



Industrial and Hazard Waste Management

Regulation of Hazardous Waste Management and handling

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Content



Introduction

- ❑ The following words and phrases would have, wherever they are mentioned, the assigned meaning indicated hereinafter unless the context would indicate something else
- **Hazardous Waste Management:** the systematic control of the collection, source separation, storage, transportation, processing, recycling and disposal of Hazardous waste.
- **Manifest:** the shipping document original and signed by the generator to the final site for the disposal of the wastes. It contains the information stated in the instructions included in these regulations and will be referred to later in the manifest.
- **Hazardous Waste Discharge:** Spilling, pumping, leaking, emission, or intentional or unintentional discharge of hazardous wastes to soil and water
- **Generator:** and person, by site, whose act or activity produces hazardous waste.
- **Transportation:** the movement of hazardous waste by the licensed transport vehicle to the treatment, storage, and disposal facility.
- **Transporter:** a person engaged in the offsite transportation of hazardous waste to the treatment and disposal facility.

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Introduction

- **Treatment:** any process designed to change the physical, chemical, or biological character or composition of any hazardous waste as to render such waste non-hazardous, or less hazardous, safer to transport, store or disposal of.
- **Storage:** the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored else where.
- **Treatment storage dispels facility (TSDF):** designated site for treatment, storage or disposal of hazardous waste.
- **Operator:** the person responsible for the overall operation of the TSDF.
- **Owner:** the person who owns TSDF or part of it.
- **Landfill:** a disposal facility where hazardous waste is placed in land.
- **Landfill Cell:** a discrete volume of a hazardous waste landfill which uses a liner to provide is oblation of waste from adjacent cells or waste

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Introduction

- **Liner:** a continuous layer of natural or man-made materials, beneath or on sides of landfill, or landfill cell which restrict the down ward of literal escape of hazardous waste or leachate.
- **Leachate:** any liquid, including any suspended components in the liquid that has percolated through or drained from hazardous waste.
- **Sorbent :** a material that is users to soak up free liquids by either sorption or absorption, or both.
- **Sludge:** any solid, semisolid generated from industrial wastewater treatment plants or air pollution control facility and others.
- **Tank:** stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of material which provide structural support such as concrete, steel.
- **Tank System:** a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system.
- **Incineration:** the treatment of hazardous wastes in a device which uses high temperatures to change the chemical, physical or biological character or composition of the hazardous wastes.

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Special conditions for the hazardous waste producers

- **Free Liquids:** liquids, which readily separate from the solid portion of waste under ambient temperature and pressure
- These regulations are applied on the producers and the transporters of the hazardous waste or on the site operators and owners. Which storage or treatment or the final removal of the hazardous waste processes happened on it.

Special conditions for the hazardous waste producers:

- ❖ **First: General procedures for the hazardous waste producers.**

1- Specifying of the generated waste quantitatively and qualitatively.

2- Reducing the generated waste volume by

- following the way of controlling the pollution from the source by using the clean technology
- replacing the primary hazardous materials with materials less hazardous.
- when developing the using technology by adding required adjustment on the production processes or when following the way of recovery.

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Special conditions for the hazardous waste producers



- recycling or designing production processes on away that the production of hazardous waste will reduce or other.

3- Construction of waste treatment on the source site, on condition of getting the approval of the cooperation on the treatment way and the proposed methods for handling with the treatment effluent.

4- When finding difficulties on the treatment processes or getting rid of the waste on it's emission source, the producer shall committing on transporting these waste on the treatment center, which is certified by the general corporation for this purpose.

Second: - Storing and collecting hazardous waste procedures the following procedures will applied on. all of the hazardous waste producers when they doing the treatment process or getting rid of waste even it where on the boundary or the construction or on it's tarns-boundary.

- a) Each waste producer shall register on the corporation to get special identification number before doing any treatment process or storing or getting rid or any transporting the waste.

