WALTERS

Environmental Awareness

By: Alyn Tomkinson CMIOSH, FIIRSM RSP, SACDip Env

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Domestic Arrangements:

Introduce yourselves (Go around the table)

Split into Groups

Exercise: Environmental General Knowledge Quiz

WALTERS

Basic General Knowledge Quiz

Q: What is the Environment?

- Can be a make up of all living and non-living things occurring naturally on earth, which in turn encompasses the interaction of all living species.
- The circumstances and conditions that effect the development, growth and survival of plants and animals.

Consisting of Land, Air and Water

Q: What colourless, odourless, poisonous polluting gas is chiefly emitted by small engines typically used in vehicles, lawn-mowers and chainsaws?

- Carbon dioxide

Q: What can be done about Domestic Waste?

- Reduce, Re-use, Re-Cycle

The Environment

What is the definition of the environment?

- **Can be a make up of all living and non-living things occurring naturally on earth, which in turn encompasses the interaction of all living species.**
- **The circumstances and conditions that effect the development, growth and survival of plants and animals.**

The environment consists of the air, water and land; and the medium of air includes the air within buildings and the air within other natural or man-made structures above or below ground."

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WHY DOES THE ENVIRONMENT NEED PROTECTING

Pollution, the generation of wastes and the depletion of natural resources leads to local as well as global environmental problems including:

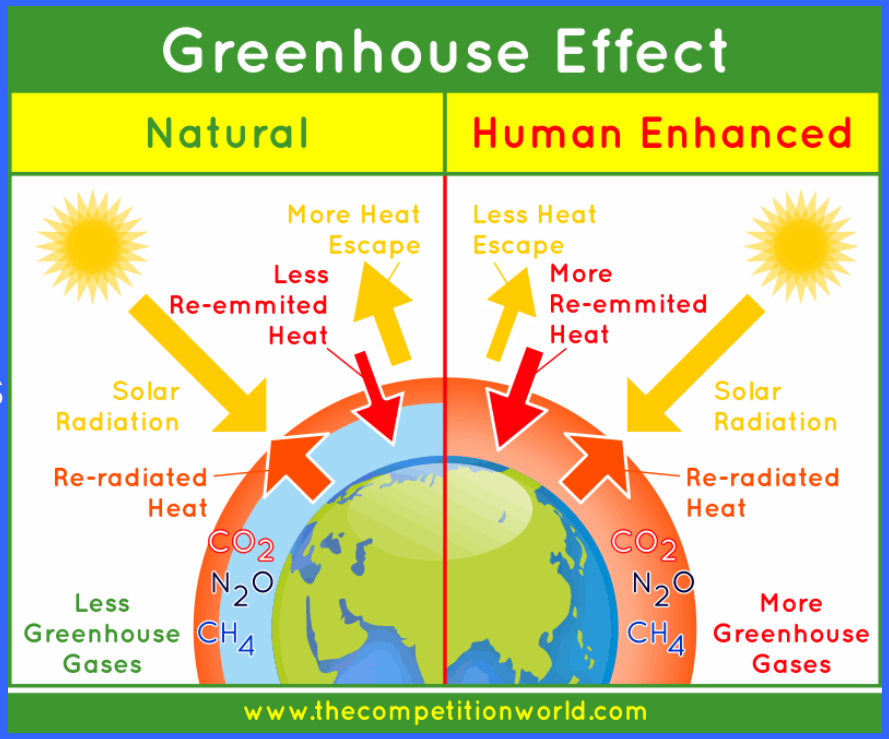
- Global warming (the “greenhouse effect”)
- Ozone depletion
- Acid rain
- Depletion of non-renewable resources
- Deforestation

Global Warming

Throughout its long history, Earth has warmed and cooled time and again. Climate has changed when the planet received more or less sunlight due to subtle shifts in its orbit, as the atmosphere or surface changed, or when the Sun's energy varied. But in the past century, another force has started to influence Earth's climate: **humanity**

Global warming is: a gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, CFCs, and other pollutants.

The greenhouse effect is the natural process by which the atmosphere traps some of the Sun's energy, warming the Earth enough to support life. Most mainstream scientists believe a human-driven increase in "**greenhouse gases**" is increasing the **effect** artificially.



Ozone Depletion

The ozone layer is a belt of naturally occurring ozone gas that sits 9.3 to 18.6 miles above Earth and serves as a shield from the harmful ultraviolet B radiation emitted by the sun.

Ozone is a highly reactive molecule that contains three oxygen atoms. It is constantly being formed and broken down in the high atmosphere, 6.2 to 31 miles above Earth, in the region called the stratosphere.

Today, there is widespread concern that the ozone layer is deteriorating due to the release of pollution containing the chemicals chlorine and bromine. Such deterioration allows large amounts of ultraviolet B rays to reach Earth, which can cause skin cancer and cataracts in humans and harm animals as well.

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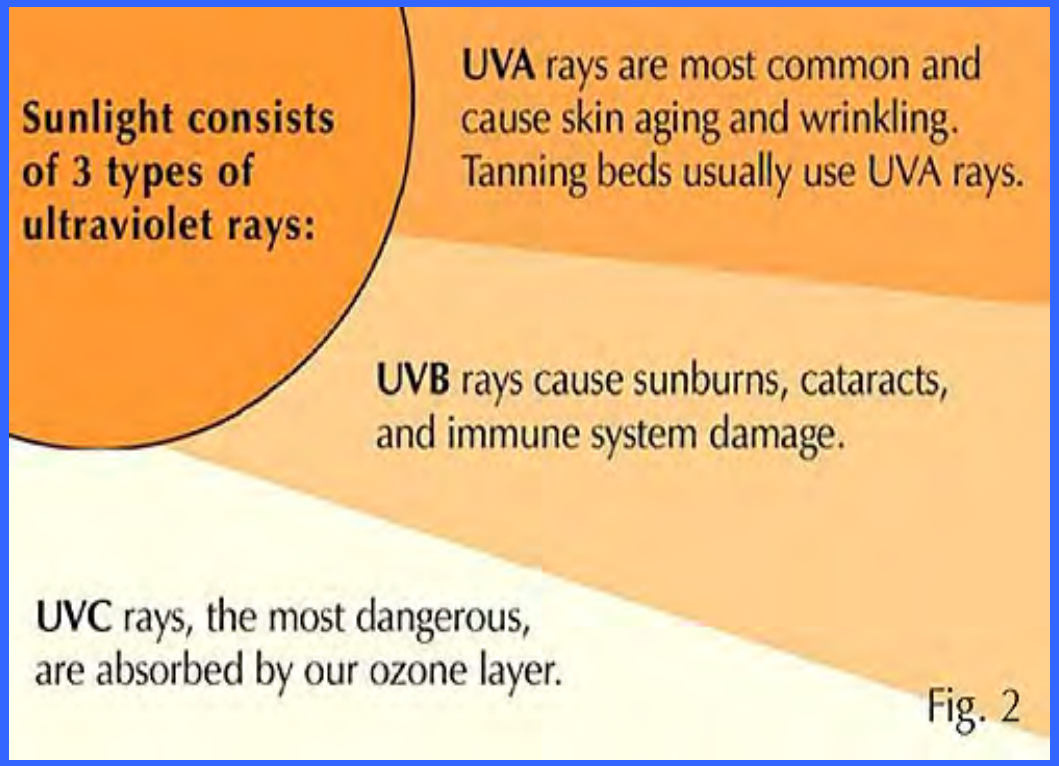
Ozone Depletion Cont…

Ultra-Violet Radiation

- UV rays penetrate the Earth's atmosphere at 3 slightly different wavelengths called UV-A, UV-B, and UV-C rays.



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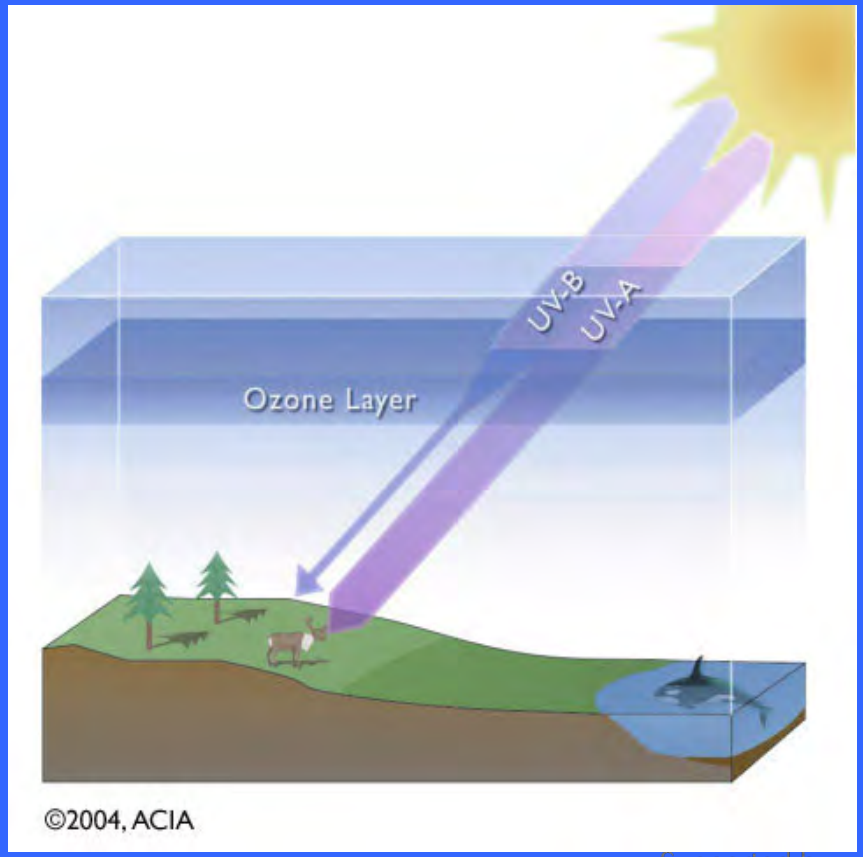
Ozone Depletion Cont..

So, why is the ozone layer important to life on Earth?

- The stratospheric ozone layer completely stops the penetration of UV-C rays and eliminates most of the UV-B rays.
- Therefore, the ozone layer protects life on Earth from the harmful effects of solar radiation on a daily basis.



Ozone Depletion Cont..

So what might life be like without the ozone layer?

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Acid Rain

Causes of Acid Rain

- Burning coal. Oil and natural gas in power stations makes electricity, giving off sulphur dioxide gas.
- Burning petrol and oil in vehicle engines gives off nitrogen oxides as gases.
- These gases mix with water vapour and rainwater in the atmosphere producing weak solutions of sulphuric and nitric acids – which fall as acid rain.

