

ELEMENT C10: SUGGESTED ANSWERS TO REVISION QUESTIONS

Environmental Pollution

1. **Best** means the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where this is not practicable, generally to reduce emissions and the impact upon the environment as a whole.

Available techniques means techniques which have been developed on a scale which allows them to be used in the relevant industrial sector, under economically and technically viable conditions, taking into account the costs and advantages, whether or not the techniques are used or produced inside the member state in question, as long as they are reasonably accessible to the operator.

Techniques include both the technology and the way the installation is designed, operated and decommissioned.
2. **BS EN ISO 14001: 2004** defines an environmental impact as: “ ... any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects” and environmental aspects are defined as: “...an element of an organisation's activities or products or services that can interact with the environment”. Examples of environmental impacts may be pollution of land, air pollution and consequent health issues or traffic nuisance. Impacts may be local, regional or even global.
3. Pollution control responsibilities of the environmental agencies include:
 - Authorising emissions, discharges and disposals to the various media by licensing, monitoring compliance and taking enforcement action.
 - Waste management licensing and regulation, including special and radioactive wastes and also import/export of waste. They must assess waste disposal needs and offer technical guidance on waste management.
 - Regulating and reporting on contaminated land.
 - Advising government in setting environmental quality objectives (EQOs).
 - Advising industry and others on best environmental practice.
4. Types of pollution that can be prevalent in drinking water could include:
 - Natural pollution, from falling rain, water flowing over ground and substances dissolving into ground-water.
 - Man-made pollution, from sewage or contamination due to other activities, such as farming, animal rearing or mining.

These pollutants could be: non-degradable (such as, salts of heavy metals, man-made plastics) or biodegradable.

5. Different types of sampling:
- A **spot** or **grab** sample is a single sample collected instantaneously at a particular location or in a limited area and is representative only of that location or area at that point in time. To obtain time-averaged levels, a series of spot samples may be taken over the period in question, but this is not necessarily accurate.
 - A **continuous monitored** sample is where a sample is collected continuously over a period of time. The sample will be analysed during the monitoring, either by the sampling instrument itself or by direct connection to another instrument which carries out the analysis continuously. Such systems may be linked to an alarm system so that, if a set level is reached, the alarm is activated.
6. A Monitoring Certification Scheme (MCERTS) to improve the quality of monitoring data and to ensure that the instrumentation and methodologies employed for monitoring are fit for purpose has been introduced by the Environment Agency.
- The analytical methods given should normally be used. However, if other substances need to be monitored, standards should normally be used in an order of priority: e.g. Comité Européen de Normalisation (CEN), International Standardisation Organisation (ISO), British Standards Institution (BSI), etc.
- Additional guidance on standards for monitoring gaseous releases relevant to IPPC is given in the Technical Guidance Note M4 (Monitoring) which specifies manual methods of sampling and analysis.
7. The Environmental Protection (Applications, Appeals and Registers) Regulations state that the following information shall be put on the register:
- Documentation relating to the applications.
 - Copy of the advertisement relating to the applications.
 - Authorisations and conditions.
 - Documentation relating to any notices.
 - Any appeals
 - Any convictions.
 - Monitoring data.
 - Reports from the regulator about the consequences of the process in the particular locality
 - Landfill closure notices.
 - Directions from the Secretary of State.

Classification of Wastes

8. Definitions of different types of waste:
- **Biodegradable:** waste that can undergo bacterial decomposition.
 - **Flammable:** liquid substances and preparations having a flash point equal to or greater than 21°C and less than or equal to 55°C.
9. 1. Clinical waste is defined in the **Controlled Waste Regulations 1992**, as

amended, as “any waste which consists wholly or partially of human or animal tissue, blood or other bodily fluids, excretions, drugs, pharmaceutical products, swabs, dressings, or syringes, needles or other sharp instruments which, unless rendered safe, may prove hazardous to any person coming into contact with it”; and “any other waste arising from medical, nursing, dental, veterinary, pharmaceutical, or similar practice, investigation, treatment, care, teaching or research, or the collection of blood for transfusion, being waste which may cause infection to any person coming into contact with it”.