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Special conditions for the hazardous waste producers



- b) Each producer who do collecting and storing of the waste for pre treatment inside the construction or transporting it on another site for treatment or get rid of the waste by committing with the following :-

1. Separating hazardous waste apart from other wastes to facilitate the recovery or the recycling or treatment.
2. Sorting the solid waste from liquid waste and avoiding mixing this waste.
3. It's prohibited to mix incompatible wastes with each other for the avoidance of dangerous chemical reaction to happen.
4. The container which is used to collect wastes shall be made of a material that is compatible with the quality of the inside waste, and also it shall resist fracture or corrosion of leakage and with capacity proportion with the quality of the waste and shall be produced with tightly closed cover.
5. Clarifying label shall be put on the container carrying the phrase " Hazardous waste " with steady, clear and readable way.

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Special conditions for the hazardous waste producers



6- The label shall contain the following information :-

- A- the contents of the container
- B- the degree of hazardous for the contents.
- C- the initial date for the waste collection and the date of closure.
- D- the name and the address of the waste producer.

7- Committing on the storing conditions for each kind of waste according to the information that appears on the information's figures of the information of the chemical material (material safety data sheet) or on any of the other scientific data.

8- Sorting waste containers which their contents have possibility to react with each other by using a wall or boundary or by any other method to avoid the mixing by fault with storing period.

9- The storing location shall be in a safe place not exposed to the rainfall or the temperatures changes or humidity, while the unauthorized persons are banned to inter the site.

10- Putting guidance and warning marks in the storing location like "site of hazardous waste storage "; " please don't smoke ". and other important signs.

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Special conditions for the hazardous waste producers



11- The containers shall be stored on locations that provided with (secondary containment system) in away that the leakage will be stored if it occurs.

12- The specialized authorities have the right to make check on the storing location for the hazardous waste and taking the reacquired samples to make the laboratory analysis procedure which the authorities consider that it is important and the produces shall bear the expresses.

Third: emergency plan and procedures

A- The required material should be provided to deal with waste leakage such as: the absorbing materials and the personal precaution devices near the waste storing location.

B- Appointing a coordinator for the emergency cases has the responsibility of " in addition to his original work:-

1- he should have enough knowledge of the right methods to deal with waste and knowledge in the emergency procedures related to the work mission during the ordinary work conditions or during the emergencies in the construction.

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Special conditions for the hazardous waste producers



2- high response to any emergency case occurs which is represented with the following :-

- in case of fire occurrence, an immediate call the civil defense and working on put out the fire.
 - in the case of leakage or effluent, it should be a containment of the waste effluent. As possible, and clean the location from the waste and soils, if it's found, or any other pollutant material as soon as possible.
 - using suitable personal protection devices, and it's possible to use the information of the chemical materials in this mater . - try to confine the leakage or the effluence on certain location by using the suitable methods.
 - Preventing the access of the leaked material to the rainfall drainage's and the water resources or to the sanitary network.
 - Deal with the absorbed material or any of the pollutant materials above as hazardous wastes.
- C. in the case of explosion or firing, or any other accidents that threat the human health out side the construction, or in the cases if the flow to reach the surface water, the producer shall do these immediate procedures: -

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Special conditions for the hazardous waste producers



1- call the Corporation or the civil defense or any other related authority.

2- filling the application form special for such cases with the following information :-

- Date , time and type of accident (firing, flow,, etc)
- Quantity and type of waste
- Magnitude of damage, if it found
- The estimated quantities for the materials that recovered because of the accident, if it's fond, and the method to get rid of it.

Fourth: Conditions of saving registries and preparing reports

a) Registries of quantities and types of wastes and date of storage should be saved.

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Special conditions for the hazardous waste producers



Fourth: Conditions of saving registries and preparing reports

- a) Registries of quantities and types of wastes and date of storage should be saved.
- b) The producer should keep a registry for any laboratory test results made for the hazardous wastes, which is stored at that site and those that were transferred outside the boundary of the establishment.
- c) The producer should keep copies of the form for any load of waste for three years from the date of receipt at the specified site as a notary registry proving his compliance with restrictions for dealing with the hazardous waste. Also, it is possible to obtain copies of the form from the following places: the Corporation or any department affiliate to it in: the different governorates, the industrial chambers, and departments of health in the governorates and districts.

