics, glass, paper products, fabrics metals, and compostible materials. Candidates should gain a professional and working knowledge of what constitutes domestic wastes, commercial wastes, industrial wastes, non-hazardous, hazardous and inert wastes. They should also gain an understanding of the monetary incentives that are to be gained and sanctions which will be applied through compliance or non compliance with the national wastes strategy and guidelines.

Candidates should be directed to the *European Waste Catalogue* to appreciate the scale of the categories of waste. For the purposes of this Unit tutors should keep to the broad categories of wastes as given by SEPA, DEFRA, and the Environmental Agency.

Candidates will be encouraged to explore the possibility of extracting energy from wastes through incineration, anaerobic digestion and landfill gas. Candidates should also be made aware of new technologies as they are developed.

Higher National Unit specification: support notes (cont)

Unit title: Wastes Industry: Managing Operations

This Outcome will address the various options available for the handling and management of different types of wastes. Tutors should ensure that candidates have a sound knowledge of the disposal options available for the different types of wastes. It may be helpful if the candidates were taken on site visits to help them understand what is involved in the different options

Outcome 3

Candidates should study the different systems available for the collection and storage of wastes. This should include the systems for the collection, transfer and disposal of wastes including healthcare wastes, household wastes, hazardous and non hazardous wastes, commercial wastes and Industrial wastes, special wastes and others. Students should understand the benefits of segregating and sorting the wastes and at which point this should be done. They should also be made aware of the different treatments that should be applied to different materials to render it 'safe' and able to be disposed of.

It is worthwhile arranging visits to different sites so that candidates can see the systems in situ, this will greatly aid their understanding of the issues involved and to gain a clearer picture of the interrelationships between the different systems.

Outcome 4

Candidates should study the regulations and policies that address the environmental impact of wastes. Candidates should be made aware of the methods used to control pollution and monitor different types of wastes including litter, special wastes, gas monitoring, leachate monitoring, incineration and others. The requirement for licences and permits will be examined as well as the regulations regarding exemptions and the need for record keeping. Tutors may wish to link the regulations and policies discussed to *The Duty of Care and the European Waste Catalogue*.

Guidance on the delivery and assessment of this Unit

This Unit is designed to prepare the candidates for management positions within the Wastes Industry or related areas. The emphasis should be on encouraging learners to think about the principles involved in the management of the handling and disposal of wastes within the wastes industry.

Independent study should be encouraged by using candidate-centred, resource based methodologies.

It would be helpful, although not necessary if this Unit was delivered after the HN Unit *Wastes Industry: Managing Environmental and Legal Issues* as this will give the students the background of Environmental Legislation to take into their learning and understanding of this Unit.

Where possible tutors should take the candidates on site visits to see for themselves the various systems and applications relating to the wastes industry, eg a visit to a landfill site, recycling centre, incineration plant, specialist disposal sites.

Higher National Unit specification: support notes (cont)

Unit title: Wastes Industry: Managing Operations

Candidates will have the opportunity to demonstrate their knowledge of wastes management facilities and environment through responses to structured questions. Outcome 1 and Outcome 2 could be combined into one assessment lasting two hours in which the candidate has to answer a number of structured questions that cover all the knowledge and skills for each Outcome. Outcome 3 and 4 could be combined as one assessment lasting two hours in which the candidates are required to respond to a series of structured questions based on case study or scenarios or their own work place. If it is preferred it is acceptable to assess candidates after each Outcome, each assessment event should last one hour.

It is suggested that candidates are assessed by means of two supervised assessments which take the form of responses to structured questions which could be linked to case studies, scenarios, their own place of work, site visits etc. The first assessment could cover the 'scene-setting' aspects of Outcome 1 and Outcome 2 and the second assessment could address the 'practical' aspects of Outcome 3 and Outcome 4. The assessment could be further broken down into an end of Outcome assessment for each Outcome. In all cases the assessment will take place under supervised conditions.

Candidates will be issued with the relevant national wastes strategy for Outcome 1 and should be permitted to bring one sheet of A4 notes to each assessment event. Candidates may not bring text books or handouts to the assessment events.

Opportunities for developing Core Skills

The delivery of this Unit may contribute towards the components *Written Communications* of the Core Skills *Communication* at SCQF level 5. The general skill for this component is 'Produce well-structured written communication on complex topics'. Candidates would have the opportunity to develop this skill in the responses to the structured questions of the assessments.

In both formative and summative assessments the candidate should be encouraged to present all essential ideas/information and supporting detail in a logical and effective order; use a structure that takes account of purpose and audience and links major and minor points in ways which assist the clarity and impact of the writing; use conventions which are effective in achieving the purpose and adapted as necessary for the target audience and use spelling, punctuation and sentence structures which are consistently accurate.

These skills can be developed through formative activities, such as short essays/reports on each theory or debate/issue without being formally assessed for certification of Core Skill.

The delivery and assessment of this Unit could also contribute towards the component *Critical Thinking* of the Core Skill *Problem Solving* at SCQF level 5 because of the requirement to 'explain the development and implementation of national strategies for wastes'.

Higher National Unit specification: support notes (cont)

Unit title: Wastes Industry: Managing Operations

Open learning

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quantity assurance. A combination of new and traditional authentication tools may have to be devised for assessment and reassessment purposes.

If this Unit was delivered by distance learning arrangements would have to be made to satisfy the required of supervised assessments.

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).

General information for candidates

Unit title: Wastes Industry: Managing Operations

This is a two credit SQCF level 7 Unit; it is designed to give you a basic knowledge of the principles involved in managing handling and disposal of wastes and managing the facilities within the wastes industry.

In Outcome 1 you will learn about the development and implementation of national wastes strategies. You will find out that it is the duty of everyone to work together to significantly reduce the amount of wastes going to landfill. You will learn about the wastes hierarchy of reduce, reuse, recycle and how there is a statutory requirement to change the way the public perceives waste disposal and to begin separating out the wastes into the different categories at source.

Having understood the requirements to change attitudes to wastes you will learn about the options available for the handling and management of wastes in **Outcome 2**. These options will include wastes prevention and minimisation, recycling, composting and transforming wastes to energy. Disposing of waste to landfill is the final option. Where possible you will be encouraged to visit the local amenities centre and your tutor may be able to arrange relevant site visits.

In Outcome 3 you will look at the different systems used for the collection and storage of wastes. You will consider the importance of segregating and sorting the wastes and also where this should be done. Transportation of Wastes has to be done in a way that has minimum risk so you will study the various regulations surrounding the transfer of wastes. Finally you will examine the different methods of treating and disposing of the different types of wastes in such a way that renders them safe.

Outcome 4 addresses the methods used to monitor the activities within the wastes industry. You will examine pollution control methods and the different methods used to monitor the different management activities. Many of the activities within the wastes industry are regulated and therefore licences and permits have to be obtained, you will learn when and where licences are required. You will also look at areas and sectors that are exempt.

Assessment

The assessment for this Unit takes the form of responses to a series of structured questions. These questions could be linked to a case study, scenarios, your own work place or to any relevant site you have visited.

You may be assessed in two assessment events, the first assessment will address the knowledge and skills within Outcome 1 and Outcome 2 and second assessment will address the knowledge and skills within Outcome 3 and Outcome 4. Each assessment will take place under supervised conditions and could last 2 hours. You may be given a copy of the National Wastes Plan at the first assessment for reference within the assessment and you may be permitted to take in notes that you have prepared into both assessments.

There will be opportunities to develop Core Skills of *Communication* SQCF level 5 and Core Skill of *Problem Solving: Critical Thinking* at SQCF level 5.