

Reduction of Unintentionally Produced Persistent Organic Pollutants (UPOPs) emissions by improving waste management practices at landfills

Hazardous Waste Transportation

GEF Project ID: 5558 – Component 2 - Development and Implementation of a Sustainable Management Mechanism for POPs in the Caribbean

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Resources & Waste
Advisory Group



Introduction

Transportation of hazardous wastes –

one of the greatest areas for potential environmental contamination (by means of accident, spillage or leakage), if it is not carried out properly.

Problems observed with transportation of hazardous waste

- Insecure drums falling from vehicles
- Open containers for solids not covered
- Vacuum tankers of mild steel used for corrosive liquids
- Solids (e.g. sludges) emitting harmful or flammable vapours being carried in open containers or tippers
- Leaking or unclosed valves on tankers
- No documentation
- Absence of safety equipment (e.g. fire extinguisher)

Responsibilities of main stakeholders

Generator

- Classify waste according to agreed definitions
- Package and label waste
- Select licensed transport contractor
- Create paper record

Responsibilities of main stakeholders

Transporter

Transporter must check:

- wastes properly described
- wastes properly packed and labelled
- compliance with regulations (when they exist)

Transport must be:

- By authorised contractor
- To authorised sites

Transportation requirements

Waste movements need to show:

- Origin
- Destination
- Load identification

Licensed contractors must have:

- approved vehicles
- trained drivers
- vehicles marked with the appropriate hazard symbols
- emergency plan