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Special conditions for the hazardous waste producers



Fifth: required procedures before transferring wastes:

The following procedures should be applied on the producer, who would transfer the wastes outside the boundary of the construction so as to be treated and stored or get rid of it at the specified site, therefore:

- a) the producer should enfold the wastes before transferring it outside the boundary of the building according to the instructions
- b) The producer should put a label on each cover before transferring the wastes. This label should include the following information:
 - Hazardous waste prohibited to get rid of it in unsuitable and random methods according to the valid law of environment protection, and if it is found due to any reason, he should call the police or department at that area.
 - Name and address of the waste producer.
 - Number of the filled form

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Special conditions for the hazardous waste producers



- c) Before transferring the wastes, the producer should fill a special form for handing waste over. This form should include all the required information in three copies. The producer should sign it personally or who represents him.
- d) All the copies of the form should have the signature of the waste transporter insuring the date of transfer.
- d) The producer of the waste is responsible of precision and the accuracy of the included information in the form and will pay a fine if the information is wrong or inaccurate.
- e) The producer should have a copy of the form signed from the one who is responsible of receiving wastes. If he does not have the signed form at the specified site during 30 days, the corporation should be informed in writing or head for the Corporation with a copy of the filled form.
- f) The producer is responsible of the waste resulted in his construction from its production to the treatment and development step. He will be asked when any of these wastes do not reach to the specified site for treating and getting rid of it.

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Special conditions for the hazardous waste producers



Sixth: general precautions for covering the hazardous wastes:

- a) The containers and the packaging materials should be in a good condition; also, their quality should be compatible with the waste inside it.
- b) The containers and the packaging components should not be pierced causing leakage and they should be closed in an appropriate way to prevent leakage caused by shaking or due to the change in temperature, humidity, or pressure during transferring or any similar reason.
- c) There should be a space in the containers when filling them with liquids to insure that there will be no leakage due to liquid expansion caused by the change in temperature during transport.
- d) Containers that can be broken should be packaged in a way that protect them from break or damage under normal conditions during transfer.
- e) Wastes that may react with each other should not be covered together to prevent the following:
- combustion/ emission of heat
 - forming components that are susceptible to corrosion
 - forming unstable components

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Special conditions for the hazardous waste producers



- f) Any container used for wastes should be cleaned in a way that insures that there will be no traces of waste inside it.
- g) Each container or any packaging material used for liquid hazardous wastes should have a leakage test before using it for the first time for transport and after recycling and before using it another time for transport.
- h) Containers used for solid waste, which can be converted to liquid due to the change in temperature during transport, should have the ability to contain it in the liquid condition.

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Special conditions for the hazardous waste transporter



First - general procedures

The following conditions do not include transport inside the establishment or in the site of the disposal of hazardous material:

- a) The transporter should have an identification number from the Corporation (GCEP) in order to transport the waste to the specified site.
- b) The transporter should accept the waste from the producer only if it has a special form, for dealing with waste, which has the producer signature on it.
- c) The transporter should write his signature on the form with date, he should keep a copy of this form with him .
- d) The transporter is responsible of transferring all the wastes that he has received from the producer to the specified site mentioned in the form.
- e) The transporter should have e registry of number of copies that have the signature of the producer and the waste receiver for three years.

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Special conditions for the hazardous waste transporter



Second- special conditions during emergency:

- a) If anything occurs for wastes during transport such as leakage, flow, etc., the transporter should make immediate and suitable procedure and he should inform the GCEP, Ministry of Health, Civil Defense, Public Security, so as to protect human health and environment.
- b) The transporter should clean any contamination caused by leakage or flowing of the waste during transport from his own money and according to the GCEP instructions, so that the contamination will not be dangerous to the public health or environment.

Third- conditions of transport means:

- a) Transporting wastes without authorized transporting means is prohibited.
- b) The hazardous waste vehicle traffic route should be specified, and the Public Health, Civil Defense, and the GCEP should be informed so that they will be able to deal with immediately during emergency.

