

---

# Examiners' Report

## UNIT ED1: MANAGING ENVIRONMENTAL RISK

JANUARY 2020

---



For: **NEBOSH National Diploma in Environmental Management**  
**NEBOSH International Diploma in Environmental Management**

### CONTENTS

Introduction	2
General comments	3
Comments on individual questions	4
Examination technique	8
Command words	10

# 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 around 50,000 learners annually and are offered by over 600 Learning Partners, with examinations taken in over 120 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 that applies best practice setting, assessment and marking and applies to Scottish Qualifications Authority (SQA) Accreditation regulatory requirements.

This report provides guidance for learners and Learning Partners for use 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.

© NEBOSH 2020

Any enquiries about this report publication should be addressed to:

NEBOSH  
Dominus Way  
Meridian Business Park  
Leicester  
LE19 1QW

tel: 0116 263 4700  
fax: 0116 282 4000  
email: [info@nebosh.org.uk](mailto:info@nebosh.org.uk)

## General comments

---

Many learners 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 other learners, 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.

This report has been prepared to provide feedback on the standard date examination sitting in January 2020.

Feedback is presented in these key areas: responses to questions, examination technique and command words and is designed to assist learners and Learning Partners prepare for future assessments in this unit.

Learners and Learning Partners will also benefit from use of the 'Guide to the NEBOSH National Diploma in Environmental Management' / the 'Guide to the NEBOSH International Diploma in Environmental Management' which are available via the NEBOSH website. In particular, the guide sets out in detail the syllabus content for ED1 and tutor reference documents for each Element.

Additional guidance on command words is provided in 'Guidance on command words used in learning outcomes and question papers' which is also available via the NEBOSH website.

## Unit ED1

### Management of environmental risk

- Question 1** An agricultural organisation has found that run-off from one of its farms is entering a nearby river. The farm uses fertilisers and chemical pesticides on its crops.
- (a) **Identify** chemical, physical, or biological properties of the farm run-off that may cause pollution. (5)
- (b) **Describe** the potential environmental effects of this run-off entering the watercourse. (15)

---

This question assessed learners' knowledge and understanding of learning outcomes 9.1: Outline the types of pollutants/effluents likely to be discharged to the water environment; and 9.2: Describe the purpose of monitoring effluent discharges and the measuring techniques used.

Better answers to part (a) included the properties of farm run-off that may cause pollution, such as high BOD or COD, presence of chemical pollutants or nutrients. Some learners appeared not to read the question carefully and instead identified the environmental impacts associated with farm run-off rather than the properties of the run-off that could cause pollution.

Answers to part (b) were generally good with many learners describing environmental effects such as eutrophication, oxygen depletion, toxicity or damage to aquatic plants and animals.

- 
- Question 2** Incineration is a waste treatment technology that involves the combustion of waste at high temperatures.
- (a) **Identify THREE** of the main groups of air pollutants that may be released by the incineration process **AND give** a relevant example for **EACH** group. (6)
- (b) (i) **Outline** the benefits of incineration. (7)
- (ii) **Outline** the limitations of incineration. (7)

---

This question assessed learners' knowledge and understanding of learning outcome 7.4: Outline appropriate control strategies and measures for solid waste.

Some learners found this question challenging. In answers to part (a), better responses included an identified group of pollutants, such as acidic gases, and gave a corresponding example such as nitrogen oxides. Some learners did not identify the 'group of pollutants' but only listed relevant examples of common pollutants from such identified groups and so gained fewer marks.

Answers to part (b) were variable. Some learners did give a range of relevant benefits, such as the small size of plant or reduction of waste volume, but for many learners their answers were limited in breadth. Similarly, in outlining limitations many learners had difficulty in outlining more than a few relevant points. Better answers referenced a range of limitations, such as high capital costs, potential for odour or concerns about health effects from emissions.

