105-108
115

105, 106, 107, 108, 111, 115

Mayo Hospital, Lahore

Waste Management Plan

WASTE MANAGEMENT PLAN

This document is based on in accordance with Punjab Hospital Waste Management Rules 2014 under section 31 of Punjab Environmental Protection Act 1997.

The waste management plan shall be regularly monitored, reviewed, revised and updated by the hospital waste management team as and when necessary.

According to Punjab Hospital Waste Management Rules 2014, The Waste Management Plan shall include.

- A Plan of the hospital showing the waste disposal points for every ward and department, indicating whether each point is for risk waste or non risk waste and showing the sitter of central storage facility for non risk waste.
- Details of the types, numbers and estimated cost of containers, waste bags and trolleys required annually.
- Time table indicating frequency of waste collection from each ward and department.
- Duties and responsibilities for each of the different categories of hospital staff numbers, generating hospital waste and be involved in management of waste.
- An estimate of the number of staff members required for waste collection.
- Procedures, for the management of waste requiring special treatment such as autoclaving before.
- Contingency plans for storage or disposal of risk waste in the event of breakdowns of incinerators or of maintenance or collection arrangements.
- Training courses and Programmes on waste management.
- Emergency Procedures.

Deputy Medical Superintendent
Admin
Mayo Hospital, Lahore.

Estimate of Material & Human Resource

Annual Demand for General Store items FY 2022-23

Sr. No.	Name of Item	Unit	Annual Demand	Schedule	Estimated Rate Per Unit	Total Cost	2% Estimated Cost
1	Carbolic Soap Standard Size 115gm to150gm	Per No.	16000	2	35	560000	11200
2	Lux Soap75gmto80gm	Per No.	500	2	58	29000	580
3	Washing Powder(Surf) 1KgPack	Per Pack	6000	2	177	1062000	21240
4	CleaningPowder900gmPack(Vim)	Per Pack	12000	2	145	1740000	34800
5	Soda ash 50KgPack	Per Kg	10000	2	88	880000	17600
6	CausticSoda25KgPack	Per Kg	2000	2	187	374000	7480
7	Bleaching Powder(25 KgBag)	Per Kg	800	2	88	70400	1408
8	BlueNeel25KG Bag	Per Kg	600	2	187	112200	2244
9	Lenco	Per KG	250	2	1800	450000	9000
10	Liquid Bleach	Per Ltr	2000	2	187	374000	7480
11	Liquid Color Bleach	Per Ltr	3600	2	193	694800	13896
12	Dry Battery Cell Size C	Per No.	500	2	68	34000	680
13	Dry Battery Cell Size AAA 1.5Volt	Per No.	5000	2	40	200000	4000
14	Phenyl3 LtrPackPerfumed	Per Bottle	20000	2	137	2740000	54800
15	BathroomCleaningAcid3LtrPack	Per Ltr	10000	2	55	550000	11000
16	Wiper Steel Handle 46" Blade 191/2" Rubber width 21/4" Best Quality	Per No.	2000	2	385	770000	15400

17	TissuePaperBox150x2 PlyPopup	Per No.	1000	2	187	187000	3740
18	Broom Coir Bamboo Sticks as per sample(50KgBag)	Per Kg	6000	2	214	1284000	25680
19	Blue Dust Bin Plastic 225 Litre two wheel with Yellow Lid	Per No.	40	2	16830	673200	13464
20	Ceiling Fan 56" Pure Cooper Winding Deluxe Model	Per No.	200	2	5890	1178000	23560
21	Bracket Fan18" Plastic Body Pure Cooper Winding	Per No.	300	2	5690	1707000	34140
22	Exhaust Fan Plastic 10" Pure Copper Winding	Per No.	30	2	4915	147450	2949
23	Exhaust Fan Plastic 12" Pure Copper Winding	Per No.	30	2	5290	158700	3174
24	PlasticShopper22"x24"as per sample	Per Kg	16000	2	350	5600000	112000
25	YellowBag32"x36"With printed Mayo Hospital, Lahore and insignia	Per Kg	16000	2	380	6080000	121600
26	:	Per Kg	16000	2	360	5760000	115200
27	YellowBoxLength11"Width81/2"aspersample	Per No.	10000	2	46	460000	9200
28	Electric Heater Single Rod Length 10"800 Watt wire 7/29 5 Mtr with 2 Pin ShoeIttefaq	Per No.	400	2	2000	800000	16000
29	Polythene Gloves100pcs in Packet as per sample	Per Pkt	30000	2	56	1680000	33600
30	Boiler Chemical Liquid Water Treatment PH (14.73)+TDS (2000) Control	Per Ltr	8000	2	187	1496000	29920