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Special conditions for the hazardous waste transporter



- c) Vehicles used for transferring hazardous wastes are not allowed to pass through residential places.
- d) The concerned authority should be informed with the address of the place the vehicle is going to go to and the date and the number of authorization
- e) The drivers of these vehicles should be trained to deal with the hazardous wastes under normal conditions or emergency.
- f) Vehicle for transferring hazardous wastes should be washed and cleaned continuously and periodically and after each use according to the corporation rules, also he should keep a document that proves that he does that. This document should at least include the following information:
 - The date of cleaning process
 - Degree of the danger of waste
 - Vehicle number
 - A list of the transported waste
 - The form number of hazardous wastes handling
 - The expected quantity of waste residue, if there is

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Special conditions for the hazardous waste transporter



- Methods used for getting rid of waste residues
 - A washing station or the place where the cleaning of vehicle has been done and licensee number
 - The signature of the responsible of the washing or cleaning station
- h) The transporter should make clear procedures for cleaning vehicles from the waste residues for all the expected kinds that are to be transferred
- i) Each washing and cleaning the hazardous wastes transport vehicles station should have license from the corporation
- j) Stations responsible for washing and cleaning the hazardous wastes vehicles should write the procedure of cleaning the transporting vehicle from the residues of all the expected kinds of wastes.

The vehicles should have the following properties: -

- 1) It should be in a good condition for work and supplied with all means of safety.
- 2) Its capacity should be compatible with the quantity of waste.

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Special conditions for dealing with empty: -



- 3) The vehicles should have clear marks that indicate the degree danger of their loads and the best way to do during emergency.

Special conditions for dealing with empty: -

1. It's prohibited to throw refills, which contain residues of hazardous materials into local waste landfills or to environment randomly.
2. It's prohibited to use uncovered burning method to get rid of these refills.
3. Suitable cleaning of refills is required before getting rid of them as follows:
 - a) Emptying the material residues by using one of the applied physical methods.
 - b) After that, washing the refill three times progressively using suitable detergents or solvent that can remove the residues of chemicals or any method mentioned in the scientific references.
 - c) You should deal with the resulting washing water, after classifying it's quality as hazardous waste.
2. Applying laboratory tests by the produces to get the required degree of cleaning. if it achieves the following.

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Special conditions for dealing with empty -



5. Deciding the final method to get rid of these according to the Corporation instructions and the other concerned authorities.
6. The refills that were filled with components or hazardous waste, except the compressed gas refills, are considered to be empty
 - a) The amount of residues in the bottom of the container or the concerning material should not exceed (2.5 cm) or the refill quantity of the covering material should not exceed 3% of the total weight the if its capacity is less or equal to 460 liters.
 - b) The containers that were filled with compressed gas are empty if the inner pressure of the refill is equal to the atmospheric pressure.
7. The producer will bear the legal consequences if residues of chemicals and hazardous wastes are found in the empty.
8. The following refills should be dealt as hazardous waste whatever the treating method is:
 - Refills made from materials that have great ability of absorption (such as wood, carton paper) and that were in direct contact and therefore it absorbs the filled hazardous waste or components.

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Special conditions for dealing with empty -



- Consumed oil filters (if it's not reused).
- Equipment contaminated with polychlorinated biphenyl - PCB)

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



First: Receiving and registering the hazardous wastes: -

- 1) Each cargo of waste should have an applied form signed by the producer and the waste transporter which elaborates all the necessary information.
- 2) Wastes are accepted (received) only from the transporter who has identification number from the Corporation.
- 3) The owner or the operator of the site should examine each cargo of waste entering the site, and if necessary applying for laboratory tests required to make sure that is identical to the information mentioned in the form.
- 4) The owner or the operator of the site has the right to ask the producer to remake laboratory tests for the cargo of waste under the following conditions.
 - a) When examining the entering waste and it is found not identical to the information mentioned in the form.
 - b) If there is any change or modification on any of the industrializing stages of the process and which can lead to produce hazardous waste.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



5) The owner or the operator of the site should follow a written plan for examining waste which includes the following:-

choosing the applied procedures to test it, to make sure that it is identical with the mentioned information in the form attached with the waste

- b) methods for taking representative samples.
 - c) Examination methods of the different required characteristics.
 - d) The properties required to be tested and reason for choosing these properties.
 - e) Redo examination of the waste samples to make sure that the analysis is precise and the information is new.
 - f) Choosing the analysis required to be done by the procedure.
- 6) The owner or the operator of the site, after reviewing the mentioned information in the form and insuring that it's coincident to it, should sign the form and give a copy of it to the procedure while keeping a copy for himself in the site.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



7) After the required examination and laboratory test in the site, if there is no coincidence with the information, he should inform the procedure and the Corporation during two weeks.

