

Specialized audit results on landfill

In General Municipalities Directorate Ministry of Municipalities and Public Works

From 1/January2009 until 31/March 2013

Introduction

Environmental affairs specialized control body conducted specialized control and audit works on General Municipalities Directorates/Ministry of Municipalities and Public Works from (1/January2009 until 31/March 2013) according to Federal Board Of Supreme Audit requirements No.(31)2011 moderated and other in force legislation, implementing the administration order No.(3745)in 11/2/2013 that include the following :-

1- Audit objective

Auditing the General Municipalities Directorate role is to establish and control landfills sites and rescaling plants of the municipality according to the laws legislations and instructions.

2- Adopted standards

- a –Determinants of the World Health Organization (WHO) with respect to air, water and soil.
- b - Environmental legislation issued by the Department to protect and improve the environment for the year 1988.
- c- Water and revisers maintenance system No. (25) 1976(amended)
- d- The Ministry of the Environment Act No. (37)of 2008.
- d - The law to protect and improve the environment no. (27) of 2009 .
- e - Baghdad Municipality Law No. 16 of 1995
- f- The law of the Ministry of Municipalities No. (165) of 1994 (amended) .
- g – Instructions and environmental determinants for the establishment of projects and monitor the implementation of safety (No. 3) of 2011.

3-Adopted methods

Environmental audit in commitments methods (laws, systems and legislations). Where the method of environment audit used for the way of municipality offices commitment with laws ,systems and legislation issued by Environmental Ministry and related parties.

4-Reasons of selecting this subject

The reason of selecting landfill and wastes recycling plants subject because of the importance of this subject and its direct effect on environments and public health in terms of :

- The scope of commitment of landfill sites and recycling plants with site and other environmental determinates.
- The applicable procedures in landfill waste also discharge and loading inside the municipality waste recycling plants and the efficiency of the needed equipments for the landfill process according to issued instructions in this regards.
- Requirements in site as filtrate discharge pipes resulted from waste decomposition vent pipe sites results from waste biodegradation.
- Methods of treating solid and liquid waste according to stipulate instructions No.(2)1990 issued according to law .

5- Landfill sites

The Municipality Directorate explained that the associated Municipalities distributed according the classification of Municipality Ministry that depended on population receiving the services as the following (primer class, first class ,second class and third and fourth classes) the municipalities from fourth class represent the large number of municipalities that depends landfill in sites dedicated for healthy landfill as a method to treat waste , through documents auditing and filed visits we have the following notes about landfill in terms of :-

a- Obtained environmental approvals

The waste landfill sites consider as environmental activity pollution type (a) for its negative effect directly on environment in this sites that consider as a place of gathering disease vectors in addition to spread dangerous gases and vapors resulted from waste decomposition or burning in these sites also filters leak resulted from these waste into underground water and nearby water resources , that required to establish regular landfill sites that consider one of the final

disposal stages of waste that consider an important part in the sound administration strategies of waste that must be adopted by municipalities directorate and the need to find integrated regular sites for landfill that able to absorb the increase the volume of waste for the coming years without these regular sites to manage waste will be difficult to prevent random dumping one of its result is irregular waste burning thus its impossible prevents environmental pollutions for the area around the landfill the General Directory of Municipalities didn't depend currently and practically any strategies in managing waste and save disposal on basis sustainable development and environment management system

Through studding presented documents we notice that most of landfill didn't have environments approvals and non compliance with environmental determinates the numbers of sites having environmental approvals are (16) sites and (116) sites didn't have environmental approvals in addition to (110)random sites of total (243) municipality offices in Iraq except the municipality related to Baghdad Municipality and Kurdistan reign the table below show municipality offices number for each provinces and landfill having environmental approval or not and the random sites :-

Random sites	Sites haven't environmental approval	Sites have environmental approval	Municipality numbers	Municipality offices title	No.
!!	!!	!	!!	Nineveh municipality	!
!	!	!	!	Mosul municipality	!
!	!	!	!	Kirkuk municipality	!