---

**Question 3**    **Identify** environmental issues that could be considered in a policy for purchasing goods. **(20)**

---

This question assessed learners' knowledge and understanding of learning outcome 3.3: Outline the need for environmental policies, procedures and systems of work and how these would be implemented by an organisation.

Answers to this question were variable, with a wide range of marks being gained. Better answers included a wide range of considerations that covered relevant issues associated with both the supplier, such as having in place policies on sustainability, their competence and the environmental issues associated with the goods that they supplied.

Examples of environmental issues associated with supplied goods included product packaging and impacts arising from waste disposal and transportation impact. Better answers also referred to the legal issues that should be considered, such as whether any permits were required for use or importation of a product. Some learners had difficulty identifying a wide range of issues and tended to repeat similar points, limiting the marks that could be awarded.

---

**Question 4**    A manufacturing organisation uses adhesives containing organic solvents in one of its processes. The organisation is planning to carry out emissions monitoring of solvents that could be released to the atmosphere through an exhaust stack.

(a)    **Outline** what should be considered when planning this monitoring activity. **(16)**

(b)    **Identify FOUR** possible methods of quantifying organic solvent emissions with this monitoring activity. **(4)**

---

This question assessed learners' knowledge and understanding of learning outcome 8.2: Outline the purpose of monitoring atmospheric emissions, including the practitioner's role, the sampling methods available and the situations in which each method would be used.

In part (a), when planning emission monitoring, the organisation would need to cover a wide range of issues, such as safety of staff carrying out the monitoring, selection of sampling method, number and duration of samples, calibration requirements and competence of staff to carry out the monitoring. Answers to part (a) were generally limited in breadth and some learners appeared to be unfamiliar with stack emissions monitoring and how it is carried out.

Some learners did identify relevant methods in part (b) such as gas detection tubes and mass balances, gaining marks for this part.

- 
- Question 5**
- (a) **Outline** what is meant by the term ‘*Corporate Social Responsibility*’. (4)
  - (b) **Outline** what is meant by the term ‘*social licence*’. (4)
  - (c) The reaction of stakeholders to poor environmental performance can adversely affect an organisation.
- Identify** these possible adverse effects on an organisation. (12)
- 

This question assessed learners’ knowledge and understanding of learning outcome 6.2: Outline the role of environmental corporate social responsibility and self-regulation.

Answers to this question were variable. Some learners gave answers that demonstrated that they had knowledge of the identified terms in (a) and (b) and could give an outline of their meaning. However, many learners had difficulty outlining the terms, in particular part (b), ‘*social licence*’ where correct answers included an ongoing acceptance of standard business practices.

Most of the marks gained for this question were for answers to part (c), with many learners gaining maximum marks for this part. Relevant adverse effects identified included difficulty in gaining future environmental licenses, loss of business, prosecution and loss of environmental certification.

- 
- Question 6** **Identify** the four phases of life cycle analysis **AND outline** the main content within **EACH** identified phase. (20)
- 

This question assessed learners’ knowledge and understanding of learning outcome 4.3: Explain the techniques for evaluating environmental aspects arising from workplace activities.

Answers to this question were generally limited. Most learners had difficulty giving answers that went beyond identifying the four phases of life cycle analysis as: goal and scope definition, inventory analysis, impact assessment, and interpretation and reporting. Only a few learners gained further marks by outlining the main content within each stage, as detailed in ISO14040:2006 for example.

A good outline of goal and scope definition would have included defining functional units, setting system boundaries, setting out assumptions and limitations, etc.

Life cycle analysis is a specific topic in the syllabus and learners should be prepared to explain it. This entails going beyond learning the headings of the four phases.

- 
- Question 7**
- (a) **Outline** what is meant by the term ‘*carbon footprinting*’. (3)
  - (b) **Outline** the purpose of carbon footprinting. (7)
  - (c) **Describe** the information that may be included on an energy label for a washing machine. (10)
- 

This question assessed learners’ knowledge and understanding of learning outcome 12.2: Explain the need for energy efficiency.