Second: - procedures for emergencies and fire.

a) The owner or the operator of the landfill should put an emergency plan to reduce danger to human health and environment resulted from fires or explosions or any sudden treatment of wastes to air, soil, or surface water.

b) This plan should show the procedures made with the help of public health or civil defense or any emergency team in addition to employing responsible people in the landfill if any emergency occurs at the site (the emergency coordinators).

c) The emergency coordinator when emergency occurs, should make sure of the following:-

1. treatment or storing or getting rid of any waste that may be not compatible with the leaked components will be after finishing all the required cleaning.

2. the mentioned emergency equipment in the previous points should be cleaned and checked of their efficiency periodically.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



3. The concerned authority should be informed with the completed procedure , and he should prepare a report that includes the following:-

a) the name and address of the owner or operator of the landfill.

c) Date and type of accident (fire, explosion, flow, ...etc).

d) list of names and amounts of materials that were exposed to the accident.

e)Assessment of damages that occurred and their effects on the human health and environment after accident .

f)amounts of components that have been returned after accident , if there is .

4. It is necessary have alarm devices immediately during emergency with the required equipment and machines in area that is easy to access: equipment for preventing fires, removing pollution, etc.

5. It's necessary to have extinguishing fire system that works automatically; it should be tested and detected periodically.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



Third: Special restrictions for safety and health of the employees in the site.

- a) all the employees should be trained to deal with the hazardous waste with appropriate management to secure public safety for them.
- b) personal protective equipment should be available (protective clothing and shoes, etc.) for employees. It's also necessary to have medical care periodically .
- c) First - aid box is required.

Forth: Special restrictions for dealing with hazardous waste including storing, treatment and getting rid of them.

- a) restrictions for storing waste.
 1. Damaged containers or that have leakage (holes , rust , etc.) shouldn't be utilized.
 2. waste should be transferred from the damaged container to another refill that is in a good condition or dealing with them in a proper way.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



3. containers used for storing hazardous waste should be made of materials that do not react with the waste inside them to prevent any damage of the container of the sleeve material .
4. It's prohibited to put incompatible waste together in the same container to prevent emission of heat or generating pressure or combustion or explosion or forming hazardous dust, etc.
5. Each specified site for storing hazardous wastes should take into consideration a secondary containment system) so that it will provide an additional protection that will prevent any leakage of pollutants to environment in case the primary containment system fails.
6. The secondary containment system should have the following requirements :-
 - The base under the containers should not have holes , impermeable to contain leakage, pouring or accumulative precipitation till the removal of the gathered material
 - The base should have a slope and a containment system designed in a way that insures the removal of liquids resulted from leakage, pouring, etc. unless the containers are high or protected from contact with the gathered liquids.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



- The secondary containment system should be able to accept at least 10% of container capacity.
 - The rainwater is prohibited to enter the secondary containment system unless it has the ability to deal with such conditions like that.
- 8) the containers which contain hazardous should always be closed during storage unless it is necessary to add or empty wastes.
- 9) It's prohibited to open containers that contain hazardous waste or use them or store them in a way that damage the container or cause its leakage.
- 10) The owner or the manager of landfill should have weekly detection of storage site to make sure that there is no leakage or damage in containers or the secondary containment system due to corrosion or any other reasons.
- 11) It is necessary to remove all the hazardous waste or residues of waste from the secondary containment system site during closure.
- 12) It's necessary to remove contamination from the remaining containers, liner-polluted soil with hazardous wastes or their residues.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



B) Land filling

1- It is necessary to sleeve the area that will be used for land filling , sleeving should have the following restrictions :

a- the sleeve material (liner) should be designed and constructed in a way that prevents any leakage of wastes in to soil layers under the liner or to the ground or surface water during the operating time of the landfill

b- The liner should be made of material that have chemical properties with suitable thickness and length to prevent any defect resulted from difference in pressure (including static pressure and extensive hydrological strength) or physical contact with waste or the leaked leachate or atmospheric conditions or pressures that affect the liner during construction and daily. land filling process.

