Animal health care service

NTQF Level - II

Learning Guide -04

Unit of Competence: - Carry out Sanitation and Waste Management Duties

Module Title: Carry out Sanitation and Waste Management Duties

LG Code: AGRAHC2M04LO4-LG- 04

TTLM Code: AGRAHC2 TTLM 1019v1

LO4: Mange waste

Instruction Sheet	Learning Guide #-

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Select and use PPE
- Identify and classify general wastes
- Collection, storage and removal of wastes
- Wastes that require prior treatment

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, **you will be able to –**

- Select and use PPE
- Identify and classify general wastes
- Collection, storage and removal of wastes
- Wastes that require prior treatment

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 2 to 19.
3. Read the information written in the “Information Sheets 1”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1 on page 6”
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #4.
7. Submit your accomplished Self-check. This will form part of your training portfolio

8. Read the information written in the “Information Sheets 2”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
9. Accomplish the “Self-check 2 on page 10”
10. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 2).
11. If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #4.
12. Submit your accomplished Self-check. This will form part of your training portfolio
13. Read the information written in the “Information Sheets 3”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
14. Accomplish the “Self-check 3 on page 14”
15. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 3).
16. If you earned a satisfactory evaluation proceed to “Information Sheet 4”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #4.
17. Submit your accomplished Self-check. This will form part of your training portfolio
18. Read the information written in the “Information Sheets 4”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
19. Accomplish the “Self-check 4 on page 17”
20. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
21. Submit your accomplished Self-check. This will form part of your training portfolio

Information sheet-1	Select and use PPE

1.1. Select and use PPE

How to select your PPE

- **Familiarize with potential hazards and types of PPE available:**

1. Anticipate exposure

2. Durability and appropriateness of PPE to the task

- Consider the hazard association with Environment
- Select PPE that ensures greater level of protection than minimum requirement.
- Fit the worker with PPE and give instructions on use and care.
- Make workers aware of limitation of PPE.
- If several different type of PPE are worn together, make sure they are compatible.

In proper use of PPE

Why PPE use is important?

PPE is equipment that will protect workers against health or safety risks on the job. The importance is to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective to reduce these risks to acceptable levels.

PPE is the least effective way to protect you from hazards. That's because it may not fully protect you and may be uncomfortable to wear. However, you still have to wear it if your job requires it. **PPE** is often used in combination with other ways to control hazards, like removing the hazard or using good work rules.

All PPE clothing and equipment should be of safe design and construction, and should be maintained in a clean and reliable fashion. Employers should take the fit and comfort of PPE into con-sideration when selecting appropriate items for their workplace. PPE that fits well and is comfortable to wear will encourage employee use of PPE. Most protective devices are available in multiple sizes and care should be taken to select the proper size for each employee. If several different types of PPE are worn together, make sure they are compatible. If PPE does not fit properly, it can make the difference between being safely covered or dangerously exposed. It may not provide the level of protection desired and may discourage employee use.

PPE to meet the following

- Eye and Face Protection.
- Head Protection.
- Foot protection

What is Personal Protective Equipment?

PPE: is a barrier between you and germs. PPE for routine practices may include:

- Gloves include, procedure, surgical and utility
- Long sleeves gowns include, reusable, disposal, fluid repellent, sterile
- Facial protection includes- mask, eye protection

Mask include, procedure, surgical and mask with visor

Eye protection include, safety glasses, goggles and face shield

Self-Check -1	Written Test

Directions:

Write short answer for the following questions (5pnt each)

1. Why PPE use is important?

2. What is Personal Protective Equipment?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Name: _____ IDN0:_____

Answer sheet:

Part one: Write short answer for the following questions (2.5pnt each)

1. ……

……..

……

2. ……

Information sheet-2	Identify and classify general waste

2.1. Identify and classify general wastes

Waste: comes from different forms and may be identified/categorized in a variety ways. The types listed here are not necessarily exclusive and there may be considerable over lap so that one waste entity may fall into one to many types these are listed here:

- Agricultural waste
- Animal by-product
- Biodegradable waste
- Biomedical waste
- Bulk waste
- Business waste
- Chemical waste
- Clinical waste
- Commercial waste
- Composite waste
- Consumable waste
- Domestic waste and etc.

