

June 2011

Examiners' Report NEBOSH National Certificate in Environmental Management



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Examiners' Report

NEBOSH CERTIFICATE IN ENVIRONMENTAL MANAGEMENT

UNIT NEC1: MANAGEMENT AND CONTROL OF ENVIRONMENTAL HAZARDS

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Introduction

NEBOSH (The National Examination Board in Occupational Safety and Health) was formed in 1979 as an independent examining board and awarding body with charitable status. We offer a comprehensive range of globally-recognised, vocationally-related qualifications designed to meet the health, safety, environmental and risk management needs of all places of work in both the private and public sectors. Courses leading to NEBOSH qualifications attract over 25,000 candidates annually and are offered by over 400 course providers in 65 countries around the world. Our qualifications are recognised by the relevant professional membership bodies including the Institution of Occupational Safety and Health (IOSH) and the International Institute of Risk and Safety Management (IIRSM).

NEBOSH is an awarding body recognised and regulated by the UK regulatory authorities:

- The Office of the Qualifications and Examinations Regulator (Ofqual) in England
- The Department for Education and Skills (DfES) in Wales
- The Council for the Curriculum, Examinations and Assessment (CCEA) in Northern Ireland
- The Scottish Qualifications Authority (SQA) in Scotland

Where appropriate, NEBOSH follows the latest version of the “GCSE, GCE, *Principal Learning and Project Code of Practice*” published by the regulatory authorities in relation to examination setting and marking (available at the Ofqual website www.ofqual.gov.uk). While not obliged to adhere to this code, NEBOSH regards it as best practice to do so.

Candidates’ scripts are marked by a team of Examiners appointed by NEBOSH on the basis of their qualifications and experience. The standard of the qualification is determined by NEBOSH, which is overseen by the NEBOSH Council comprising nominees from, amongst others, the Health and Safety Executive (HSE), the Confederation of British Industry (CBI), the Trades Union Congress (TUC) and the Institution of Occupational Safety and Health (IOSH). Representatives of course providers, from both the public and private sectors, are elected to the NEBOSH Council.

This report on the Examination provides information on the performance of candidates which it is hoped will be useful to candidates and tutors in preparation for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content and the application of assessment criteria.

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General comments

Many candidates are well prepared for this unit assessment and provide comprehensive and relevant answers in response to the demands of the question paper. This includes the ability to demonstrate understanding of knowledge by applying it to workplace situations.

There are always some candidates, however, who appear to be unprepared for the unit assessment and who show both a lack of knowledge of the syllabus content and a lack of understanding of how key concepts should be applied to workplace situations.

In order to meet the pass standard for this assessment, acquisition of knowledge and understanding across the syllabus are prerequisites. However, candidates need to demonstrate their knowledge and understanding in answering the questions set. Referral of candidates in this unit is invariably because they are unable to write a full, well-informed answer to one or more of the questions asked.

Some candidates find it difficult to relate their learning to the questions and as a result offer responses reliant on recalled knowledge and conjecture and fail to demonstrate a sufficient degree of understanding. Candidates should prepare themselves for this vocational examination by ensuring their understanding, not rote-learning pre-prepared answers.

Common pitfalls

It is recognised that many candidates are well prepared for their assessments. However, recurrent issues, as outlined below, continue to prevent some candidates reaching their full potential in the assessment.

- Many candidates fail to apply the basic principles of examination technique and for some candidates this means the difference between a pass and a referral.
- In some instances, candidates are failing because they do not attempt all the required questions or are failing to provide complete answers. Candidates are advised to always attempt an answer to a compulsory question, even when the mind goes blank. Applying basic health and safety management principles can generate credit worthy points.
- Some candidates fail to answer the question set and instead provide information that may be relevant to the topic but is irrelevant to the question and cannot therefore be awarded marks.
- Many candidates fail to apply the command words (also known as action verbs, eg describe, outline, etc). Command words are the instructions that guide the candidate on the depth of answer required. If, for instance, a question asks the candidate to 'describe' something, then few marks will be awarded to an answer that is an outline. Similarly the command word 'identify' requires more information than a 'list'.
- Some candidates fail to separate their answers into the different sub-sections of the questions. These candidates could gain marks for the different sections if they clearly indicated which part of the question they were answering (by using the numbering from the question in their answer, for example). Structuring their answers to address the different parts of the question can also help in logically drawing out the points to be made in response.
- Candidates need to plan their time effectively. Some candidates fail to make good use of their time and give excessive detail in some answers leaving insufficient time to address all of the questions.
- Candidates should also be aware that Examiners cannot award marks if handwriting is illegible.
- Candidates should note that it is not necessary to start a new page in their answer booklet for each section of a question.