!	!	!	!!	Al - Tamim municipality	!
!	!!	!	!!	Diyala municipality	!
!	!	!	!	Baguba municipality	!
!	!	!	!!	Salhudian municipality	!
!	!	!	!	Tikrit municipality	!
!!	!!	!	!!	Al - Anbar municipality	!
!	!	!	!	Al- Ramadi municipality	!!
!	!	!	!!	Baghdad municipality	!!
!!	!!	!	!!	Babylonia municipality	!!
!	!	!	!	Hilla municipality	!!
!	!	!	!	Karbala municipality	!!

!	!	!	!	Karbala municipality	!!
!	!	!	!	Al- Najaf municipality	!!
!	!	!	!	Al – Najaf municipality	!!
!	!!	!	!!	Wasit municipality	!!
!	!	!	!	Al-Kut municipality	!!
!	!	!	!!	Al-Qadisiyah municipality	!!

b- Municipality waste recycling and sorting plants

The Article (48) of Environmental Determent Instruction to establish projects and control implementation safety No.(3) 2011 stipulate to establish sorting and recycling areas with the established landfill sites in order to :

First: Reducing waste quantity that can be buried in the typical landfill sites and benefit from the recyclable materials in order to remanufacturing again.

Second: The best use of the absorptive capacity of the landfill site through waste pre- pressing after sort the recyclable materials.

Third: Reducing the horizontal expansion of the landfill.

Fourth- providing financial resources by investing methane gas produced from the decomposition of organic waste that will landfill within the cells in the typical landfill sites to power generation.

Through the submitted documents and filed visits we didn't notice any establishing or planning to establish waste sorting and recycling plants except in AL - Mahmudiya Municipality that have waste recycling plant recently its under construction in addition to not thinking how to discharge the materials resulted from sorting and recycling .

c- Typical sites for municipality waste landfill

The environmental determents instructions, No. (3) 2011dictated to provide environment requirements especially for landfill sites in order to reduce negative effect on the surrounding environment for these sites as the following:-

First: - set up outside the municipality boundaries a distance no less than (2) km. also the distance from communities no less than (1) km. also from the highway and in suitable sit.

Second:- working according to scientific basis followed in waste landfill operation..

Third:- fenced sites before beginning using the sites with necessity of planting the sides of the sites as possible .

Fourth: - Establishing the toads inside and out side sites in order to facilitate vehicle movement.

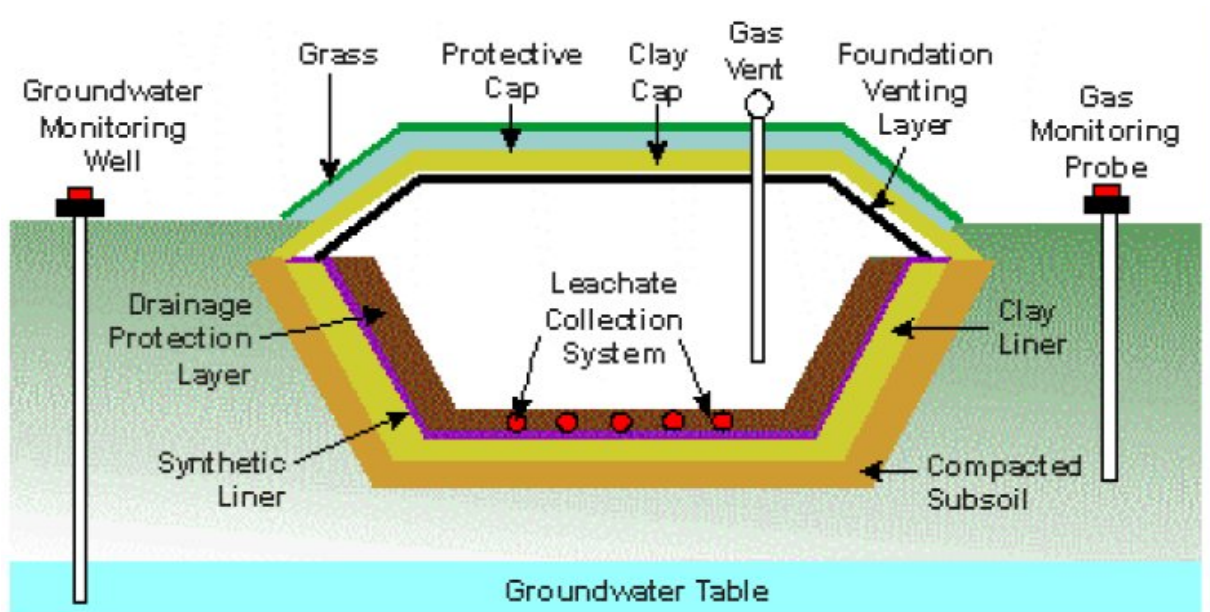
Fifth:- providing the necessary instruments and vehicle in the landfill operation in the right way .