Definition of waste(s): are unwanted or un usable materials. Waste is any substance which is discarded after primary use, or is worthless, defective and of no use. A waste product may be came a by product, joint product or resource through an invention that raises a waste product's value.

Reporting of waste

There are many issues that surround reporting waste. Itis most commonly measured by size or weight, there is stark difference between the two. For example, organic waste is much heavier when itis wet and plastic or glass bottles can have different weights, but be the same size on global scale itis difficult to report waste because countries have different definitions of waste and what falls into waste categories, as well as different ways of reporting.

Classification report of waste

When writing a waste classification report, the following must be included

- The full name, address, company name or business number of the organization and person(s) providing the waste classification
- Location of the site where the waste wos generated, including the site address
- History of the material and the processes and activities that have taken place to produce the waste
- Potential contaminating activities that may have occurred at the site where the waste wos generated.
- Description of the waste, including photographs, visible signs of contamination, such as discolouration, staining, odours, etc.
- Quantity of the waste
- Number of samples collected and analysed
- Sampling method including pattern, depth, locations, sampling devises, procedures, and photos of the sample locations and samples
- Contaminants tested
- Laboratory documentation- chain of- custody, sample receipt, laboratory report
- All results regardless of whether they are not used in the classification process
- Brief summary of findings including discussion of results, exceedances of the relevant contaminant threshold or specific contaminant concentration and toxicity characteristics leaching procedure threshold value.
- A clear statement of the classification of the waste as at the time of the report.

Overview classification system of waste

Once it is determined that a given material is a ‘waste’ according to the applicable definition, it then needs to be classified in order to assess the most appropriate means of managing the waste and to allow the collection, assessment and reporting of data on the waste. In the case of hazardous wastes, specific classifications have been developed given the particular management requirements and the increased risk that these materials could pose to human health and the environment.

Many classification systems have been developed to satisfy data and reporting functions. These systems have usually been tailored to deliver data in a format that meets the particular reporting function, whether that be monitoring local government waste management and recovery performance, facilitating collection of landfill levies or monitoring trends in disposal and resource recovery practices. Other classification systems primarily serve a management function. They may determine which particular management options are appropriate for a given material, such as the standard of landfill that is suitable for its safe disposal or the degree of treatment required. They may impact the storage, transport, treatment, recovery and disposal options available for a given material. Classification system s may even play a role in encouraging re-use, source separation or recovery of certain materials. Systems for classifying hazardous waste are of particular interest and there are a number of reasons why they may be given specific consideration within classification systems. Hazardous waste, by its nature, has an increased potential to cause environmental harm or damage to human health and generally requires a higher degree of control over its transport, treatment and/or disposal. Hazardous waste is also subject to Federal legislation governing international transport and disposal. Given the limited availability of specialised treatment and disposal facilities nationally, hazardous waste is more likely to be transported across jurisdictional boundaries than other categories of waste. Systems for classifying waste are often directly or closely linked to classification systems for waste management functions such as those for classifying disposal and treatment facilities or collection systems. In Western Australia for example, the waste classification categories are directly coupled with landfill categories, making it clear for the user which standard of landfill is required for a given waste classification. In general waste is initially

Classified into one of three categories:

- municipal waste
- industrial waste
- Prescribed industrial waste.

Wastes which are all commonly found around the house. These include liquid waste, solid rubbish, organic waste, recyclable rubbish and hazardous waste.

Make sure that you segregate into these different types to ensure proper waste removal

Classification of waste will help you to decide how to handle it and complete the paper work you must give waste contractors so they can manage your wast.

Reference

Self-Check -2	Written Test

Directions:

Write short answer for the following questions (5pnt each)

1. Define waste?

2. Write classification of waste?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Name: _____ IDN0:_____

Answer sheet:

Part one: Write short answer for the following questions (2.5pnt each)

1. ……

……..