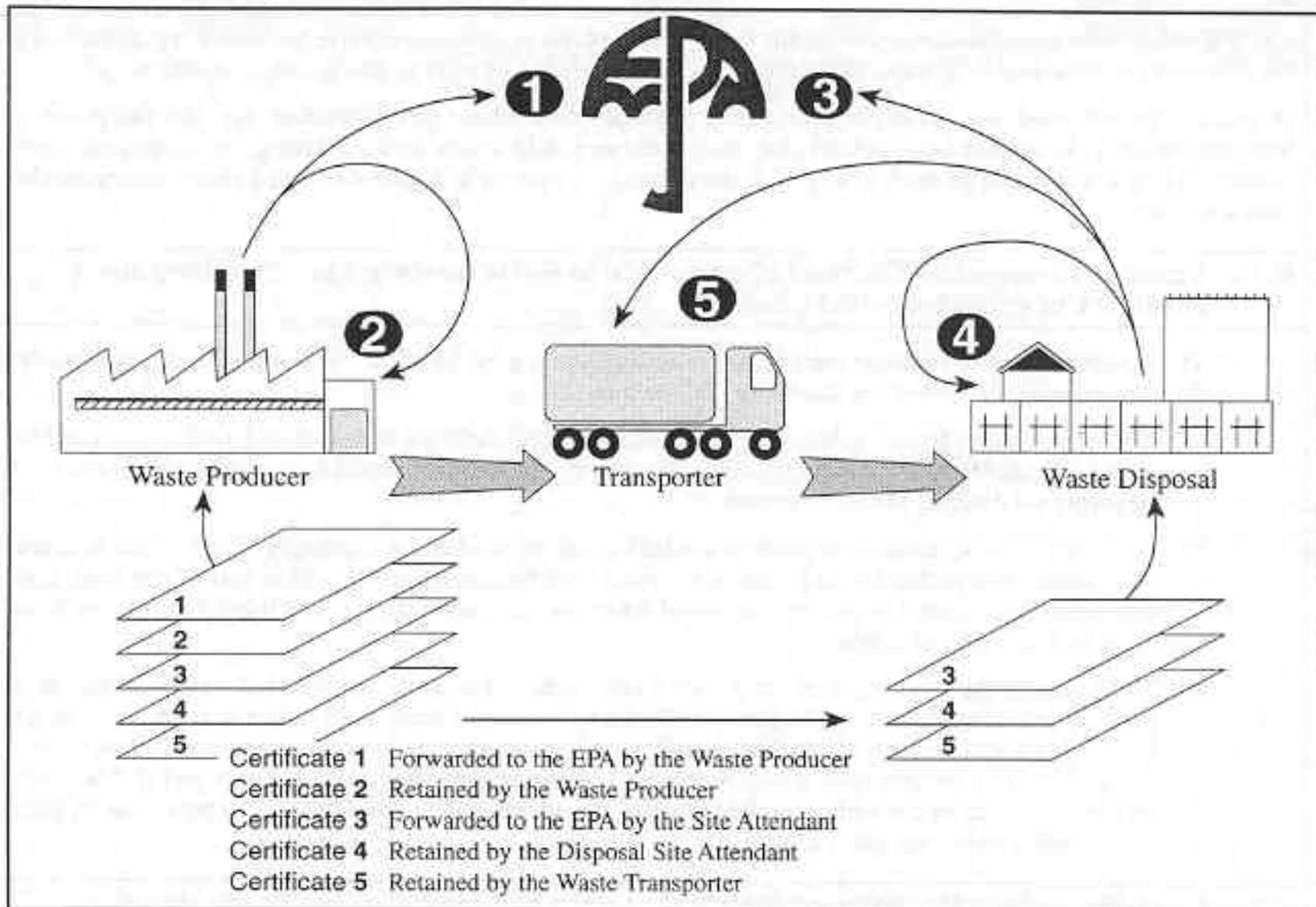
Example of obligations of transporter

- Affix or cause to be affixed in a conspicuous position in front and at the rear of any vehicle transporting a hazardous wastes a plate bearing the words “HAZARDOUS WASTES” of height 100 mm in black colour;
- The plate shall be –
 - a metal plate; and
 - of orange colour and of at least 60 cm in length and 15 cm in height.
- Ensure that the vehicle is clean and dry and fit to receive hazardous wastes for transportation;
- Ensure that the collected hazardous wastes are properly packaged and labelled;
- Ensure that no incompatible hazardous wastes are packed together;
- Ensure that only sound containers or packages of hazardous wastes are loaded for transportation;
- Ensure that waste containers are securely placed, stowed and fixed on the vehicle;
- Ensure that hazardous wastes loaded in bulk are evenly distributed within the vehicle;
- Not accept any hazardous waste for transportation unless it is accompanied by the four copies of the pre-completed consignment notes;
- Possess an appropriate insurance policy to cover all risks associated with the transportation of hazardous wastes;
- Ensure that spill management equipment (such as Empty plastic bags, suitable protective clothing, cleaning equipment, tools, and disinfectant, together with special kits) appropriate to the types of hazardous wastes being transported are available during the transportation;
- Take immediate action to contain, or abate any release of hazardous wastes being transported;

Manifest systems

- Provide a record of waste generated and its movement
- Provide information on disposal options
- Serve as a “chain of custody” document
- Carry signatures of the people handling the waste, to encourage responsible behaviour
- Enable compliance
- Ensure duty of care
- Increase responsibilities

Example -State of Victoria, Australia



Example of consignment note for carriage and disposal of hazardous waste

[Name of waste regulation authority]

Serial no.

[Address and telephone number of waste regulation authority]

Originator's reference

Producer's Certificate - A

(1) The material described in B is to be collected from:

.....
.....

and

(2) taken

to:.....

Signed.....Name.....

..... On behalf

of.....Position.....

Address Telephone

no..... Date.....

Estimated date of collection.....

(Source: Safe management of wastes from health-care activities WHO 1999)

Example of consignment note for carriage and disposal of hazardous waste

Description of the Waste - B

1. General description and physical nature of waste
.....
2. Relevant chemical and biological components and maximum concentrations
.....
3. Quantity of waste and size, type and number of container
.....
4. Origin
.....

(Source: Safe management of wastes from health-care activities WHO 1999)

Example of consignment note for carriage and disposal of hazardous waste

Carrier's Collection Certificate- C

I certify that I collected the consignment of waste and that the information given in A (1) and (2) and Collection B (1) and (3) is correct, subject to any amendment listed in this space:

I collected this consignment on at.....
hours

Signed Name

Date.....