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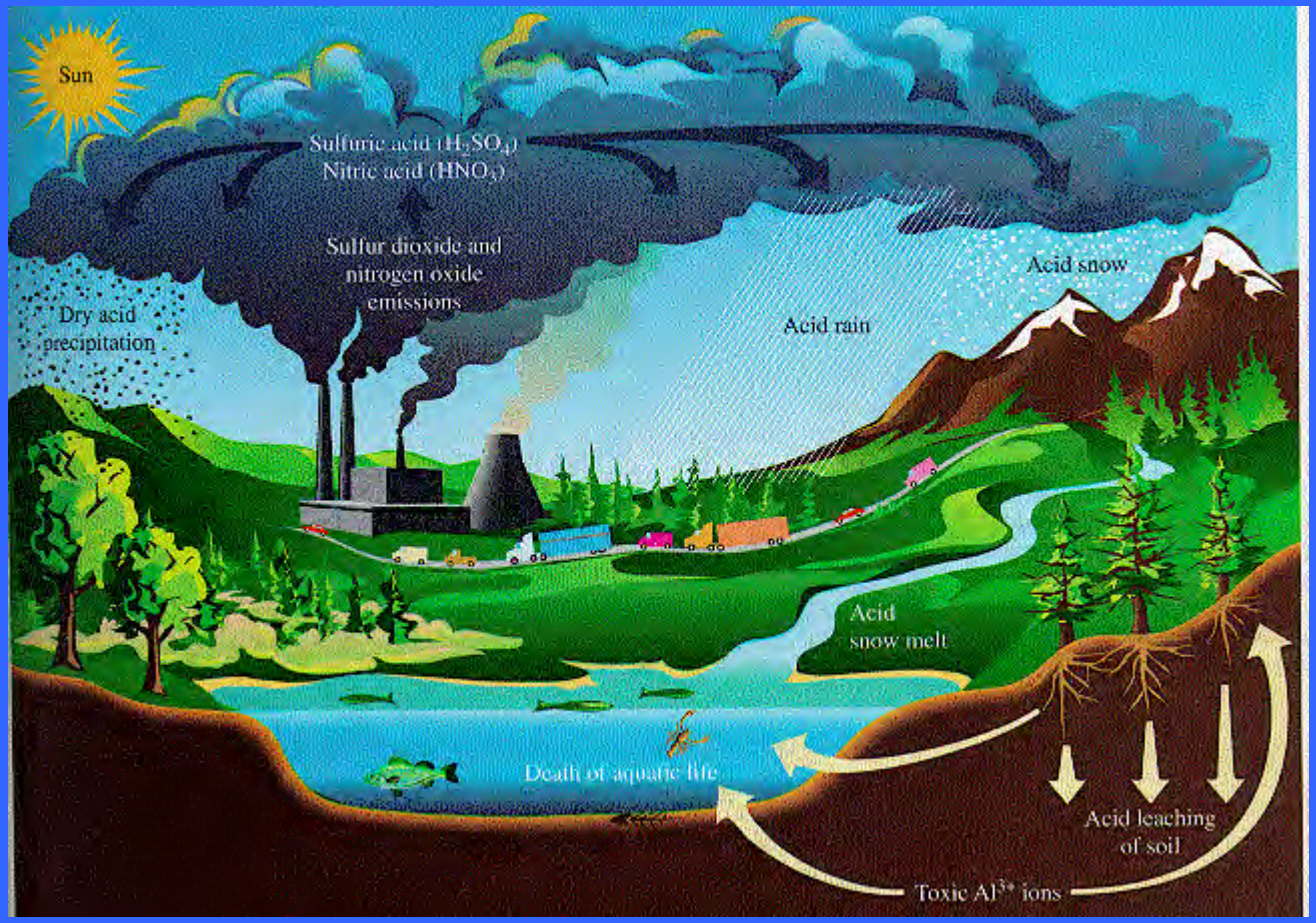
Acid Rain cont..

Acid rain is basically rain that has a higher than normal acid level (low pH).



Acid Rain cont..

How Acid Rain Affects The Environment

Acid rain is an extremely destructive form of pollution, and the environment suffers from its effects. Forests, trees, lakes, animals, and plants suffer from acid rain.

Trees

The needles and leaves of the trees turn brown and fall off. Trees can also suffer from stunted growth; and have damaged bark and leaves, which makes them vulnerable to weather, disease, and insects.

WALTERS

Acid Rain cont..

Lakes are also damaged by acid rain. Fish die off, and that removes the main source of food for birds. Acid rain can even kill fish before they are born when the eggs are laid and come into contact with the acid.

Fish usually die only when the acid level of a lake is high; when the acid level is lower, they can become sick, suffer stunted growth, or lose their ability to reproduce.

Also, birds can die from eating "toxic" fish and insects.

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Acid Rain cont..

Buildings

Acid rain dissolves the stonework and mortar of buildings (especially those made out of sandstone or limestone).
It reacts with the minerals in the stone to form a powdery substance that can be washed away by rain.

1908 1969

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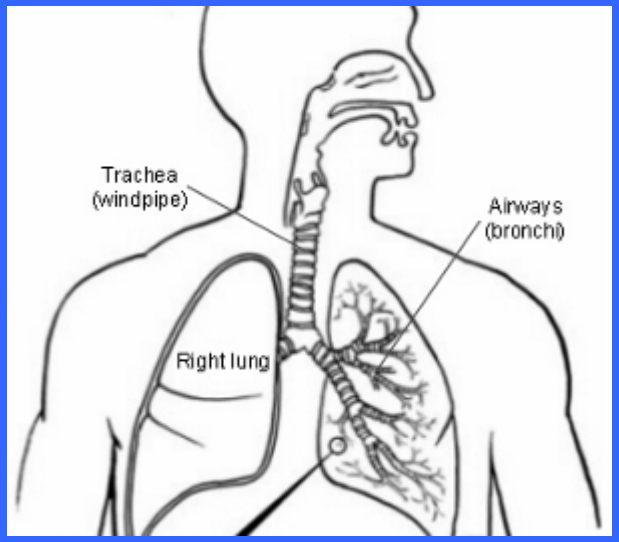
Acid Rain cont..

Humans

Humans can become seriously ill, and can even die from the effects of acid rain. One of the major problems that acid rain can cause in a human being is respiratory problems.

Many can find it difficult to breathe, especially people who have asthma. Asthma, along with dry coughs, headaches, and throat irritations can be caused by the sulphur dioxides and nitrogen oxides from acid rain.



Depletion of non-renewable resources

What is a non-renewable energy resource?

- An energy resource that is not replaced or is replaced only very slowly by natural processes
- Fossil fuels are continually produced by the decay of plant and animal matter, but the rate of their production is extremely slow, very much slower than the rate at which we use them.

Types:

- Coal
- Oil
- Nuclear
- Natural Gas
- Tar Sands and Oil Shale

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Depletion of non-renewable resources cont..

Future Reserves

- Oil **40-45 years** **(But as quick as 15 years if we consume it at the current rate)**
- Natural Gas **50-65 years**
- Coal **200-300 years**

- MEDC's (More Economically Developed Country) contain 25% of the world's population BUT consume 70% of the world's fuels!

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Deforestation

WHAT IS DEFORESTATION?

Deforestation is clearing Earth's forests on a massive scale, often resulting in damage to the quality of the land.

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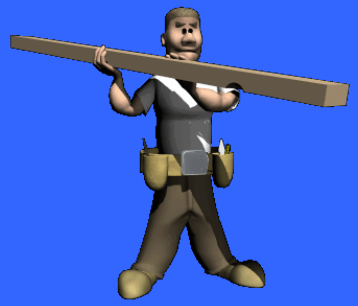
WALTERS

Deforestation cont..

SOME FACTS ABOUT THE CAUSES OF DEFORESTATION

- There are many root causes to deforestation which include globalization, urbanization and corruption.
- The largest direct cause to deforestation is agriculture. (Subsistence farming 48%, commercial agriculture 32% , logging 14%, fuel wood removals 5%)
- Wild fires and over grazing are some of the more unintentional causes of deforestation.



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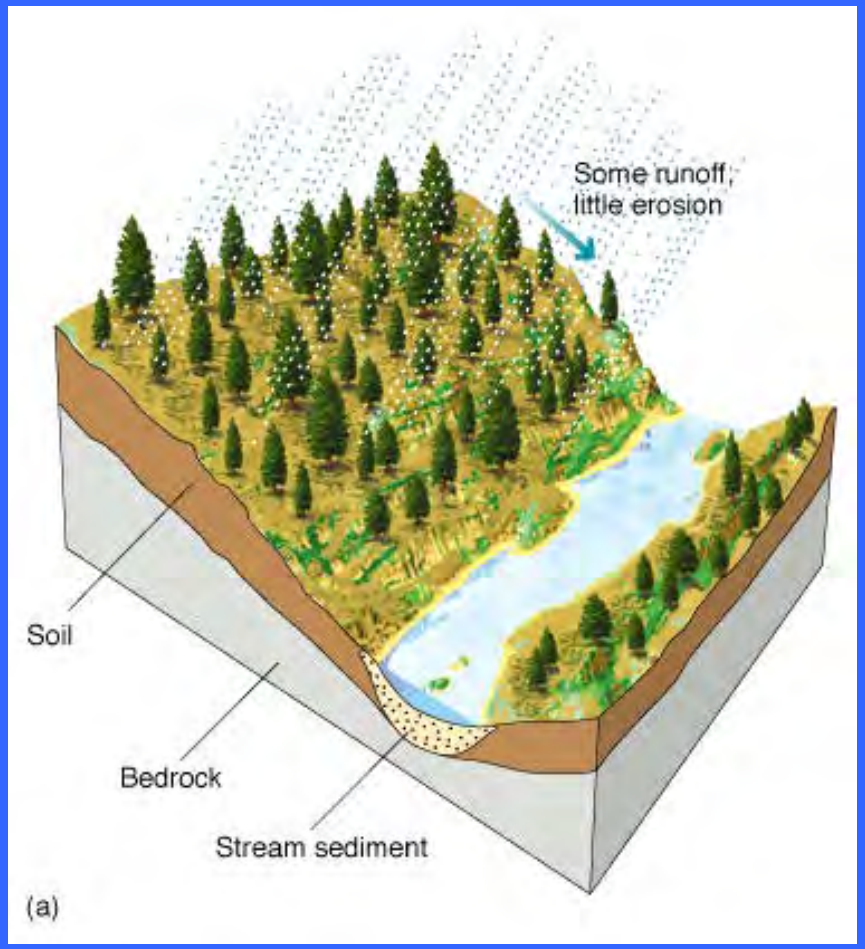
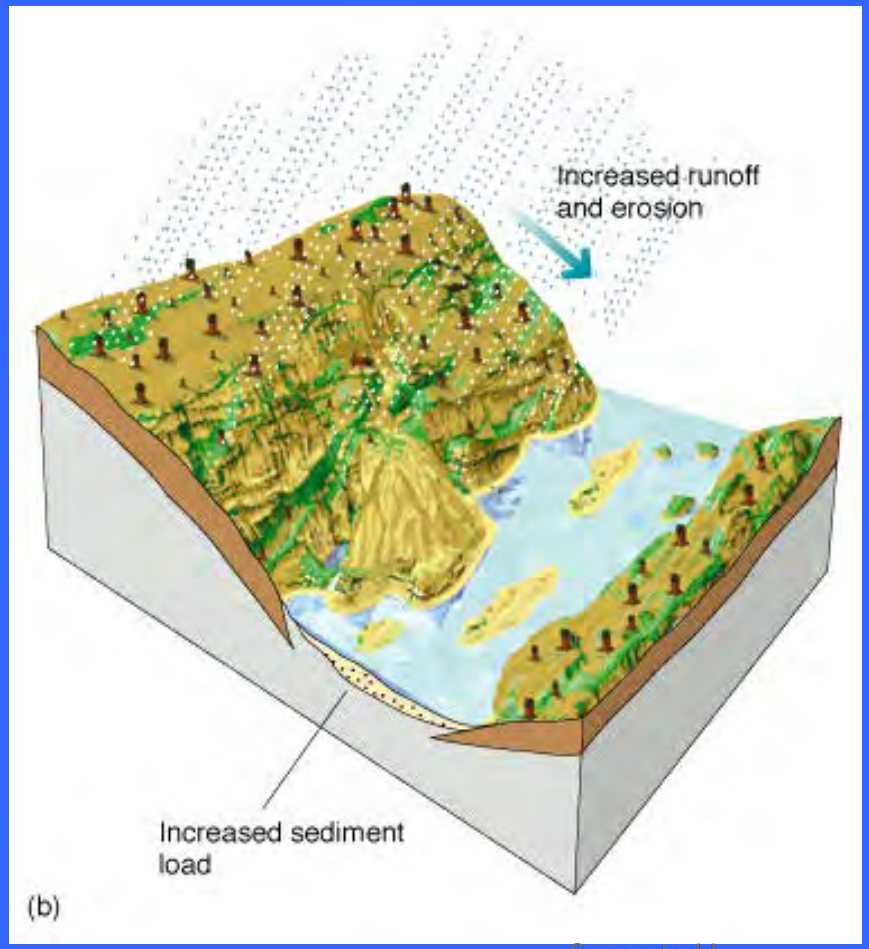
Deforestation cont..