This was a topical question given the focus of media and professional attention on carbon, however, few learners chose to answer it.

For part (a) most learners outlined the term '*carbon footprinting*', making reference to it measuring the total greenhouse gas emissions or CO<sub>2</sub> emissions caused directly or indirectly by an organisation. Only a small number of learners included reference to expression in units of tCO<sub>2</sub>e.

Answers to part (b) were limited in breadth with few learners gaining more than a few marks. A good answer would have outlined that a carbon footprint allows quantification of emissions, comparison between similar organisations/options, supports product claims, etc.

Part (c) was not well answered, with many learners only stating that an energy label showed energy efficiency rating on a coloured scale. Few learners knew that the labels typically showed additional technical data, such as spin speed, sound level and the different energy consumption in different modes of operation.

---

<b>Question 8</b>	(a) <b>Outline</b> the hydrological cycle.	<b>(8)</b>
	(b) <b>Describe</b> how human activity may cause changes to the hydrological cycle.	<b>(12)</b>

---

This question assessed learners' knowledge and understanding of learning outcomes 1.1: Explain the meaning of the environment and the Earth's key natural cycles; and 1.2: Explain the general effects that human activity has on the environment (including understanding of key terminology).

This question was answered well. Many learners outlined the hydrological cycle in part (a) and illustrated their answers with useful diagrams showing the key stages. Similarly, for part (b) learners demonstrated knowledge of the topic and described such changes as storage in reservoirs leading to increasing evaporation, groundwater abstraction causing depletion of groundwater resources, etc.

A few learners unnecessarily described issues for which no marks were available – such as acid rain or contamination of water courses by polluting discharges – as such matters do not directly change the hydrological cycle.

## **Examination technique**

The following examination techniques were identified as the main areas of improvement for learners:

### **Learners did not respond effectively to the command word**

A number of learners do not appear to understand the differences in depth and breadth associated with different command words. In particular 'outline' and 'describe' appear to be poorly understood. Some learners do not give enough detail when answering this type of question. For example an 'outline' answer should give a brief overview and should not be limited to a simple list.

Conversely questions based on 'identify' or 'outline' can illicit lengthy answers covering several sentences, when in fact short answers would have sufficed. This means that learners waste time and effort for no additional credit.

Learning Partners should ensure that learners understand the importance of command words in determining the depth and breadth of information required in answers.

### **Learners misread/misinterpreted question**

Examiners reported that a significant number of learners either misread or misinterpret some of the questions. It appears that those learners who have difficulty are 'question-spotting', seeing a key word or phrase and answering the question based on that, rather than thoroughly reading the question and answering what was set. Consequently, some learners produce answers that contain information that is either irrelevant and/or out of context, such as addressing waste and water use minimisation in a question on energy use.

On several questions, learners extended their answers to cover points outside of the question. This could indicate that they had not thoroughly read the question before attempting it, or that they misinterpreted the question as something similar they had previously seen.

Rather than rushing into an answer, some learners might improve their performance by producing a short answer plan and then pausing for a few seconds, to confirm in their minds that this is what the question is really asking.

Learning Partners should ensure that learners are taught how to read and analyse questions so that they are clear exactly what information is likely to gain marks.

### **Learners repeated the same point but in different ways**

Learners occasionally produce several paragraphs that all address the same point but in different ways. This tends to indicate that they have not planned their answers carefully. Examiners can only give marks once. No additional marks will be available for re-stating a point several times.

For example, outlining 'recycling' as a way of reducing disposal costs for waste, but then repeating this several times for different waste types, such as introducing paper recycling in offices or recycling manufacturing waste as different points. Such practice might expand the answer where breadth of knowledge is limited but gains no extra marks. Repetition also wastes precious examination time.