Sixth:- leave the site after filling with waste and use the site after level the soil surface as green areas.

Seventh:-treats the soil surface decrease after appropriate period.

Eighth :- providing Site with tubes to drain the leachate formed by the decomposition of waste site, with lining the site with impermeable material for this leachate to protect underground water from organic waste leachate.

The figure below illustrate the typical cell for landfill site



Through studying the provided documents and field visits to landfill site related to municipality offices in provinces we notice that there is lack of commitments with environmental determinates to establish these sites except the two landfill sites Kirkuk and Basra , where landfill project established in Kirkuk by The U.S. Army Corps of Engineers support note that the site holds the environmental approval and confirm with standards and environmental determinates , the total project area (480)Acres the currently used is (240)Acres the area of each cell is (300m× 600m) and the landfill projects in Basra through (UNICEF) and Organization of the United Nations Human Settlements and holds all the environmental approvals and confirm with standards and environmental

determinates in total area (400)Acres the area of the current project is (250)Acres in depth of (4)m.

D- Landfill mechanism in landfill municipality

First: environmental requirements for landfill within the landfill sites.

(1) waste laid in the form of layers and then pressing by mechanical means and then covered with soil and then followed by a second layer of waste and another layer of soil , taking into account the commit with the following:

(A) The thickness of the layer of waste (01/01 to 05/01) m .

(B) The thickness of each layer of the dust layer above the waste (20-30) cm .

(C) Must cover the waste at the end of each working day with a layer of dust, as in (b) above to prevent the breeding of insects and emotion of odors .

(D) Must be the final earthen layer thickness ranges between (50-80) cm with the necessity of giving the necessary permits for the discharge of rain water and prevent rainwater gathering .

(E) Taking into account the accuracy of the layers process above the waste and soil layers.

(F) The necessity of the use of pesticides and chemicals to combat rodents and insects.

(G) the possibility of use of the ruins of the buildings as a result of the demolition , repairs and materials resulting from construction to cover the waste.

(2) In the case of non-availability low lands must dig trenches to bury the waste depth of at least (3.4) m and a width of 6 m and used the same method of buried in (1) above.

(3) You must provide an integrated unit of machinery and equipment for each site of healthy landfill sites allocated entirely for this purpose and can not be used for other purposes, including unit with automatic equipment (bulldozer, an excavator, grader, and excavator) its number depend on the Location size and nature.

4- Must provide the required staff for each site, and they are dedicated to this work of workers and foremen, administrators and as the following (administrative, observers, technical observers, driver, worker).

Second: The current action mechanism in the current municipal offices to landfill in process and landfill sites:

- (1) The lack of an integrated cadre of professional staff should be available within the landfill .
- (2) The lack of an integrated unit of machinery and equipment in most landfills in addition to the use of the mechanisms in other duties outside the landfill .
- (3) Failure to dig trenches to bury the waste in some locations, which were not exploited Quarry.
- (4) Failure to cover waste in some locations at the end of the day and before the end of the work.
- (5) Failure to conduct land roller process properly for lack of roller machines in most landfills .
- (6) No chemical spraying operation in most landfills.

7- Recycling plants for municipal waste

the instruction refer to the environmental determinants for the establishment of projects and monitor the implementation of safety (No. 3) for the year 2011 to the following regarding the recycling plants of municipal waste :

A - should be set up within the municipal boundaries and within the designated areas of public services , and away from population centers , hospitals , health centers and educational facilities distance of not less than 250 meters .

B - Waste collection within the court sheds and controlled in accordance with the specified design.

C - Conduct loading and unloading inside sheds court.

D - The transfer of waste per day to landfill sites.