……

2. ……

Information sheet-3	Collection, storage and removal of waste

3.1. Collection, storage and removal of waste

In Ethiopia and many other developing countries, collection is the most expensive stage of the waste management process chain. There are two types collection waste this are:

1. Primary collection of waste: after on-site storage the next step is primary collection, is the collection of waste from the point where its placed by the person or organization that has produced it. This collection point should be located outside each individual household and business, communal containers serving a number of households, or waste skips taking waste from households and business in the surrounding area. Depending on the collection vehicle and the distance to the waste treatment/disposal site, the waste at this stage may be taken to the final disposal site or to the transfer station

2. Secondary collection of waste: are where waste from a number of primary collections is taken from the transfer station to the final disposal site. (Reference: http:www.open.edu/openlearnceate/mod/outcontent/view.php)

When it comes for collection, storing and removing waste. A distinction is made between systemic and system less approaches, the kirbside collection of bundled waste paper is an example of the latter. On other hands various container system are used for waste collection. Whereas residual waste is collected in gray containers, separate collection systems are used for a range of waste. Various container systems and vehicles are used for waste collection and transport, depending on the type of waste involved, where by a distinction between systemic and system less waste collection. In Germany, system less collection of household waste has for the most part given way to the use a broad range of container systems whose main purpose is to allow for source separation of various types of waste. The containers are placed either in very close proximity to households or at the central location. Residual waste is deposited in gray containers, to which end the following elements are used: wheeled bins that can accommodate

120-140 liter of waste, garbage bags, and 1.1 cubic meter containers that are used in settings such as large apartment buildings. Waste glass and paper are deposited in separate containers located either in residential neighborhood through depot containers or recycling yards.

Disposal or removal waste

Users are responsible for the proper disposal of the waste generated during work. Improper waste disposal may severely endanger public health and/or the environment. The handling of the hazardous waste must be regulated from the moment of generation until it is disposal at it is offsite final destination facility. A waste management system must be devised before work begins on any laboratory activity. Users must comply with the rules and regulations with their institute's environmental health and safety office, which develops and implement proper waste management system satisfying diverse regulations and standards. Such as those imposed by the occupational health safety and health administration. Proper waste disposal begins with good waste management by the researcher, including minimum waste generation, reusing surplus materials recycling of appropriate that mean uncontaminated waste. The generated waste must be properly collected and stored, paying close attention to labeling, segregating according to chemical compatibility, and accumulating in a well-ventilated location. This location should be well labeled other laboratory waste items such as sharps and glass must olso be disposed of with care in appropriately labeled and compatible containers

Waste management procedure

1. Users should make an effort to keep waste to a minimum. The best way to do so is by reducing scale of operation, which minimizes the quantity of waste generated. Whenever possible chemicals used should be substituted with less hazardous chemicals

2. Chemical quantities should be kept to a minimum. Store only what will be used in the near term.

3. Besides preventing or minimizing waste generation, chemicals should be recycled.

4. When waste is generated, it must be disposed of properly. Sink disposal may not always be a appropriate and may end contaminate drinking water. Alternative methods of disposal should be considered including incineration, treatment and land disposal method for different waste types.

Waste collection and storage

1. When generating or managing any chemical waste, appropriate personal protective equipment (PPE) must be worn, and engineering controls should be implemented as necessary.

2. Collect and store chemical waste at or near the point of generation in a designed satellite accumulation area this accumulation area should be well marked for easy identification.

3. Chemical waste must be stored in compatible containers with closed and properly fitted caps.

4. Waste containers must be labeled mentioning chemicals compositions, the accumulation start days and hazard warning as appropriate. The institute's environmental health safety office typically provides these required labels.

5. Incompatible waste type should not be mixed and should be kept separate in order to avoid any reaction, heat generation, and gas evolution.