Learning Partners should encourage learners to plan their answers in advance of writing to avoid repetition. Learners should be encouraged to practice examination technique, and in particular structuring answers using a simple plan, so as to ensure that their answers follow a logical structure and avoid covering a topic more than once.



**Learners produced an incoherent answer**

Learners sometimes stray into areas outside the question and waste time and effort in producing confusing answers addressing matters not relevant to the question, such as detailing statutory nuisance on a civil law question.

Learners should be taught to limit their answers to only the topic detailed in the question.

**Learners did not follow specific instructions**

Where a question instructs that a learner produces an answer in a specified form, such as a brief, marks cannot be awarded if answers are not in the specified form.

Learners should be taught how to present and structure their answers in common formats, such as a memorandum or a brief.

## Command words

The following command words are listed in the order identified as being the most challenging for learners:

### Describe

*Describe: To give a detailed written account of the distinctive features of a topic. The account should be factual without any attempt to explain.*

Many learners outline without giving adequate content for a 'describe' question. A typical description should cover more than the outline of the point being made. The command word 'describe' requires that learners provide distinctive features of the particular syllabus learning outcome being assessed but do not need to provide extensive information on that topic. Learners occasionally respond to 'describe' by completing a full page of text without actually responding with the distinctive features associated with the question topic. Learners need to distinguish between 'outline' and 'describe' and not respond with a series of unconnected points generally related to the topic in the question. If a learner was asked to describe a control strategy aimed at the prevention of environmental pollution, the inclusion of monitoring of airborne concentrations and emissions that include estimates of losses by mass balances would satisfy the command word.

### Explain

*Explain: To provide an understanding. To make an idea or relationship clear.*

When a question specifies 'explain' the learner is required to provide an understanding or make clear an idea or relationship. For example '**explain** the cradle to grave concept'; if a learner responded with 'takes into account inputs and outputs, considers environmental costs and uses equivalences; then this constitutes an outline but **not** an explanation. This would be insufficient to merit full marks as this does not provide a deep enough understanding or relationship from the specified command word or the context in which the question is asked. However, if a learner responded in greater depth, for example 'a life cycle analysis study taking into account an inventory of all inputs and outputs; supply, manufacturing and waste impacts would be taken into account; environmental costs or obstacles would be added in at all stages along the way with interpretation through evaluation of these identified stages and alignment with the scope of the study'; then this would merit the awarding of further marks.

### Outline

*Outline: To indicate the principal features or different parts of.*

An 'outline' requires a brief summary on each point. Examiners report that the command word 'outline' challenges many learners. Insufficient detail is provided in response to the principal features or parts of the topic matter requested when 'outline' is specified in the question. Exhaustive descriptions are not required for 'outline' but limited answers like single words or listed answers do not satisfy the command word requirements.

If asked to '**outline** the information that should be included in an environmental report following an environmental assessment', significant effects on the environment, including short, medium and long-term effects would be an example of an adequate 'outline' response.

Breadth is important in an outline question. Some learners give far too much detail for a relatively small number of points. Learners should be aware that for an outline question, the number of marks available for each distinct point is limited, and no additional marks can be given for lengthy detailed responses.

## **Identify**

*Identify: To give a reference to an item, which could be its name or title.*

When providing a response to 'identify' the selection and naming of an answer that relates to the question should be sufficient. In most cases one or two words would be sufficient to be awarded corresponding marks. Any further detail would not be required and impacts negatively on the time limit for completing the examination. If the use of the command word in everyday language or conversation was considered it may help the learner understand what was required. For example, if the question was '**identify** types of kitchen appliances', 'toaster, kettle and microwave' would be suitable responses for the 'identify' command word.

For additional guidance, please see NEBOSH's '*Guidance on command words used in learning outcomes and question papers*' document, which is available on our website: <https://www.nebosh.org.uk/i-am/a-learner/> - from this page the document can be found by clicking on the relevant Qualification link, then on the 'Resources' tab.