ENVIRONMENTAL PROBLEMS FACED BECAUSE OF DEFORASTATION

- Deforestation is one of the main causes which enhance the greenhouse effect.
- Tropical deforestation is responsible for approximately 20% of world greenhouse gas emissions.
- Ground water which is extracted by the trees are cut down, it results to a drier climate.
- Deforestation increases the amount of soil erosion by increasing the amounts of soil lost and decreasing the amount protected.
- The destruction of forests also lead to the threat endangering different species of plants and animals.
- It has been estimated that we are losing 137 plant, animal and insect species every single day due to rainforest deforestation

Deforestation cont..





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CONSTRUCTION

Consider your Environmental Impacts?

OFFICES

Exercise

Walters Environmental Awareness

WALTERS

WASTE

CARBON EMISSIONS

NOISE

ENERGY

CONSERVATION

LAND CONTAMINATION

WATER POLLUTION

WILDLIFE (Biodiversity)

DUST

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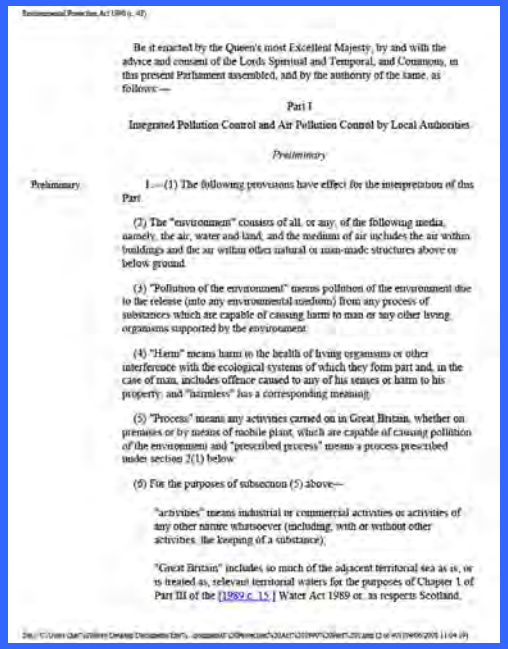
ENVIRONMENTAL LEGISLATION

Environmental Protection Act 1990

Part 1 =

IPC – Integrated Pollution Control

IPPC – Integrated pollution Prevention and Control



Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

Part I

Integrated Pollution Control and Air Pollution Control by Local Authorities

Preliminary

Preliminary

1.—(1) The following provisions have effect for the interpretation of this Part.

(2) The "environment" consists of all, or any, of the following media, namely, the air, water and land, and the medium of air includes the air within buildings and the air within other natural or man-made structures above or below ground.

(3) "Pollution of the environment" means pollution of the environment due to the release (into any environmental medium) from any process of substances which are capable of causing harm to man or any other living organisms supported by the environment.

(4) "Harm" means harm to the health of living organisms or other interference with the ecological systems of which they form part and, in the case of man, includes offence caused to any of his senses or harm to his property; and "harmless" has a corresponding meaning.

(5) "Process" means any activities carried on in Great Britain, whether on premises or by means of mobile plant, which are capable of causing pollution of the environment and "prescribed process" means a process prescribed under section 2(1) below.

(6) For the purposes of subsection (5) above—

"activities" means industrial or commercial activities or activities of any other nature whatsoever (including, with or without other activities, the keeping of a substance);

"Great Britain" includes so much of the adjacent territorial sea as is, or is treated as, relevant territorial waters for the purposes of Chapter 1 of Part III of the [1989 c. 15.] Water Act 1989 or, as respects Scotland,

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IPC - IPPC

The IPPC directive requires that applications must show that installations are run in a way that prevents/reduces emissions and must use the following principles;

- Must apply the best available technique (BAT) to control emissions
- Waste is to be minimised and recycled where possible
- Accidents are to be prevented, and their environmental consequences limited – Spillage Procedures
- Sites to be returned to a satisfactory state after operations

BATNEEC = Best Available Technique Not Entailing Excessive Cost

BAT = Best Available Technique

IPC - IPPC

Activities to be under control:

- Energy Industries
- Metal Works (Processing of metals)
- Mineral Industries (Cement and Glassworks)
- Chemical Industries
- Waste Management (Landfill Sites)
- Other (Slaughter houses, food/milk processing, pig and poultry units, tanneries)

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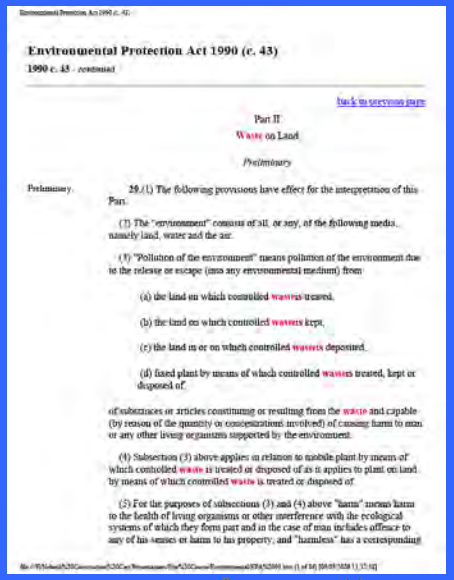
ENVIRONMENTAL LEGISLATION

Environmental Protection Act 1990

Part 1 = IPC/IPPC

Part 2 = Waste On Land



Environmental Protection Act 1990 (*c.* 43)

1990 *c.* 43 - *continued*

Part II

Waste on Land

Preliminary

Preliminary.

29.—(1) The following provisions have effect for the interpretation of this Part.

(2) The "environment" consists of all, or any, of the following media, namely land, water and the air.

(3) "Pollution of the environment" means pollution of the environment due to the release or escape (into any environmental medium) from

(a) the land on which controlled waste is treated,

(b) the land on which controlled waste is kept,

(c) the land in or on which controlled waste is deposited,

(d) fixed plant by means of which controlled waste is treated, kept or disposed of,

of substances or articles constituting or resulting from the waste and capable (by reason of the quantity or concentrations involved) of causing harm to man or any other living organisms supported by the environment.

(4) Subsection (3) above applies in relation to mobile plant by means of which controlled waste is treated or disposed of as it applies to plant on land by means of which controlled waste is treated or disposed of.

(5) For the purposes of subsections (3) and (4) above "harm" means harm to the health of living organisms or other interference with the ecological systems of which they form part and in the case of man includes offence to any of his senses or harm to his property; and "harmless" has a corresponding

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EPA 1990 Pt II - Waste on Land

Waste Related Offences;

It is an offence for a person to:

- Deposit or knowingly cause or permit to be deposited ‘controlled waste’ without or in breach of a licence
- Treat, keep, dispose of controlled waste in a manner likely to cause pollution or harm to health

WASTE DISPOSAL

Waste Carriers (Competency):

- Risk Assessments/Method statements
- Require License (Waste Carriers Licence/Waste Permit)

Waste Holders Duty:

- Protect the waste while they have it
- Carriers are suitable to handle and dispose of waste correctly
- Must prepare ‘Transfer Notes’ (Kept for 2 Years)
- Must prepare ‘Consignment Notes’ (Kept for 3 Years)
- Ensure it reaches final destination (Duty Of Care)

Competent Waste Contractor

Environmental Agency – Public register

Home

Public Registers

- Search Public Registers
- Ask us about public registers
- What do the registers cover? – A legal explanation

You are in: HomePage > Search > Summary > **Detail**

Detailed Public Register Information

'Waste Carriers & Dealers' by 'PostCode Search' - '1 km' - 'cf449ul'

CB/LM3087CH/R005--WALTERS U.K. LTD

Previous Registration Number (still valid):	SEW/697177
IR Permission Number:	CB/LM3087CH/R005
Current Registration Number:	CB/LM3087CH
Business Name:	WALTERS U.K. LTD
Business Address:	HIRWAUN HOUSE, HIRWAUN INDUSTRIAL ESTATE, HIRWAUN, ABERDARE, MID.GLAM.
Business PostCode:	CF44 9UL
Easting:	293166
Northing:	206176
EA Region:	EA Wales
EA Area:	South East
Business Tel Number:	01685 815100
Carrier Dealer/Broker Dealer/Carrier Broker Dealer Indicator:	Carrier Broker Dealer (CBD)
Applicant Name:	WALTERS U.K. LTD
Registration Date:	26/11/2014
Renewal Date:	26/11/2014
Expiry Date:	25/11/2017