UNIT NEC1 – Management and control of environmental hazards

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- Question 1**
- (a) **Outline** the reasons for practicing good environmental management. (14)
- (b) Poor environmental management can result in consequences where penalties are imposed. **Identify** these possible penalties. (6)
-

For part (a) this topic is fundamental to much of the environmental syllabus. There is a range of moral reasons such as avoiding damage to the environment, and concerns about limited resources, legal requirements and public expectations as reasons external to the organisation. Financial reasons could include potential loss of production, costs associated with legal action and also reducing energy and raw material costs. Improved public relations and staff morale and enhanced business opportunities are other examples of why good environmental management is good for the business. Candidates generally answered well although some went outside the requirements of the question into detail about how to do it.

Some also included answers more relevant to part (b). This part was also generally well answered. There is the risk of various notices or suspension of authorisations which can disrupt the business. Prosecution by the regulatory agencies can lead to fines and, in severe cases, imprisonment. Legal costs and damages or compensation can be awarded and there may be clean up or remediation costs as well.

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- Question 2** *It is an offence to cause or knowingly permit any polluting matter to enter controlled water.*
- (a) **Give TWO** examples of controlled waters. (2)
- (b) **Outline** the circumstances where a consent (or permit) to discharge into controlled waters would be required. (2)
- (c) **Identify** the main parameters likely to be included in a consent (or permit) to discharge. (4)
-

In part (a) most candidates could give two examples of controlled waters from the potential list that includes rivers and streams, estuaries, coastal waters, lakes and groundwater.

In part (b) candidates generally outlined that a trade effluent, process water or similar – or gave a specific example - required a consent. In fact most discharges require a consent unless uncontaminated surface water.

In part (c) many candidates seemed to struggle with the meaning of parameter and gave other information that was not required. The question was seeking examples such as BOD, pH, temperature and flow rate as typical of parameters included in most consents or authorisations to discharge.

Question 3 *A company has an emergency plan to deal with a range of emergencies including fire, explosion, chemical spillage and flooding.*

Outline *the practical measures which should be taken to ensure these plans will work effectively when required.* **(8)**

Some candidates went into detail about the content of the plan rather than the practical measures that need to be taken. Examples would include training and practices drills, ensuring that those responsible know their roles and that staff changes need to be documented and shared. Ensuring that the necessary emergency equipment is in place and working and that alarms are regularly tested are further examples of measures and liaison with emergency services, neighbours and regulatory bodies are also important. Regular review of the plan and ensuring that site or process changes are also incorporated would also be relevant.

Question 4 (a) *Within the context of an Environmental Management System (EMS) give the meaning of:*

(i) *objectives;* **(2)**

(ii) *targets.* **(2)**

(b) **Give** *an example of an objective AND a target in relation to:*

(i) *waste;* **(2)**

(ii) *energy use.* **(2)**

Some candidates seemed confused as to the difference between objectives and targets and answers were generally limited. This confusion could also be seen in answers to part (b). Objectives are the higher level goal that an organisation may set itself and should be consistent with its environmental policy. Examples need to be relevant to the business and could be to achieve an overall reduction in waste sent to landfill or to reduce heating costs and the amount of gas used.

Targets are used to monitor performance and are more specific. They should include something that can be measured over a time period, for example to reduce waste to landfill this year by 20%, or improve waste sent for recycling by 10%; or reduce gas used for heating by 10% compared with the previous year.