6. Waste containers should be stored in secondary containers in a ventilated, cool and dry area.

7. In the central accumulation area waste containers should be grounded to avoid fire and explosion hazards.

8. Trained laboratory researchers who are most familiar with the waste generated should work with environmental health safety to ensure proper management wast

Sharp disposal- syringe and needles

A, chemically contaminated needles, syringes, and razor blades should be disposed inside a proper sharps container

B. Syringe or needles must never be disposed of in laboratory waste bin or a general waste container.

Users must work and comply with their institute's environmental health safety office (EHS) to determine the proper method for waste disposal satisfying diverse regulations and standards. The laboratory users should be cognizant of what waste material is being generated and hazards present should be carefully assessed to determine proper wast disposal, which may otherwise put

public health or environmental in danger. No matter how small or large a waste quantity is handled, proper PPE must worn.

Self-Check -3	Written Test

Directions:

Write short answer for the following questions (5pnt each)

1. Write waste management procedure

2. List some waste collection and storage?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Name: _____ IDN0:_____

Answer sheet:

Part one: Write short answer for the following questions (2.5pnt each)

1. ……

……..

……

2. ……

Information sheet-4	Waste that require prior treatment

4.1. Wast that require prior treatment

Pre-treatment of waste

Nearly all inert or non hazardous wastes will soon have to pre-treat before disposal to landfills this means that all inert or non hazardous landfills can no longer accept untreated waste. The requirement to treat waste is part of the main aim of the landfill to try and prevent or reduce as far as possible the negative effects on the environment.

What pre- treatment of waste mean?

For the waste to be seen as pre- treated it must comply with the definition of treatment, this involves a three point test in which the proposed treatment option must be accessed by

1. The wast must be treated by physical, chemical, thermal or biological process which includes sorting

2. The process must change the characteristics of the waste

3. It must do so in order to

- Reduce the waste volume
- Reduce it is hazardous nature
- Facilitate it is handling
- Enhance it is recovery

This means that a proportion of each waste stream must be separated out from recycling. The treatment of the waste can be a very simple process for example, if glass is collected separately at the kirbside and is then sent for recycling then the waste will fit the pre- treated requirements. Compaction would not be seen as a treatment method this is because it does not change the characteristics of the waste, therefore the potential for impact on health or the environment is the same us un-compacted waste.

The process of pre-treatment can olso be much more complicated where technologies such as mechanical biological treatment, thermal treatment and an aerobic digestion are used. Many companies and local authorities already operate some form of treatment/sorting process before landfill, in this instance you will not have to provide any form additional treatment to apply with the regulation.

Waste treatment options exists for a large amount of waste; therefore there are only two exceptions where non hazardous can be sent to landfill without being pre-treated. The two exceptions are:

1. for inert waste, if treatment is not technically possible

2. for other wastes; if that treatment would not reduce the quantity or the hazards that it poses to human health or the environment.

Wast producers must either treat their own waste and provide information about the treatment method used for subsequent holders or ensure that the waste will be treated a subsequent holder before landfill. The waste producers are not obligated to treat their waste themselves and they can use a waste contractor. The purpose of the treatment requirement is to reduce the impact of waste of waste that has to be land filled and to increase the amount the amount of wast that is recycled. The responsibility for ensuring that their waste is pre-treated rests with the west producer in a similar way to the duty of care requirements which require the producer to ensure their waste is collected and disposed of correctly. However, the point at which the treatment test is applied when the waste arrives at a landfill site and the site will require a declaration from the haulier that the waste has been pre-treated.

Self-Check -4	Written Test

Directions:

Write short answer for the following questions (5pnt each)

1. What pre-treatment waste mean?

2. There are only two exceptions where non hazardous can be sent to landfill without being pre-treated what are these two exceptions?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Name: _____ IDN0:_____

Answer sheet:

Part one: Write short answer for the following questions (2.5pnt each)

1. ……

……..

……

2. ……

Reference Materials

1: https://4waste.com.au/rubbish-removal/5types-waste-know

2. www.epa. nsw. Gov.au/your- environment/waste/classification-waste

3.www.umweltbundesamt.de/en/topics/waste/resource/wastedisposal/waste-collection-transport

4. https://www.jove.com/science-education