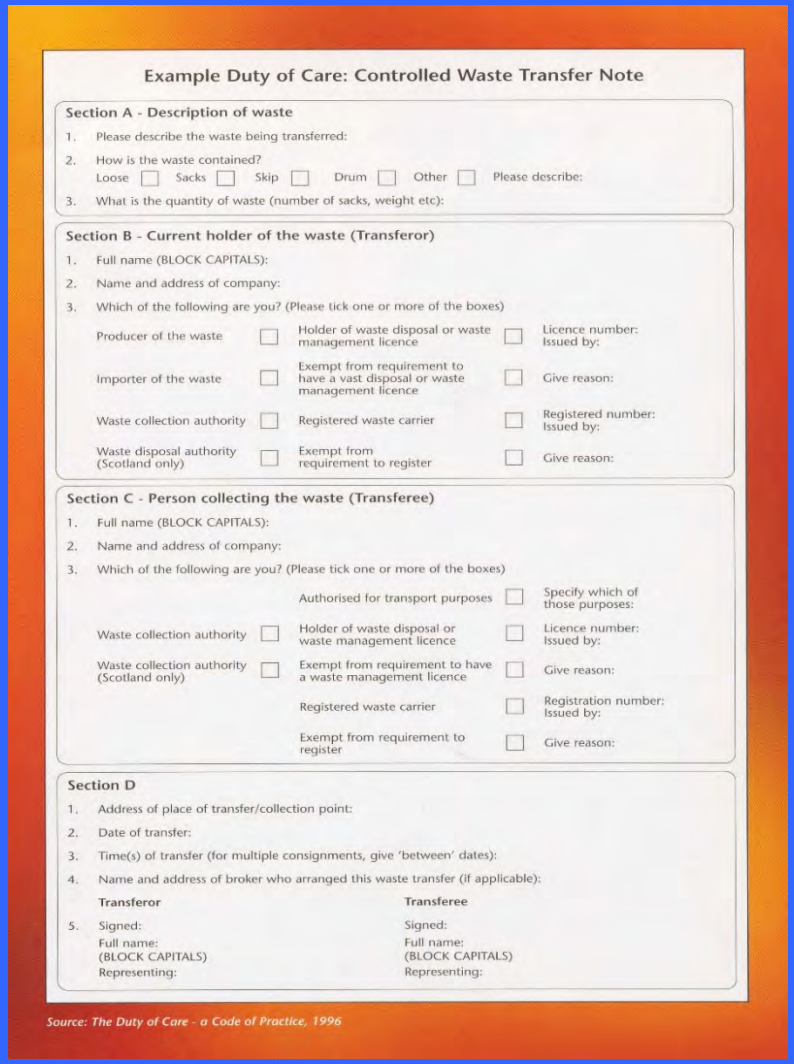
Related links

- Whats in your backyard (WIYBY)
- UNECE Aarhus Website

WALTERS

Waste Holders Duty

- Must prepare ‘Transfer Notes’ (Kept for 2 Years)



Example Duty of Care: Controlled Waste Transfer Note

Section A - Description of waste

1. Please describe the waste being transferred:
2. How is the waste contained?
   Loose ☐ Sacks ☐ Skip ☐ Drum ☐ Other ☐ Please describe:
3. What is the quantity of waste (number of sacks, weight etc):

Section B - Current holder of the waste (Transferor)

1. Full name (BLOCK CAPITALS):
2. Name and address of company:
3. Which of the following are you? (Please tick one or more of the boxes)

Producer of the waste	☐	Holder of waste disposal or waste management licence	☐	Licence number: Issued by:
Importer of the waste	☐	Exempt from requirement to have a vast disposal or waste management licence	☐	Give reason:
Waste collection authority	☐	Registered waste carrier	☐	Registered number: Issued by:
Waste disposal authority (Scotland only)	☐	Exempt from requirement to register	☐	Give reason:

Section C - Person collecting the waste (Transferee)

1. Full name (BLOCK CAPITALS):
2. Name and address of company:
3. Which of the following are you? (Please tick one or more of the boxes)

		Authorised for transport purposes	☐	Specify which of those purposes:
Waste collection authority	☐	Holder of waste disposal or waste management licence	☐	Licence number: Issued by:
Waste collection authority (Scotland only)	☐	Exempt from requirement to have a waste management licence	☐	Give reason:
		Registered waste carrier	☐	Registration number: Issued by:
		Exempt from requirement to register	☐	Give reason:

Section D

1. Address of place of transfer/collection point:
2. Date of transfer:
3. Time(s) of transfer (for multiple consignments, give ‘between’ dates):
4. Name and address of broker who arranged this waste transfer (if applicable):

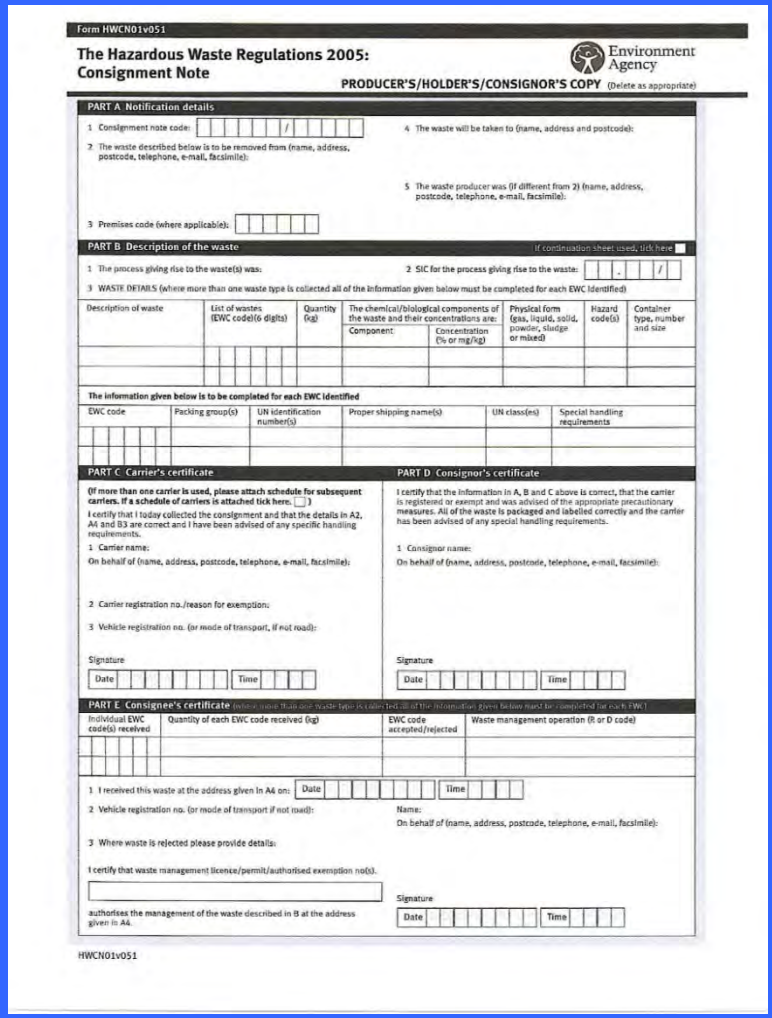
	Transferor	**Transferee**
5.	Signed: Full name: (BLOCK CAPITALS) Representing:	Signed: Full name: (BLOCK CAPITALS) Representing:

Source: The Duty of Care - a Code of Practice, 1996

WALTERS

Waste Holders Duty

- Must prepare ‘Consignment Notes’ (Kept for 3 Years)



Form HWCN01v051

The Hazardous Waste Regulations 2005: Consignment Note

Environment Agency

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

PART A Notification details

1 Consignment note code:

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):

3 Premises code (where applicable):

4 The waste will be taken to (name, address and postcode):

5 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):

PART B Description of the waste If continuation sheet used, tick here

1 The process giving rise to the waste(s) was:

2 SIC for the process giving rise to the waste:

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code)(6 digits)	Quantity (kg)	The chemical/biological components of the waste and their concentrations are: Component	Concentration (% or mg/kg)	Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐ **)**

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

1 Carrier name:

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

2 Carrier registration no./reason for exemption:

3 Vehicle registration no. (or mode of transport, if not road):

Signature

Date Time

PART D Consignor's certificate

I certify that the information in A, B and C above is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

1 Consignor name:

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

Signature

Date Time

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)

1 I received this waste at the address given in A4 on: Date Time

2 Vehicle registration no. (or mode of transport if not road):

Name:

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

3 Where waste is rejected please provide details:

I certify that waste management licence/permit/authorised exemption no(s).

authorises the management of the waste described in B at the address given in A4.

Signature

Date Time

HWCN01v051

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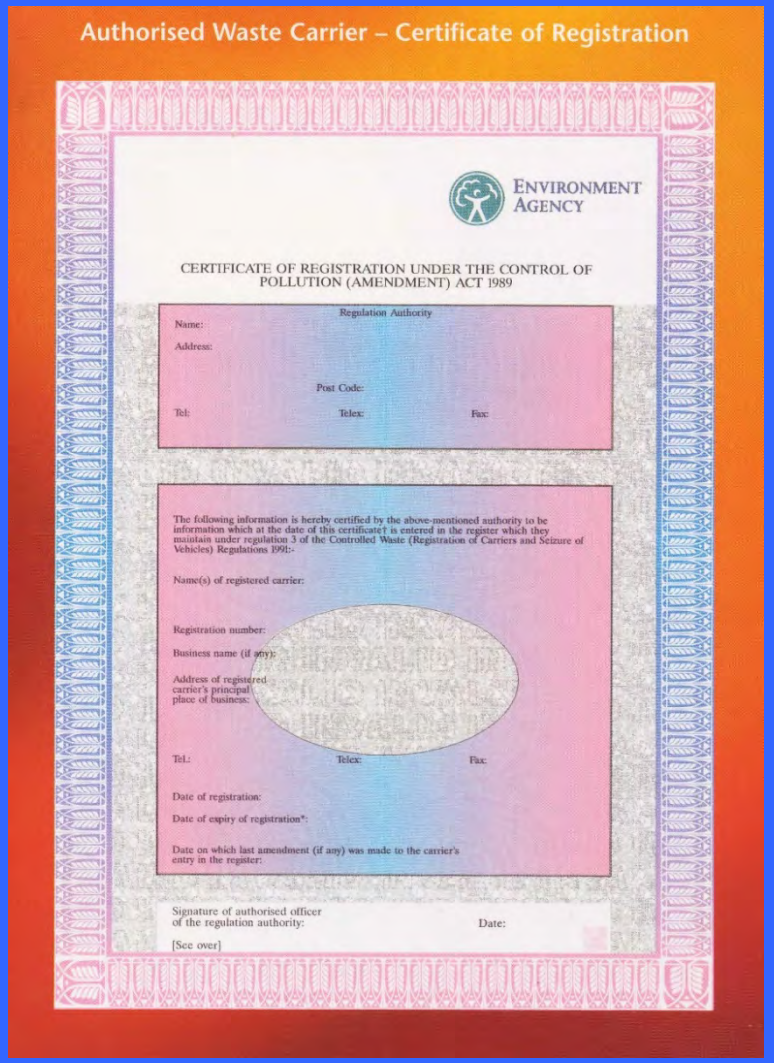
Waste Carriers (Competency):

- Risk Assessments/Method statements
- Require License

(Waste Carriers Licence/Waste Permit)



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Waste Management

Consideration must then be given to how the waste can be minimised.

