

September 2011

Examiners' Report NEBOSH National Certificate in Environmental Management



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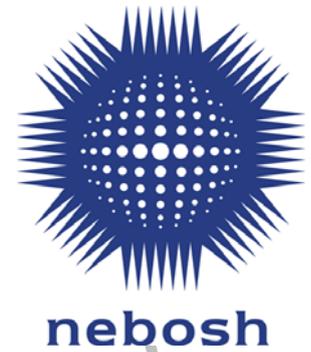


Examiners' Report

NEBOSH CERTIFICATE IN ENVIRONMENTAL MANAGEMENT

UNIT NEC1: MANAGEMENT AND CONTROL OF ENVIRONMENTAL HAZARDS

SEPTEMBER 2011



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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 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** reasons for producing a report on environmental performance. (6)
- (b) **Identify** information that can be gathered to review environmental performance. (10)
- (c) **Identify FOUR** different types of external reports containing environmental performance. (4)
-

There are many reasons for producing environmental reports. For example, their production may be a requirement of their Environmental Management System or by regulatory bodies and the information that they contain helps to raise the profile of a company among the various external stakeholders by demonstrating compliance with the environmental policy and progress towards meeting targets. They are just as useful internally in identifying potential risks, monitoring trends and spotlighting areas for improvement and suggesting where cost savings may be made. For these reasons they ought to be an essential planning tool for any business. In answering part (a) many candidates were limited in their responses.

Answers to part (b) include emission data, compliance with standards, energy and waste management information, incident records and follow-up. Most candidates identified sufficient examples for this part.

Part c) was not so well answered with few candidates recognising where a company may publish its reports or, for the outsider, where they can be found. An annual environmental report may stand alone or be part of a broader report on sustainability or corporate social responsibility. The information may also appear in the company annual report and accounts. They may also be used as part of a planning application or environmental permit application and in the reporting procedure in the case of an IPPC permit.

-
- Question 2** *An organisation operates under an Environmental Permit (IPPC) which sets emission limit values for releases to air and to a surface water stream.*

*In order to ensure compliance with the emission limit values, **outline** the measures that need to be put in place for:*

- (a) *active monitoring;* (6)
- (b) *reactive monitoring.* (2)
-

This question asked for the monitoring measures that need to be put in place in order to ensure compliance with the permit. As this is an on-going requirement active monitoring for part (a) is very important and it is the monitoring aspects that were required – not the operational requirements.

Answers were generally poor in this respect. Sampling and analysis of discharges to air and water, flow measurement and mass balance calculations are the core requirements for reporting. In order to ensure valid data, inspection, maintenance and calibration of the relevant equipment along with training of staff on sample location and sampling methods are just as important. Site inspections of treatment plant and of the site generally should help to minimise the risk of problem discharges.

In the event of a non-routine discharge reactive monitoring is required and most candidates successfully outlined the collection of such data on incidents, enforcement actions and complaints for part (b).

Question 3 Give the meaning of **EACH** of the following terms:

- (a) environment; (2)
- (b) global warming; (2)
- (c) fossil fuels; (2)
- (d) sustainable development. (2)
-

Candidates needed to demonstrate that they understood the terms, in order to get full marks for each part of this question. For part (a) as well as recognising that the air, water, land, natural resources and flora and fauna made up the surroundings of an organisation, their inter-relationships were important in defining the environment.

For part (b) there was some confusion between global warming and ozone depletion. An answer based on the average increase in global temperature over time due to natural variability or human activity was sought. It was also acceptable to bring in reference to cause by greenhouse gases trapping infra-red radiation in the atmosphere.

Most candidates got full marks for part c) by referring to fossil fuels being formed over thousands of years from the fossilised remains of plants and animals. It helped to mention coal, oil or natural gas as examples.

Answers to part d) were variable. An answer based on balancing the economic, social, resource and environmental issues in order to produce the best outcome for society was sought. Many candidates quoted the Brundtland definition which was acceptable.

Question 4 (a) Give the meaning of the term 'ecosystem'. (2)

(b) Describe the different ways in which contaminated land can impact upon an ecosystem. (6)

In part (a) most candidates referred to an area where animals and plants live but failed to bring out the essential feature that it is the inter-related community that creates an ecosystem. Giving an example such as a rain forest or salt marsh would demonstrate understanding.

Candidates did better in part (b) by describing how - by direct contact, absorption into plants or leaching into water - toxins can cause direct damage or get into the food chain. Either way there is disruption to the balance of species and thus an impact on the ecosystem.