On behalf of

Vehicle reg. no.

Address.....

Telephone no.....

Example of consignment note for carriage and disposal of hazardous waste

Producer's collection Certificate- D

I certify that the information given in B and C is correct and that the carrier was advised of Collection appropriate precautionary measures.

Signed Name

Date Tel. no.....

Example of consignment note for carriage and disposal of hazardous waste

Disposer's Certificate - D

I certify that Waste Disposal Licence No , issued by Certificate [name of issuing body], authorizes the treatment/disposal at this facility of the waste described in B (and as amended where necessary at C).

Name and address of facility

.....
.....

.....This waste was delivered in vehicle [reg. no.] at hours on..... [date] and the carrier gave his name as..... on behalf of

.....

Proper instructions were given that the waste should be taken to.....

Signed Name.....

Position..... Date.....

on behalf of.....

Medical wastes - Definition

a) any waste which consists wholly or partly of human or animal tissue, blood or other body fluids, excretions, drugs or other pharmaceutical products, swabs or dressings, or syringes, needles or other sharp instruments, being waste which unless rendered safe may prove hazardous to any person coming into contact with it; and

(b) 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

Dangerous goods regulations: ADR

Movement of dangerous goods by air, water, road and rail is subject to conditions, including:

- Classification of dangerous substances
- Packaging and labelling
- Suitability of the vehicle
- Proper training and qualifications for driver
- Information to be carried in the vehicle
- Emergency procedures to be followed

Other International regulations / Provisions

- Recommendations on the transport of dangerous goods (UNRDG)
- International Civil Aviation Organisation (ICAO): shipment by air
- International Maritime Dangerous Goods Code (IMDG): shipment by water
- United Nations Resolution on Traffic in Toxic and Dangerous Products and Wastes
- Basel Convention on the Transboundary movement of hazardous wastes
- Bamako Convention Ban on the Import into Africa and Control of Transboundary Movements and Management of Hazardous Wastes within Africa

Labelling



Oxidising agent



Spontaneously
combustible



Safety aspects

- During loading and unloading, brake must be set and the engine stopped
- Quantity limits must not be exceeded, overloading the vehicle would create unsafe stacks.
- Careful handling to prevent rupture, leaks or spills. At any sign of leak or deterioration of the container, the hazardous waste should be transferred to another container.

Safety aspects

Drivers/handlers must:

- be suitably qualified
- not smoke, take drugs or alcohol
- make inspections at set frequencies
- know emergency procedures
- attend cargo at all times
- not exceed permitted working hours
- use personal safety equipment

Vehicle design

Selection of appropriate vehicles for transporting hazardous wastes - made according to the hazardous waste type and its form.

May be influenced by the requirements of the treatment or disposal facility.

Vehicle types

Acceptable transportation methods for hazardous wastes include:

Drums on flat trailers

Vacuum tankers for bulk liquids

Vacuum tankers similar to those used for sewage (although with more safety features) are sometimes used for the transportation of hazardous wastes.

They have the capability to handle sludges and usually have an opening rear door to enable manual sludge removal. They must, however, be properly designed as pressure vessels.

Transportation of bulk liquid hazardous waste

- Can be purpose built tankers or tank containers pulled by a motor unit.
- Tank must be made of, or lined with, a compatible material which will not affect, or be affected by, the intended contents.

Compatibility of materials

Tank material or lining	Suitable waste type
Rubber lined	Hydrochloric acid
Stainless steel	Nitric acid
Mild steel, aluminium or canvas	Oils , fats , petroleum and non corrosive materials
Mild steel, aluminium	Solvents (not chlorinated solvents)

Solid hazardous waste

Transportation methods for hazardous solid wastes include:

- Drums on flat trailers
- Drums in open containers (e.g. "roll-on" or "skip")
- Open containers (e.g. "roll-on" or "skip")
- Tippers