Approximately 17% of waste going to landfill sites is directly related to construction

Waste Management

Consideration must then be given to how the waste can be minimised.

i.e. Minimise

Reduce

Reuse

Recycle

Waste Management

WASTE HIERACHY

- Minimise / Reduce
- Reuse
- Recycle
- Responsibly Dispose
- (Landfill)

Waste Management

Exercise

In your groups/teams come up with different ways we can Reduce, Reuse, Recycle things in everyday life:

Water

Plastic

Timber/wood

Glass

WALTERS

Waste Management

Minimise

The resources needed to do the job.

Designers can do this through clever design leading to:

- more slender sections

- thinner slabs

- less need for falsework

- reduce amount of temporary works

WALTERS

Waste Management

Reduce

if we don't produce it in the first place, we don't have to get rid of it.

- A key factor to reducing waste is to store materials safely and correctly on site.

If materials don't get damaged they don't get wasted.

- Just in time delivery.
- Also consider weather conditions as some materials need to be protected

i.e. Cement Bags

Timber

Dry Lining

WALTERS

Waste Management

Reuse

Many materials can be utilised more than once before being disposed of

Shuttering

Boarding

Fencing

Waste Management

Recycle

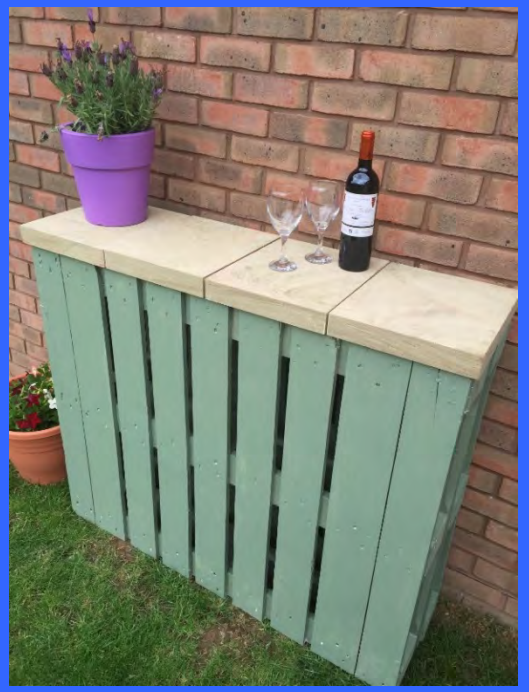
Some wastes can be recycled and thus reduce disposal costs.

However this would require some form of segregation.

i.e Cardboard / Paper

Timber

Metal



Waste Management

Segregation can either be done:

on site whereby designated skips are located within a waste area

or

off site whereby the waste contractor segregates the recyclable material at a transfer station

Waste Management

Operations that generate waste material that can be identified as -
CONTROLLED WASTE

These include;

- Non-contaminated road soil
- Paper and cardboard
- Polythene wrapping
- Wood
- Metal
- P.E pipe and fitting
- Blocks/Brick

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Waste Management

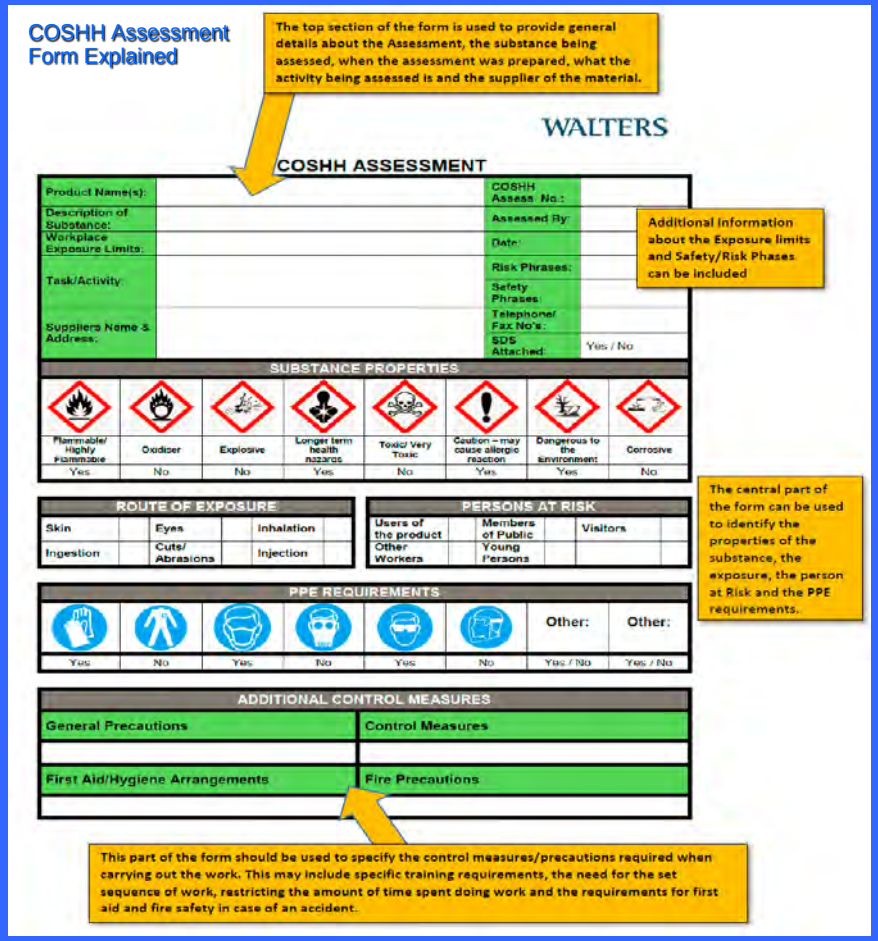
Operations that generate waste material that can be identified as – *Hazardous Waste*

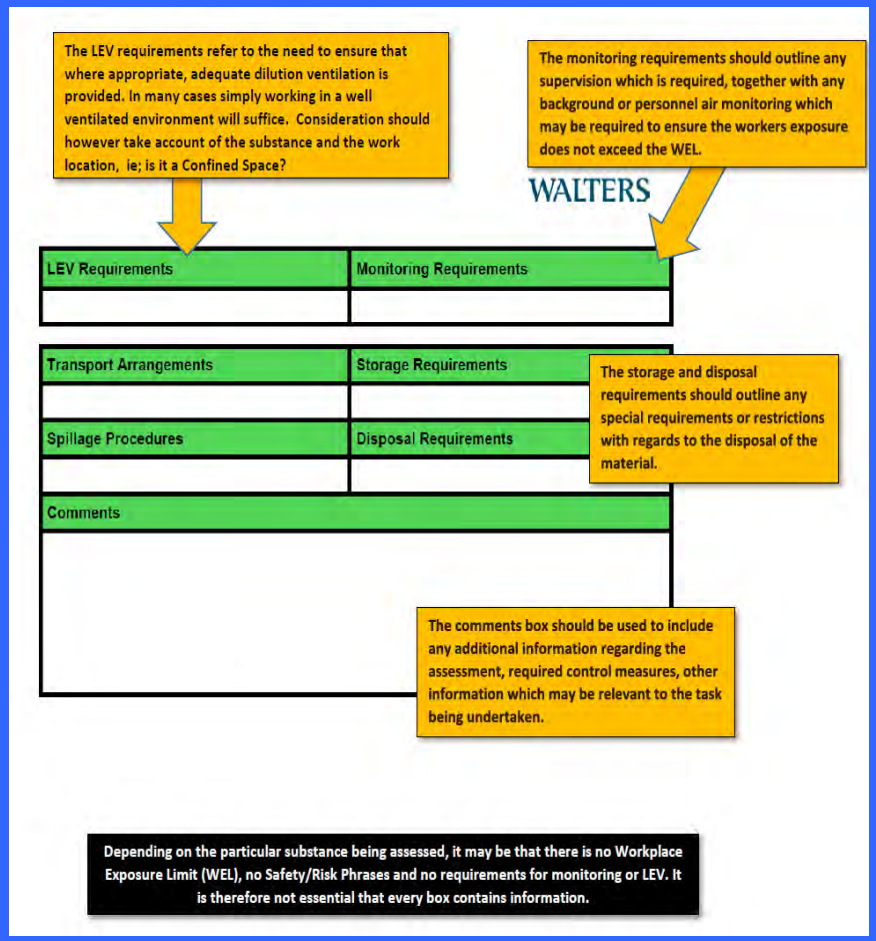
These include;

- Lead/Asbestos *(own legislation)*
- Contaminated soil
- Surplus paint
- Waste oils, fuels
- Fluorescent tubes
- Tyres
- Batteries
- Bitumen
- Adhesives
- Not Plasterboard!!