-
- Question 5** (a) **Outline** what a company could expect to achieve by conducting an environmental audit. (4)
- (b) **Outline** the issues that should be considered during an environmental audit. (4)
-

Both parts of this question were generally well answered. For part (a), the main expectations from an audit are checking compliance with legal requirements and internal targets, the adequacy of company policies and management systems and the effectiveness of controls and procedures. Inevitably areas for improvement are found and the process should help raise the awareness of employees. The reports can be helpful in verifying credentials to external stakeholders.

Part (b) required an outline of the issues to consider in order to meet those expectations. The auditor would need to investigate the operation of the environmental management system; the compliance with the regulatory requirements for waste, emissions and energy efficiency and use; resource usage; costs; complaints and staff training and knowledge.

-
- Question 6** **Outline** the control hierarchy for air pollution emissions **AND give TWO** suitable examples for **EACH** stage. (8)
-

This question was well answered. Most candidates got the control hierarchy of eliminate (or prevent), minimise (or reduce) and render harmless correct. Most were able to give suitable examples but it is important to see that two were required for each stage, correctly linked.

-
- Question 7** **Outline** the main ways in which water pollution can harm wildlife. (8)
-

This question was well answered. A few candidates described sources of pollution which was not required. Good answers highlighted the potential direct toxic effects of some pollutants, the impact from nutrients, sediments, suspended solids and oil on wildlife and the consequences of raised temperatures or depleted oxygen concentrations. The better answers went further to outline the impact on crops, the reproductive cycles of wildlife, and bioaccumulation in the food chain.

-
- Question 8** **Outline FOUR** potential barriers that may inhibit an organisation re-using or recycling its waste **AND outline** how these barriers may be overcome. (8)
-

The quality of answers to this question varied quite considerably. There were a number of very good answers in which four barriers were clearly outlined and realistic means of overcoming these barriers were proposed. Other candidates struggled to identify or adequately outline barriers, or the means of overcoming the barriers were inadequately outlined, or were not realistic.

The possible barriers include: cost, storage space, regulatory and potential liability issues, market issues and lack of staff or management commitment. Suggested means of overcoming these needed to be relevant to the barrier being outlined but include such means as selling reclaimed material, managing the compaction of waste and frequency of collection and seeking advice from regulatory bodies and organisations such as WRAP and NISP. Management direction and staff training are also important in delivering reuse and recycling of waste.

-
- Question 9** *Most hospitals use mains gas and electricity to provide their heating and power. It is essential that patient areas are maintained at reasonable temperatures.*
- Outline** the practical steps the hospital could take to reduce its energy use. **(8)**
-

Most candidates were able to give a good range of suggestions by which a hospital could reduce its energy use. The principles could be applied to many other premises. A few candidates discussed issues such as transport, and water use, for which no marks were available.

Starting with heating, boiler maintenance, the use of control systems and radiator thermostats avoid the waste of heat. Closing doors and windows and applying insulation to ceiling voids etc. avoid loss of heat. Electricity can be saved by the use of low energy light bulbs and motion sensors. Electrical equipment and heating not required should be switched off. The choice of equipment at the time of replacement can also make a difference. In all of these measures, staff are important. Training, the appointment of “champions” and incentive schemes can all contribute to energy efficiency.

-
- Question 10** (a) **Identify FOUR** sources of environmental noise. **(4)**
- (b) **Outline** the possible effects of environmental noise on the community. **(4)**
-

Both parts of this question were well answered with most candidates achieving good marks. Sources of noise could include transport, construction, aircraft, commercial activities, agriculture, noisy social events or alarm systems.

There are potential health effects such as stress, loss of sleep or even hearing loss in extreme cases. Structural damage is a possibility and wildlife and people can be disrupted. In the latter case nuisance may become a legal issue.

Question 11 *A local resident has telephoned your company complaining that an oil discharge from your site is contaminating a local watercourse.*

Outline *the short-term actions that should be taken by the site operator.* **(8)**

There are three main parts to this answer. Information gathering and verification through contact with the complainant, inspections of storage sites and outfalls and drains and the watercourse itself will help to confirm the nature and scale of the problem. Notification of external and internal parties that may need to be involved or have an interest (such as Environment Agency, downstream abstractors, internal response team) is the second requirement. Finally the initiation of the emergency plan is required – take samples, deploy spill control equipment, shut off relevant sources or drains, etc. Most candidates managed to outline some of these. There were no marks for mentioning longer term actions such as changes to procedures or staff training.

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