Clinical waste is subdivided into groups reflecting the means of disposal:

- Group A:
 - Soiled surgical dressings, etc.
 - Material other than linen from infectious disease cases.
 - Human and animal tissues and carcasses and dressings, etc.
 - Group B: sharps.
 - Group C: laboratory and post-mortem waste.
 - Group D: pharmaceutical and chemical waste.
 - Group E: used disposable bedpan liners, incontinence sheets, etc.
10. The definition of a hazardous waste is given in Regulation 6 of the **Hazardous Waste (England and Wales) Regulations 2005**.
- A controlled waste is a hazardous waste if:
- It is listed as a hazardous waste in the **List of Wastes Regulations 2005**.
- Agricultural and Mines and Quarries’ wastes were not included in the definition of hazardous waste until 1st September 2006.
11. Controlled waste was, effectively, any waste covered by the **Control of Pollution Act** and meant all waste, including wastes from households, industry and commerce, but not from agriculture, mines and quarries, or explosives or radioactives (which have their own special regulatory framework). It was incorporated into the **Environmental Protection Act 1990**, Section 75, and the **Controlled Waste Regulations 1992**.
- Most of the provisions of the EPA apply only to controlled waste: household, commercial and industrial waste. Section 75 of the EPA further defines household waste as “waste from a domestic dwelling, caravan, residential home, hospital or nursing home”; commercial waste is waste from premises used for trade, business, sport, recreation or entertainment; and industrial waste is waste from a factory or any premises used in connection with public transport, public supply of gas, water, sewerage services and electricity, telecommunications and postal services.*

Practical Waste Management

12. The Duty of Care Code specifies prevention of:
- Corrosion or wear of containers.
 - Accidental spills or leakages.

- Breach of containment by weather.
 - Blowing away or falling from vehicles or storage.
 - Scavenging by vandals, thieves, children, trespassers or animals.
13. Hazardous waste should be **labelled** where appropriate in accordance with the **CHIP Regulations**. If the waste is hazardous for transportation, it should also be correctly labelled in accordance with transportation regulations.

Waste Disposal

14. Landraising offers the following benefits to the environment:
- Greater distance from groundwater.
 - Leakages may be easier to identify and control.
 - Engineering aspects of design and construction are less complex.
15. Incinerators are used in a number of applications and have many **advantages** over other disposal methods, for example:
- Reduction in volume.
 - Destruction of hazardous components.
 - Creation of an easily disposed of ash.
 - Small size of plant.
 - Immediate and measurable effects.
 - Can be used to raise energy by utilising calorific value of waste.

Disadvantages include:

- High capital cost and monitoring requirements.
 - High fuel costs on start up.
 - Need to carefully control inputs.
 - Incinerators are not suitable for: aqueous wastes, wastes containing heavy metals, chlorinated materials (unless special controls are in place), and non-combustible solids.
16. Hazardous wastes not considered suitable for disposal by landfill include: some clinical wastes, pesticides, industrial gases under pressure in degradable containers, highly flammable concentrates, and certain heavy metals such as lead and cadmium.

Legal Regimes Applicable

17. Persons affected by the duty of care include anyone handling controlled waste. Specifically, the duty is placed on any person who imports, produces, carries, keeps, treats or disposes of controlled waste, or acts as a waste broker.

Emergency Procedures

18. The site safety report will cover:
- Major hazards arising from the consequences of potential accidents, especially the

possible extent and severity of an accident.

- Maps showing land use and the location of sensitive parts of the environment.
- Description of the environment and surroundings of the establishment.
- The ecotoxicology of substances that might be released in an accident.
- Protection and intervention methods designed to limit the consequences of accidents.
- Provisions made to mitigate post-accident impacts and aid the recovery of the environment.
- A review when circumstances, including environmental ones, change in important ways.

The site safety report must include remediation and clean up following an accident.