WALTERS

(COSHH)
THE CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH REGULATIONS 2002 (Amended 2004)





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Hazardous Waste Regulations (2005)

- Hazardous Waste Regulations
- Replaced the Special Waste Regulations 1996 and includes the revised European Waste Catalogue (EWC), which extends the scope of hazardous waste to include common items such as discarded vehicles, lighting tubes and batteries. The regulations may apply tighter controls over the management of hazardous waste and may also apply specific controls for the first time on the producers of hazardous waste. (Duty Of Care – Prosecutions)

CONSIGNMENT NOTICE

-Prepare a copy of the consignment note (3 Copies) , complete Parts A and C on each copy; and give every copy to the carrier;

-The carrier shall complete Part C on each copy and give every copy to the producer;

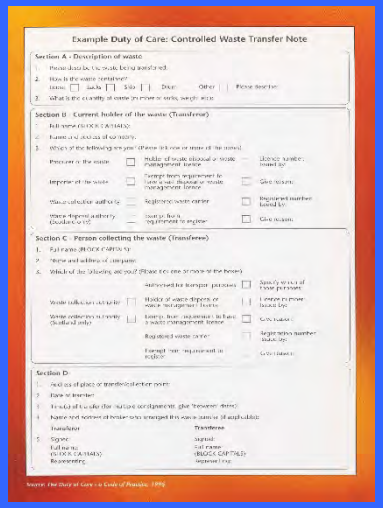
- The producer shall then complete Part D on each copy, retain one copy; and give every remaining copy to the carrier;

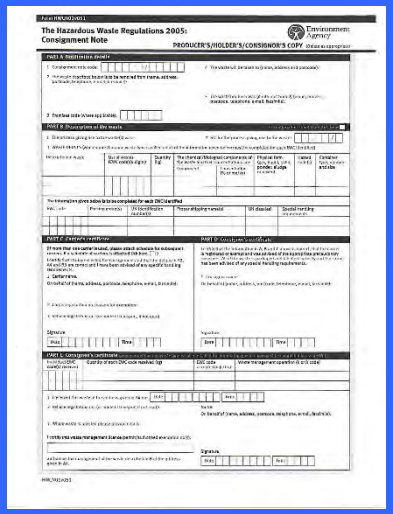
-The carrier shall ensure that every copy which he has received travels with the consignment and is given to the consignee on delivery of the consignment;

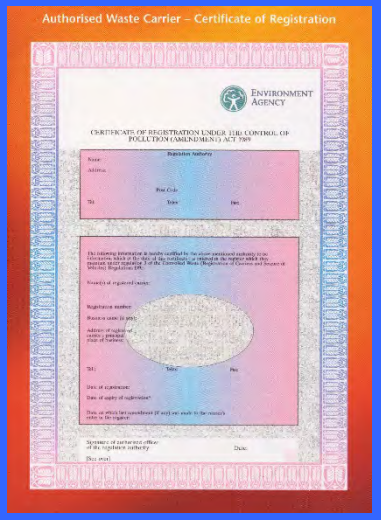
- On receiving the consignment the consignee shall complete Part E on both copies; and give one copy back to the carrier.

Remember:

- Transfer Notes retained 2 years
- Consignment Notes retained 3 years
- Registration of Carrier certificates on site
- Copies of disposal site licences







ENVIRONMENTAL LEGISLATION

Environmental Protection Act 1990

Part 1 = IPC/IPPC

Part 2 = Waste On Land

Part 2a = Land Contamination

Contaminated Land (Part IIA EPA)

Definition:

Land which appears to the local authority in whose areas it is situated to be in such a condition, by reason of substances in, on or under the land that (a) significant harm is being caused or there is a significant possibility of such harm being caused, or (b) pollution of controlled waters is being, or is likely to be caused.

WALTERS

Serious Polluters

- Gas Works
- Metal Works
- Construction Sites
- Asbestos
- Landfill Sites
- Waste Treatment Works
- Scrap Metal Stores (Lead)

WALTERS

LAND CONTAMINATION

Pollutant Linkage!!!!

citb

Remediation Of Contaminated Land

Brownfield Sites – Existing Site
(New Housing Gov-Target Of 60%)

Remediation of contaminated land should be cost effective and that protects human health and the environment.

Remediation Methods

There are three core methods of dealing with contaminated land:

Capping The Site – Encapsulating the contaminated material by covering it with an impervious coating of clay or other materials

Removing the contaminated material to landfill and then remediating the site once the contamination has been Removed

Treating the contaminated material on site as to remove the pollutant/contaminate

Avoid Land Contamination

- Fuel storage tanks should be within an oil tight bund and on an impervious base. Bunds should be large enough to contain 110% of the volume of the tank.
- All valves and pipes should be contained within the bunded area.
- Quantities held in tanks should be checked, prior to receiving deliveries to avoid overfilling.
- All deliveries and issues of fuel should be supervised.
- Oils, lubricants, fuels and other substances (COSHH) should be stored in suitable containers and in an appropriate storage facility.

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Avoid Land Contamination

Spillage could have been avoided by using a Drip tray.

Avoid Land Contamination

Bulk storage tanks must be sited within a bund wall and confirm to the following:

- **Protected against corrosion**
- **Marked with the capacity of the tank to prevent overfilling.**
- **Have a means for securing fuel outlet**
- **If fuel tanks are to be placed below ground they are to be double-skinned**

The Control of Pollution (Oil Storage) (England) Regulations 2005.

(These Regulations come into effect fully on 1st September 2005)

The Regulations do not apply to oil stored:

- On premises used for refining or distributing oil;
- On a farm and used exclusively for agricultural purposes which continues to be regulated under the *Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations;*
- In any container with a storage capacity of 200 litres or less.

The Control of Pollution (Oil Storage) (England) Regulations 2005.

(These Regulations come into effect fully on 1st September 2005)

- The oil container must be of sufficient strength and structural integrity to ensure that it is unlikely to burst or leak in its ordinary use.
- The container must be situated within a secondary containment system ("SCS") (such as a drip tray, bund, or any other suitable system) which will prevent the release of oil that has escaped from its container.
- The SCS must:
  - be able to hold at least 110% of the volume of the container for a single container; or
  - if there is more than one container, it must be able to hold at least 110% of the largest container's storage volume, or at least 25% of their total volume (whichever is the greater)

The Control of Pollution (Oil Storage) (England) Regulations 2005.

(These Regulations come into effect fully on 1st September 2005)

- if drum(s) are stored using a drip tray as the SCS, the drip tray must be able to hold 25% of the total volume of the drums;
- be positioned (or other steps are taken) so as to minimise any risk of damage by impact;

The Control of Pollution (Oil Storage) (England) Regulations 2005.

(These Regulations come into effect fully on 1st September 2005)

- The requirement to employ spillage procedures to prevent pollution/contamination

ENVIRONMENTAL LEGISLATION

Environmental Protection Act 1990

Part 1 = IPC/IPPC

Part 2 = Waste On Land

Part 2a = Land Contamination

Part 3 = Statutory Nuisance

STATUTORY NUISANCE (Part III-EPA)

Definition;

A person causes a nuisance if he or she unlawfully interferes with or permits unlawful interference with another person's use or enjoyment of their land or of a right enjoyed over public land, where such interference is unreasonable in all circumstances

STATUTORY NUISANCE

- Noise
- Dust (Mud, Slurry)
- Smoke
- Smells

- Notices (Abatement/Clean Up etc;)

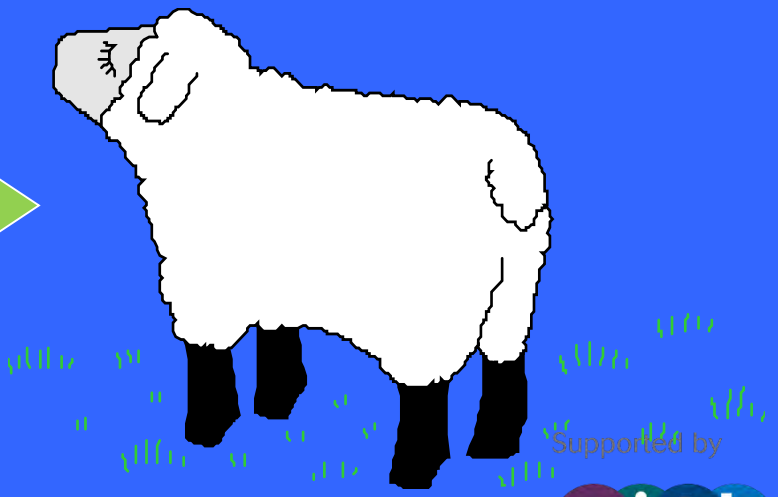
NOISE

Effects of exposure to excessive noise

- Lack of concentration
- Stress
- Hearing damage
- Sleep disturbance
- Quality of life in general

- The level of the noise
- Time of day
- Frequency of occurrence
- duration

People/Livestock / Wildlife (Conservation)



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GENERAL NOISE LEVELS

- **Pneumatic chipping and riveting 130dB(A)**
- **Automatic punch press 110 dB(A)**
- **Heavy lorries at 6m 90 dB(A)**
- **Construction - pneumatic drilling 90 dB(A)**

WALTERS

Engineering Noise Controls

Engineer Out

- by replacement of plant with quieter ones
- redesign and modification of plant
- by altered layout of plant so areas where employees work is at an acceptable noise level

Reduce Noise at Source

- use of non-metallic components i.e. rubber bushes in linkages where ever possible
- use exhaust silencers, especially on exhausts from air cylinders and vacuum pumps
- eliminate sharp bends in air and hydraulic systems to stop turbulence noise
- keep working parts in good order by planned maintenance

DUST
(MUD & SLURRY WASTE)

- Dust from factories (Ventilation systems- LEVs)

- Construction Sites
- Traffic
- Plant equipment
- Factory Processes

WALTERS

WALTERS


GEILLER CI
STRONG WELSH LAGER
EST° 1997
All visitors must report to the site office
All visitors must report to the site office

WALTERS

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MUD, SLURRY

Leaving places of work (Construction Sites);

How can we stop or reduce this from happening?

MUD, SLURRY

Control Measures;

- Vehicle cleaning system -
  - Wheel Wash
  - Brooms and a hose
  - Road Sweeper

Boot Wash

POWERS EA
(Environment Agency)

Environmental Agency Officer
Local Authority (EHO) – (Agenda 21 Officer)

- *Enter Premises to:*
  - *Examine*
  - *Investigate*
- *Obtain Assistance*
- *Seize Evidence*
- *Measure, Record, Photograph, etc.*

- *Question Staff / Operatives*
- *Serve Notices*
  - *Improvement (Remedy)*
  - *Prohibition (Stop Work)*
- *Avoid Imminent Danger*
- *Prosecute for Offences*

Water Pollution

Defines controlled water as;