c- It should be put above a base that has the ability to support the sleeve material to prevent any defect resulted from the falling of the base or stretching strength and vertical lifting.

d- The liner should cover the whole land filling area, which is expected to be in contact with waste or the resulted leachate.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



2) It's necessary to prepare a system for collecting and draining the leachate above the liner directly, it should be designed in a way that

enable the removal of leachate from the site, and the depth of the leachate above the liner should not exceed 30cm.

- the discharge system should be made of materials that are chemically resistant to the quality of wastes and the resulted leachate, and from a material that has a suitable thickness and strength that prevents collapsing due to pressing the layers of wastes and the waste covering material above them or any used devices in the landfill site

- it should be designed in a way that prevents the closure of the collecting leachate pipes during operating the landfill and after finishing

3)The landfill management should design and construct a system for draining the rain water to prevent them from entering the landfill area depending on an estimation of a flood or storm during twenty five years

4)The landfill management should cover the landfill area efficiently in the presence of dispersed component due to the wind

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



5) The liner should be examined during the construction of the landfill to insure the safety of the lining system to insure the homogeneity and regularity of the liner and the absence of holes and weak areas

6) After finishing from the construction of liner, it is necessary to make sure from the safety of connection and that there is no tear inside it

7)The landfill should be visited weekly during the operating time of the landfill and after rain to ensure the presence of the following:

- defects in the discharge system of the internal and external water

- suitable cover for volatile compounds

- the presence of leachate and make sure of its efficiency in the discharge system

8) The landfill management should keep the following information in a special registry:

a) location and dimensions of all the landfill cells and joining them with fixed points in a map that shows the landfill site

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



b) the contents of each landfill cell and the approximate location for each type of hazardous waste inside the same cell

9) the landfill management should, during the closure of landfill site or any cell inside the site, cover it with a final layer designed especially as follows:

- a) it should slow any expected movement of liquids into the closed landfill site
- b) it should have the minimum possible maintenance
- c) it should improve the drainage of water and reduce any erosion of the final cover
- d) the falling of the final cover should be contained to insure its safety

10) after the final closure, the landfill management must implement the following:

- a) the final cover should be kept perfect and efficient, and maintained to fix any possible defect due to corrosion or falling
- b) the continuous operation of collecting and discharge of leachate system to ensure the final stop of the appearance of leachate

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



c) the necessity of supervising the quality of ground water

d) the prevention of rain water from damaging or causing harm to the final cover

e) keeping the points of the used area for defining the landfill location

11) Special requirements for flammable or reactive waste and inconsistent wastes

- it is prohibited to landfill reactive or flammable wastes unless they are put in an impermeable container and dealing in a way that prevents their exposure to heat or spark or any condition that causes ignition

- wastes should be covered daily with soil or any incombustible material in order to reduce the possibility of the waste ignition

- these wastes are prohibited to be discharged in a cell that may contain waste that evolves sufficient heat that causes ignition of reactive or flammable wastes

- the dissimilar wastes are prohibited to be put together in the same cell

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



12) Special requirements for liquid wastes

- it is prohibited to discharge containers that contain liquid wastes in the landfill site under the following conditions

- if the free liquids are removed using any applied methods

- if the liquid wastes are mixed with sorbents so that the free liquids can be seen

- if the containers are small like Ampolyates.