Question 5 (a) **Outline** *benefits associated with the use of nuclear power.* **(4)**

(b) **Outline** *limitations associated with the use of nuclear power.* **(4)**

This question was well answered by most candidates. The benefits are that nuclear power should result in fewer emissions to atmosphere and in particular reduce the risk of climate change compared with fossil fuels. The fuel is still relatively readily available and the technology is proven compared with some renewable alternatives. The plants are thermally efficient and have a high reliability making them good candidates for base load.

The limitations are mainly associated with the hazards arising from the radioactivity of the fuel and waste, the latter requiring secure storage for a long period. The plants are expensive to construct and require high safety and security standards. Decommissioning costs are high. They are not popular with the public, especially given their concerns about the risks from accidents.

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- Question 6** (a) **Identify FOUR** atmospheric pollutants that arise from the combustion of coal. (4)
- (b) **Outline TWO** methods that may be used to reduce emissions of air pollution from a coal-fired power station. (4)
-

Part (a) was well answered by most candidates. The principal pollutants are carbon dioxide, nitrogen and sulphur oxides and soot or particular matter. Some heavy metals such as mercury may also be discharged.

Part (b) was less well answered. Candidates could often outline a process but then could not outline enough of the detail of how it worked. Relevant methods could be wet scrubbers, electrostatic precipitators, flue gas desulphurisation or carbon capture but to get full marks there needed to be further detail.

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- Question 7** **Outline** the reasons for practicing water conservation. (8)
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This question produced a mixed response. Some candidates covered many points from the moral and ethical, through limited availability of supplies in some places, the risks of environmental damage, to various aspects of cost savings. Some linked it to good public relations and compliance with their EMS. Some candidates went off at a tangent describing the water cycle or how to conserve water rather than the reasons for doing so.

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- Question 8** **Outline** why deforestation is seen as an environmental concern. (8)
-

This question was well answered by the majority of candidates. Good answers included the damage to local habitats and loss of species including rare trees and reduced biodiversity. Reduced carbon storage and oxygen production from photosynthesis, are of global concern but locally there may be changes to weather patterns and soil erosion or increased flood risk. There is also an economic impact on such aspects as agriculture and tourism and these can damage the local population.

-
- Question 9** (a) **Give the meaning of the following terms:**
- (i) *environmental aspect;* (2)
 - (ii) *environmental impact.* (2)
- (b) **Identify FOUR examples of environmental impacts.** (4)
-

An environmental aspect is an element of an organisation's activities, products and services that can interact with the environment. The environmental impact is any change to the environment, whether adverse or beneficial, wholly or partly resulting from an organisation's aspects. Some candidates confused the two.

For some candidates the confusion meant that they identified aspects rather than impacts for part (b). However, many could list examples such as atmospheric impact, aquatic impact, community effects, loss of amenity, or loss of archaeological or historic features.

-
- Question 10** **Outline** *the features of a site waste management plan for a construction project.* (8)
-

Some candidates answered this question well but others seemed unaware of the legislation and answered in general terms about duty of care or management of waste generally. The regulations specify that a plan needs to be in place before work starts if the construction cost is over the threshold of £300,000 and that it needs to be monitored and updated. The plan allocates responsibilities for different stages of the work from design to completion and identifies the types and quantities of waste likely to be produced. The main point is about recording the amounts produced and setting targets for recycling, reuse, etc. with ways of managing this. It also includes auditing the waste disposal routes to ensure compliance with the relevant legislation for waste disposal.

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- Question 11** **Outline** *measures that could be taken to help minimise noise disturbance from a construction site.* (8)
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This question was generally well answered with most candidates able to outline several measures. Of the many measures available, limiting working hours and scheduling noisy works to specific times featured frequently. Plant and motive power choice, operation and maintenance were also recognised as important. The use of sound barriers, insulation or damping materials and fitting silencers were also regularly mentioned. Where the flexibility exists, location of noisy works on site can have a beneficial impact and some prefabrication off site may also be used. The role of employees was also seen as important by avoiding shouting and using, radios at full blast.



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