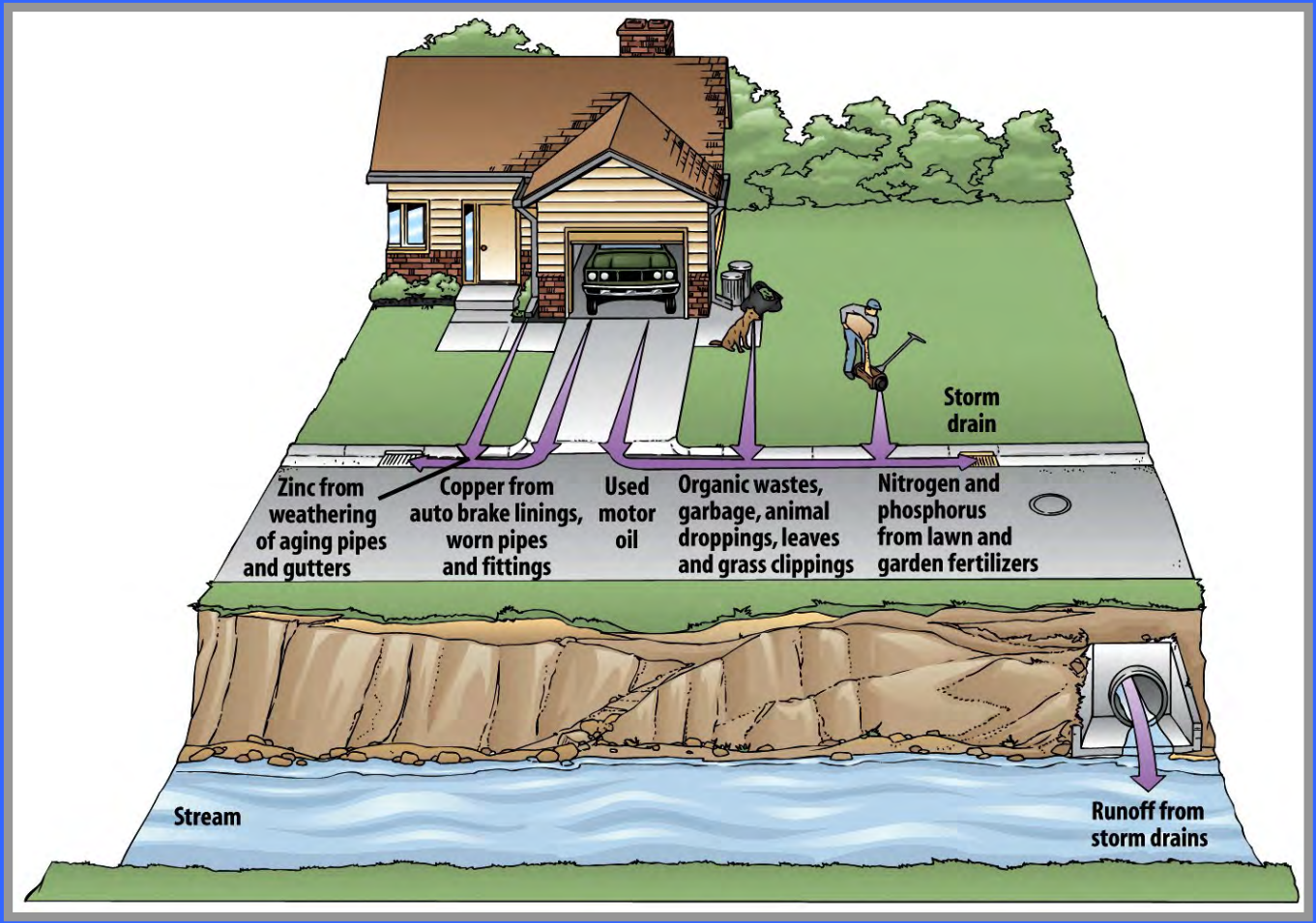
- Territorial Waters (3 mile limit)
- Costal Waters (In-Shore)
- Inland Freshwater – Rivers & Lakes
- Groundwater (Aquifers)

It is an offence to 'cause or knowingly permit' any poisonous, noxious or polluting matter, solid waste, trade effluent or sewage to enter controlled waters

WALTERS

Water Pollution

Typical routes from your home to the stream/river



Water Pollution

Eutrophication

When too much organic matter enters an aquatic ecosystem, the Food chain becomes overloaded and causes a vast increase in aquatic life and therefore reduces the amount of oxygen available.

The discharge of large amounts of sewage , or the run-off from fertilised land , greatly accelerates this eutrophication process.

Artificial fertilisers supplies all the nitrate a plant needs, but at least 50% wastes away in solution by rainwater before it can be absorbed. It finds its way to a water source which again will greatly accelerate this eutrophication process

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WALTERS

Avoid Water Pollution

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Avoid Water Pollution

Where works is in the close vicinity of a watercourse, gully or drains it may be necessary to establish a temporary bund or intercepting ditches.

Emergency Plan in place to deal with spillages

Water Pollution

Absorbent Boom/Socks
(used to contain a spillage and prevent entry into gullies etc)

Water Pollution

Absorbent granular material/blankets

Water Pollution

Absorbent Mats
(used to absorb oils, fuels and other lubricant floating on water)

Shovels.

Gloves.

Heavy-duty plastic bags

Water Pollution Prevention

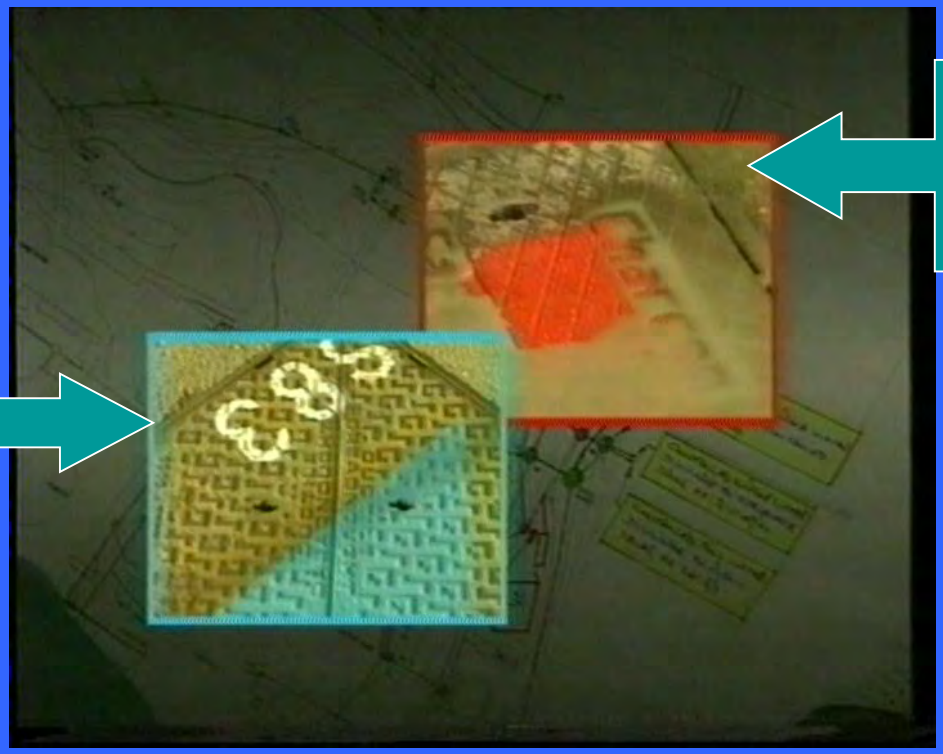
STEP 1 = Contain

Water Pollution Prevention

STEP 2 = Absorb

Water Pollution Prevention

All surface water drains are covered to prevent pollutants entering.



Water Pollution Prevention

All surface water drains are covered to prevent pollutants entering.

Supported by citb

Water Pollution Prevention

Oil Separators (interceptors)

Site areas at risk of oil pollution such as fuel storage or filling zones, car and lorry parks and places where there is a significant likelihood of oil spillage can be protected from causing pollution through the Installation of an oil separator.

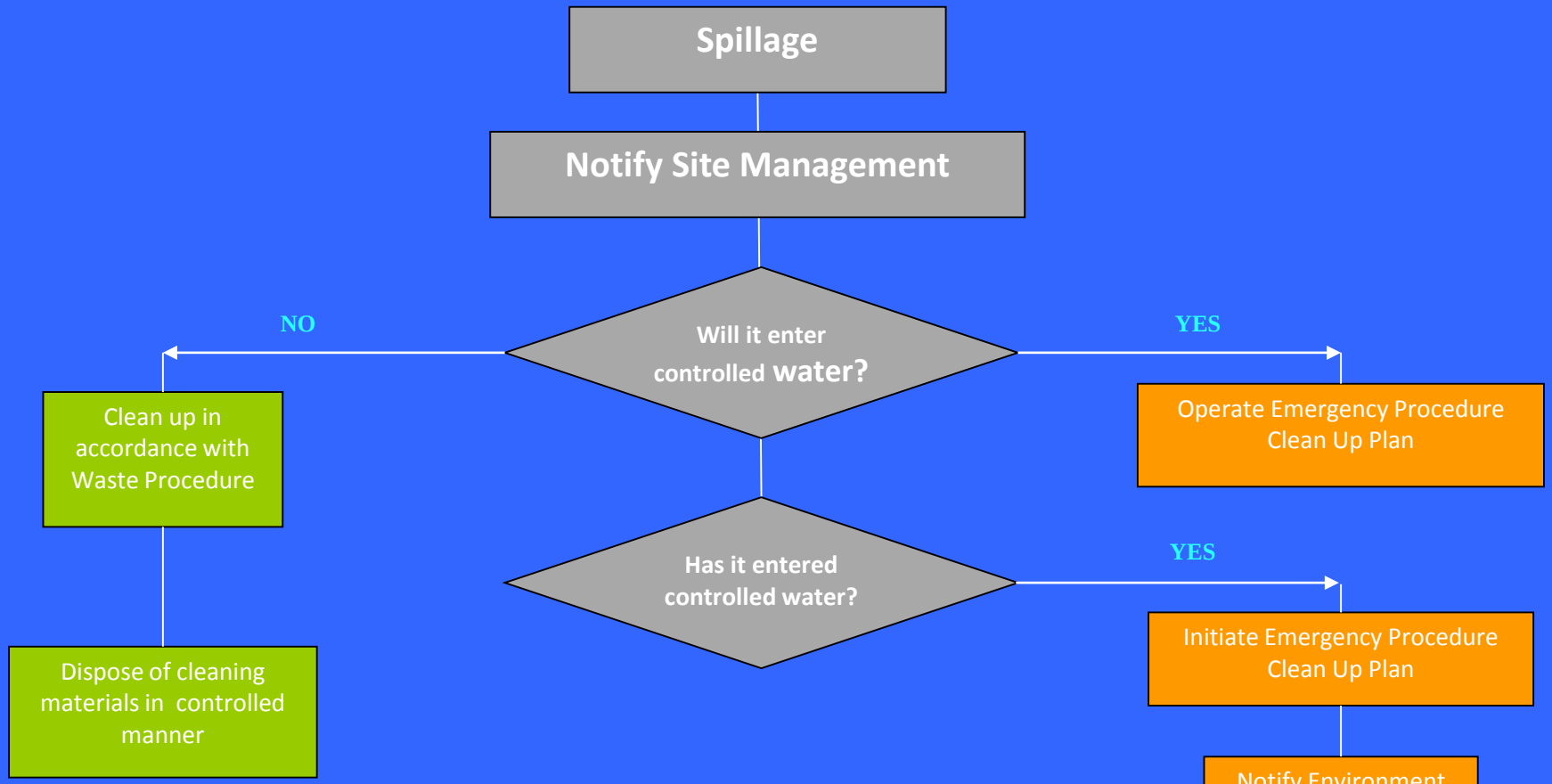
This is a device that is installed in the drainage system to separate the oil and water – the oil being retained within the separator.