- if the containers are designed to contain liquids for purposes other than storage like liquid batteries

c) Special restrictions for using tanks for treating or storing hazardous wastes

1) the tanks should be designed properly and made of suitable material that has a structural strength that is compatible with the waste quality that will be stored or treated to prevent them from collapsing or cracking in it

2) the following conditions should be taken into consideration when designing tanks

a) design properties

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b) properties of hazardous wastes that will be dealt with

c) corrosion protection

d) notary age for tanks, if there is

e) results of leakage test, detection and continuous supervision or any other tests

3) it is necessary to construct a secondary containment system for tanks to prevent leakage of hazardous wastes or any of its contents to environment in a way that it will completely be surrounded, and cover the surrounding soil which is expected to be in contact with wastes when leakage occurs

4) it is necessary to use a suitable control method to prevent leakage or flooding from tanks or secondary containment system

5) it is necessary to remove or change the tanks that has leakage immediately and prevent wastes from entering the tank and discharging them into the secondary containment system and make the required tests and detection to define the location of leakage

6) it is necessary to remove soils and polluted surface water and deal with them in a suitable way

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



7) it is prohibited to put flammable or reactive wastes and deal with them in tanks unless :

- the wastes were treated or mixed before putting them together in such a way that prevents the presence of properties that encourage inflammation or reaction
- the wastes were treated or stored in a way that protects them from any component that causes ignition or reaction

8) after finishing and closing tanks, it is necessary to remove all the residues of wastes and contamination from the secondary containment system and deal with those as hazardous wastes.

d) Incineration

1) the incinerator should be operated according to the required operation decided before and to the quality and properties of wastes that will be incinerated

2) the following things should be taken into consideration when incinerating hazardous wastes

- amount of wastes to be incinerated - chemical and physical properties
- average of adding wastes
- design and operating conditions of the incinerator

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



- procedures to prevent or reduce the air evolving to environment

- dealing with the incineration residuals

3) It is prohibited to add wastes at the beginning of operation or stopping it unless the incinerator works properly (temperature, average of entering air, etc.).

4) It's necessary to control the leaky regeneration from the combustion chamber by coherent close of the chamber or keeping the pressure inside it less than the atmospheric pressure or any alternative method.

5) The incinerator should be supplied with a method for preventing the entering wastes in case that there is not compatibility with concise operating procedures.

6) It's prohibited operating the incinerator in case that it exceeds the allowed limits of quantity and quality of the entering wastes or the operation or designed conditions.

7) The hazardous waste incineration should be operated of high temperatures that reaches 1300 c, and sufficient residence time for destroying organic components and other components of the hazardous wastes.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



- 8) The specified area for incineration should be supplied for receiving and separating and sorting wastes before combustion.
- 9) It is necessary to separate wastes during storing according to its properties and compatibility and degree of hazard.
- 10) It is necessary to separate dissimilar wastes due to uncontrolled reactions that may occur.
- 11) It is necessary to separate all the identical wastes in groups according to heat formation of their components which will provide the opportunity for blending wastes in a way that will give the required heat needed for combustion.
- 12) The owner or the operator should make trial burn and the required analysis of wastes.
- 13) It's necessary to make the required analysis for the samples of wastes to be incinerated to make sure that the average of adding wastes is consistent with the physical and chemical constituents under the normal operating conditions.
- 14) The efficiency of destruction and the removal of the hazardous constituents and pollutants in wastes should be compatible with the properties and applied restrictions.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



- 15) It is necessary to control the following procedures periodically during incinerating the hazardous wastes: heat of combustion gas, average of entering wastes, velocity of combustion gas, concentration of CO₂ at the end of combustion chamber and before the evolving into the external air.
- 16) It is necessary to take samples and make the required analysis for wastes or the resulted evolving, when related authorities asked for.
- 17) It is necessary to examine the incinerator and it's related parts so as to detect that may lead to leakage, etc.
- 18) It is necessary to prepare an emergency plan to deal with any leakage or pouring , it should include the following procedures:
 - a- Controlling the leakage or poured wastes.
 - b- Identifying all the present devices.
 - c- Describing the expected hazard from leakage.

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Special conditions for the owners or managers of the specified site for storing, treating and getting rid of hazardous wastes: -



- d- Emergency closure procedures.
 - e- The serial applied procedures during poured accident.
 - f- List of responsible persons during emergency.
 - g- Devices and available materials for cleaning and containing contamination.
 - h- Variants for getting rid of poured material.
- 19) when the incinerator finishes work and before final closing, the owner or the operator of the site should remove all the hazardous wastes or their residuals (like ash, sludge, ...etc.).

Anyone who breaks the rules of these regulations will be punished regarding to rules of the law.

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