Through our field visits and audits the submitted documents of the recycling plants we notice there are a number of recycling plants holds a non- environmental approvals and others holds environmental approvals and the following table shows that : -

Recycling plants have no environmental	Recycling plants have environmental	Municipality number	Municipality title	No
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approval	approval			
!	!	!!	Nineveh Municipality	!
!	!	!	Mosul Municipality	!
!	!	!	Kirkuk municipality	!
!	!	!!	Al - Tamim municipality	!
!	!	!!	Diyala municipality	!
!	!	!	Baguba municipality	!
!	!	!!	Salhudian municipality	!
!	!	!	Tikrit municipality	!
!	!	!!	Al - Anbar municipality	!
!	!	!	Al- Ramadi municipality	!!

!!	!	!!	Baghdad municipality	!!
!	!	!!	Babylonia municipality	!!
!	!	!	Hilla municipality	!!
!	!	!	Karbala municipality	!!
!	!	!	Karbala municipality	!!
!	!	!	Al- Najaf municipality	!!
!	!	!	Al – Najaf municipality	!!
!	!	!!	Wasit municipality	!!
!	!	!	Al-Kut municipality	!!
!	!	!!	Al-Qadisiyah municipality	!!
!	!	!	Al – Diwaniah	!!

			municipality	
!	!	!!	Ti-Qar municipality	!!
!	!	!	Nasria municipality	!!
!	!	!!	Al- Muthina municipality	!!
!	!	!	Al – Samoa municipality	!!
!!	!	!!	Myssian municipality	!!
!	!	!	Amara municipality	!!
!	!	!!	Basra municipality	!!
!	!	!	Total	!!
!!	!!	!!!	!!!!!	

From the table above illustrated the lack of recycling plants having environmental approvals, where the percentage of plants is having environmental approvals (86%) of the total plants in the general municipal offices as a random plants does not

match the environmental determinants , they adversely affect the surrounding environment, especially as it is located within or around neighborhoods.

8- Cleaning fees

the Directorate of public municipal hasn't any information base for cleaning fee to be levied has relied on the returns of General Directorate of Water as the Fee-cleaning is done by collectors the General Directorate of Water and the following table shows, for example, revenues cleaning fee for the years 2011 and 2012.

The sum	The year
!!!!!!!!!!!!	!!!!
!!!!!!!!!!!!	!!!!

9-quantities' of sorted and lifted waste

Through provided documents from the municipal directorates in the provinces for the years 2011 and 2012 ,were audited waste sorted , standard and calculated wastes on the basis of (1,200) kg / person / day has been noticed that most of the waste-secreting more of the waste brought leading to accumulation for the purpose of processing the municipal Directorates campaigns conducted every (2-3) a month for the purpose of raising the accumulated .

10- Conclusions

- a - most of the current landfill sites environmental approvals.
- b - Lack of typical landfill sites only two sites.
- c – Doesn't use the correct methods in landfill operations and as stipulated in environmental legislation.
- d - The absence of any factor associated with landfill sites for the purpose of sorting and recycling of waste.
- e - Failure to pay or allocation sums to set up healthy, typical landfills recycling plants and municipal waste.
- f- the lack of an integrated unit of specialist vehicles and equipment to be used in

landfill sites.

g - Most of the recycling plants haven't environmental approvals and mostly exists within communities.

i – Standard waste high quantities prescribed for in some s of the municipality's offices.

11 - Recommendations

The report Concluded the following recommendations: -

a - Requiring all municipal offices to develop a plan to create a healthy regular landfill sites according to typical environmental legislation issued in this regard .

b - Must obtain sites environmental approvals and other environmental requirements before using any landfill or manufacturing plants.

c - Compliance and correct methods stipulated environmental legislation in landfill operations, such as digging trenches for the landfill and then roller and covered with earth.

d – Establishing sort and recycle waste plants to take advantage of materials that can be recycled or re- manufactured and reduce the amount of buried waste.

e - Organize and prepare an integrated database for cleaning fee.

h - Processing waste quantities and not left to accumulate.

15 – Treatment and proposals

a - allocation of funds for the establishment of a regular landfills.

b - Take advantage of companies with expertise in the field of creation of a typical landfill.

c - Create a coefficient of sorting and recycling of waste near landfill sites to be created.

d - Take advantage of the methane gas produced from the decomposition of buried waste to produce energy.

e - Create a model and massacres by the need for each province to reduce the phenomenon of random islands.

f - Allocation of funds for the rehabilitation of existing massacres (confirm with sites determinants) , especially for the establishment of processing units and typical incinerators .