Water Pollution Prevention

Site Security

One of the main causes of water pollution is vandalism. The most obvious way to prevent this is to ensure that access to sites where oil, chemicals or other potentially polluting liquids are stored, is restricted to authorised personnel only (Locked).

Land/Water Pollution Control



Ecology

- *Split into your groups and discuss - What do we mean by Ecology?*

Ecology is

Ecology is:

- **Wildlife** – birds, bats, mammals, insects and other protected species
- **Aquatic –** fish, frogs, newts, plant and water quality
- **Habitats** – Coastline, soils, woodlands, rock formations, removal and fragmentation
- **Vegetation** – trees, grass, hedges and plants
- **Atmosphere** – Air, Noise, dust, vibration and light

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Legislator Authorities in the UK

Natural Resources Wales (NRW)

Department for Environment, Food and Rural Affairs (DEFRA)

Natural England

Northern Ireland Environmental Agency

Scottish Natural Heritage

Other advisory groups

RSPCA

RSPB

Wildlife Trusts

Canal & River Trust

Wetland & Wildlife Trust

And other National and Local environmental groups

WALTERS

Construction Work can have direct impact on Ecology

The need for specialist environmental survey

On a larger, more ecologically diverse site, there may be a requirement for specialist environmental surveys prior to a planning application; over and above the usual Phase 1 habitat or protected species survey.

- National Vegetation Classification (Phase 2 Survey)
- Lower plant species – mosses, liverworts and lichens
- Hedges
- Invertebrates – terrestrial or aquatic
- Invasive plants






If species are found after works starts, all works must stop immediately to avoid breaking the law and expert ecological advice must be sort. If protective species are located, then special measure will be required, as removal and relocation, physical protection and even protection orders.

Protecting Natural Heritage

Sites with important ecological attributes or natural landforms can be given special protection applied at a regional, national or international level.

Sites in the UK sites can be designated under the Following:

- **Area of Outstanding Natural Beauty (AONB)** – The Gower, The Beacons etc
- County Wildlife Sites (CWS)
- Local Nature reserve (LNS)
- National Nature Reserve (NNS)
- Special Area of Conservation (SAC)
- **Site of Special Scientific Interest (SSSI)** – 300+ SSI site in SW
- **World Heritage site (WHS)** – Blaenavon (Big Pit & Ironworks) & Castle etc
- To name but a few.

Protected Species

There a number of Species that have legal protection under National and International conservation legislation.

Legislation – The Wildlife and Country Act 1981

Protected Species include:

- Badgers;
- Bats;
- Breeding birds;
- Wintering birds;
- Barn owl;
- Great created newts;
- Reptiles;
- Water voles;
- Otters (Sea & Common);
- Red squirrels;
- Dormice;
- Shrews;
- Polecats;
- Lesser spotted woodpecker;
- Common toad;
- White clawed crayfish;
- Flowers & Shrubs etc
- The list goes on:

There at present 1,150 species and 65 Habitats protected in the UK.

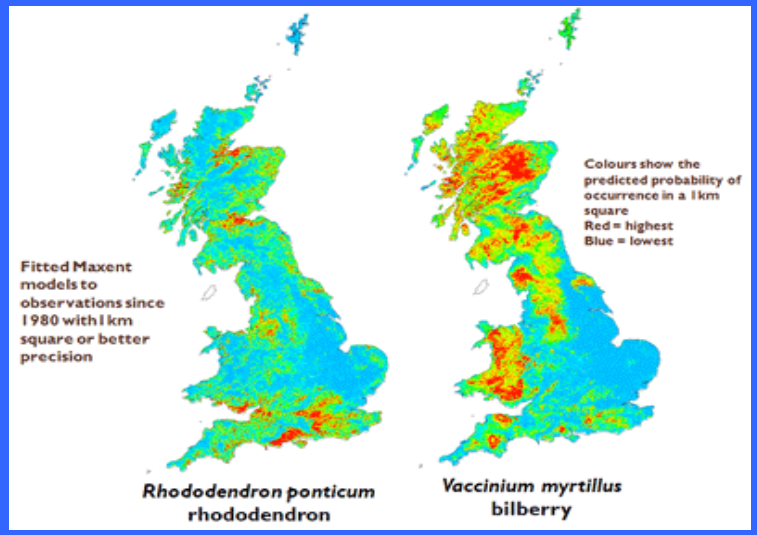
Invasive Species

What do we mean by an invasive species?

Invasive species are animals or plants from another region of the world that don't belong in their new environment. They can be introduced to an area by ship ballast water, accidental release, and most often, by people. Invasive species can lead to the extinction of native plants and animals, destroy biodiversity, and permanently alter habitats.

Who many invasive species do we have in the UK?

There is over 60 invasive species in the UK.



Most Common Invasive Species

- Japanese Knotweed
- Giant Hogweed
- Himalayan Balsam
- Rhododendron
- Parrots feather
- American Mink
- American Grey Squirrel
- American Signal Crayfish
- Muntjac Deer
- American skunk cabbage
- Coypu
- Green Algae









Legislation

Failure to plan for ecological mitigation can lead to:

Delays and cost overrun to the contract. Work can be stopped until the work does not have adverse affect on the protected species or habitat in which lives.

Fines – Up to **£5000.00** per non-compliance (Damage to Habitat, disturbance to protected species)

£50,000.00 or 6 Months imprisonment – Magistrates Court

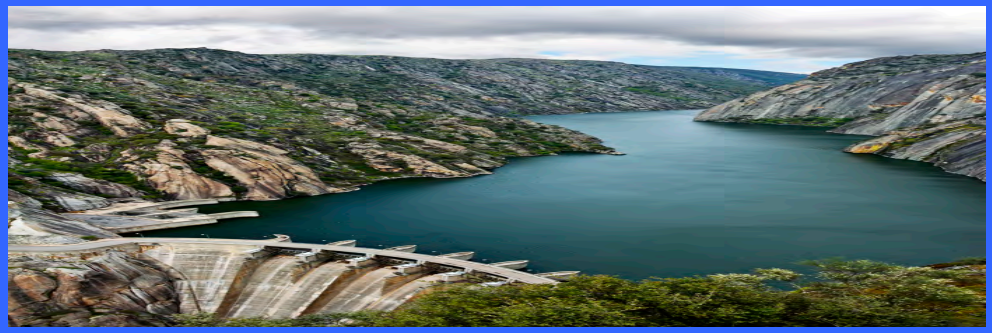
Unlimited or 5 Years imprisonment – Crown Court

This does not include the cost of the clean up and other costs

Energy Conservation

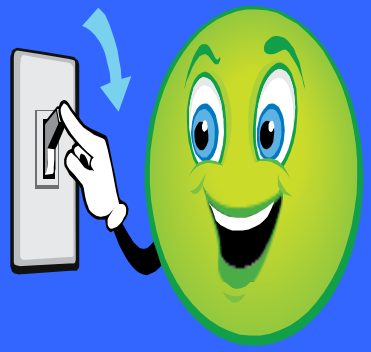
Energy Conservation Overview

- What is Energy Conservation?
- What are Renewable and Nonrenewable Energies?
- Why Should We Conserve Energy?
- How Can We Conserve Energy?



Energy Conservation

- Energy Conservation is the "Reducing the amount of energy consumed in a process or system, or by an organization or society, through economy elimination of waste, and rational use" and achieving the same affects.



Energy Conservation

Renewable and Non-renewable Resources

- Non-renewable energy is from fossil fuel and nuclear power that will be depleted over time, regardless of how it is managed.

- "Renewable energy is natural energy which does not have a limited supply. Renewable energy can be used again and again and never run out." (Clean Energy ideas, 2010) Unlike Nonrenewable energy source.

Energy Conservation

What are the benefits of conserving energy?

- Reducing All Utility Bills

- Saving Environment from Global Warming

- Reducing Emissions (Nitrous oxides and sulfur dioxide)

- Improving Your Health

Energy Conservation

How Can We Conserve Energy?

- Replacing leaky windows (Weatherproof our Homes and Offices)
- Using energy wisely (Replace with energy efficient items)
  - Replacing an old refrigerator
  - Replace thermostat with a energy efficient setback thermostat or programmable thermostat
  - Ask your energy provider to install a Smart Meter (Usually Free)

- See energy saving tips handout

Summary

- Global warming (the “greenhouse effect”)
- Ozone depletion
- Acid rain
- Depletion of non-renewable resources
- Deforestation
- Waste on Land
- Land Contamination
- Water Pollution and prevention
- Energy Conservation

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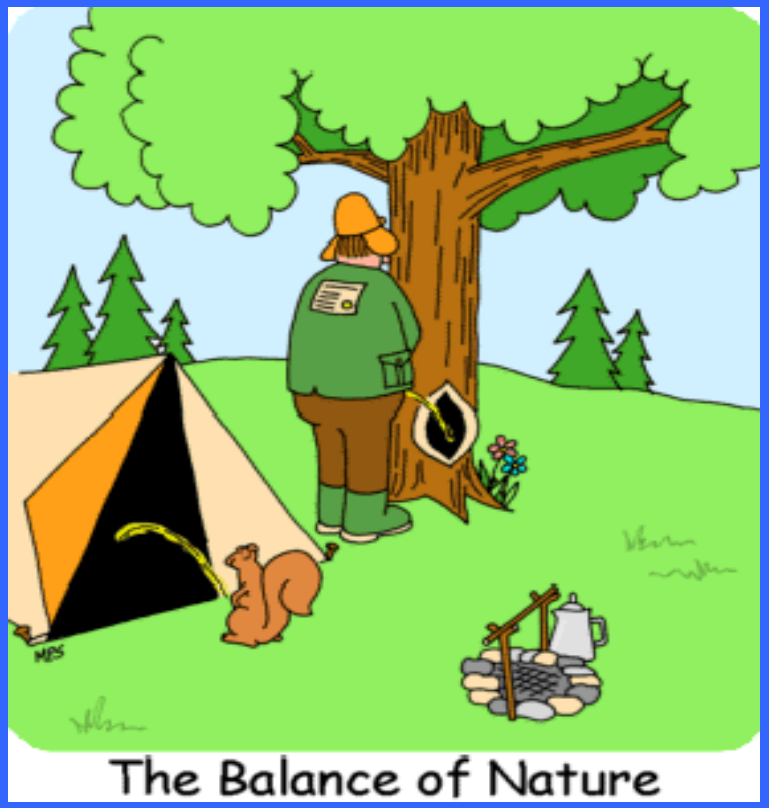
- Attempt All Questions.
- There are 8 questions in total, where some of the questions may have two answers, read the questions properly.
- At the end of the test, you will pass your paper to the person next to you to mark.
- Ensure your name, date and the score is Clearly written on the bottom.
- You have 10 minutes to complete the test, Good Luck.



ANY QUESTIONS??