31	Plastic Rubber Sleeper Size 8, 9, 10, 11Best Quality As per sample	Per Pair	1000	2	275	275000	5500
32	AirFreshner300ml (Al-farced)/Or Equaling	Per No.	500	2	250	125000	2500
33	Mope Dry	Per No.	1000	2	330	330000	6600
34	Wet Mope	Per No.	1000	2	330	330000	6600
35	PlasticBucket27 Ltr B/Q	Per No.	500	2	474	237000	4740
36	Pad Lock 50mmOriginalChina	Per No.	500	2	232	116000	2320
37	Pad Lock 38mmOriginalChina	Per No.	400	2	207	82800	1656
38	Plastic Lota	Per No.	200	2	96	19200	384
;239	Crystal Salt Best Quality	Per Kg	500	2	86	43000	860
40	Refilling of Fire Extinguisner DCP 6Kg	Per Kg	400	2	935	374000	7480
41	Pencil Cell	Per No.	500	2	38	19000	380
42	Mortein Spray300ml	Per No.	100	2	528	52800	1056
43	Waste Paper Basket	Per No.	200	2	193	38600	772
44	Telephone Set Best Quality One Year Warranty CLI	Per No.	200	2	4700	940000	18800
45	Draw Wire For Telephone, Pure Copper	Per Coil	8	2	14350	114800	2296
46	PVCWire2 Amp for telephone	Per Coil	16	2	4700	75200	1504
47	Telephone Line Card	Per No.	150	2	380	57000	1140
48	Telephone Box Rozer	Per No.	150	2	445	66750	1335

49	Tea Cup with Saucer	Per Doz	20	2	4735	94700	1894
50	Plate Full size Ceramic	Per Doz	20	2	4650	93000	1860
51	Quarter Plate Ceramic	Per Doz	20	2	3710	74200	1484
52	Tembler Glass	Per Doz	20	2	2670	53400	1068
53	Table Spoon	Per Doz	20	2	2270	45400	908
54	Tea Spoon	Per Doz	20	2	1860	37200	744
55	Electric Cattle	Per No.	50	2	4200	210000	4200
56	SteelAlmirahSize6x4Ftx1/2	Per No	80	2	30950	2476000	49520
57	Exhaust Fan Plastic 20" Pure Copper Winding	Per No	20	2	8000	160000	3200
58	Door Bell	Per No	50	2	500	25000	500
59	Electric Insect killer	Per No	150	2	6000	900000	18000
60	Plastic Rubber Sizes ¾ inches 1 inch	Per Feet	4000	2	200	800000	16000
61	Black Rubber Pipe	Per Feet	1000	2	350	350000	7000
62	Screen frame stand	Per no	100	2	1400	140000	2800
63	IV stand	Per No	100	2	4500	450000	9000
64	File Cabinet	Per No	10	2	18000	180000	3600
65	Office chairs	Per No	200	2	6000	1200000	24000
66	Office table Stander Size	Per No	20	2	15000	300000	6000
67	Attendant bench wooden + steel Stander size	Per No	100	2	9000	900000	18000
68	Hand Sanitizer 1000 ml PCSIR Approved As Per approved sample	Per No	15000	2	800	12000000	240000
69	Liquid Hand Soap	Per No	10000	2	200	2000000	40000
						63636800/-	1272736/-

MAYO HOSPITAL, LAHORE

ANNUAL DEMAND FOR FINANCIAL YEAR 2017-2018

Sr. No.	Name Item	Specification	Quantity	Approved Rate per unit in PKR
1.	Yellow Box	Length 11'' Wide 8 ½ local	16000	26.75
2.	Yellow Bag	32 x 36 local	12000 kg	290 / kg
3.	White Bag	32 x 36 local	12000 kg	290 / kg
4.	Blue Dust	(225 ltr) 2 wheel with yellow lid Dura)	50	8800
5.	Plastic Bucket	(70 ltr) 3 Colours Red, Yellow, Green with lid Modern	240	1000

SCHEDULE FOR WASTE COLLECTION

1. The Waste Shall be collected in accordance with the schedule specified in waste management Plan
2. The frequency of waste collection shall be at start of every shift or at least once daily.
3. According to "Punjab Hospital Waste Management Rules 2014" the transportation off-site shall, unless otherwise agreed, be the responsibility of the local council which shall ensure that:-
    i. All yellow bagged waste is collected at least once daily.

Duties and Responsibility

Responsibility of Head of Mayo Hospital, / Medical Superintendent, Mayo Hospital, Lahore.

a. Constitute the hospital waste management team;
b. Designate a waste management officer;
c. Facilitate meetings of the hospital waste management team and ensure implementation of its decisions;
d. Supervise implementation, monitoring and review of the waste management plan and ensure that it is kept up to date;
e. Arrange for a waste audit of the hospital by an external agency as may be designated for the purposes, involving analyses for the existing waste, stream and assessment of existing waste management practices in consultation with the District Coordination Officer or any other officer duty authorized by him;
f. Allocate sufficient financial and manpower resources to ensure efficient and effective implementation of the waste management plan; and
g. Ensure adequate training and refresher courses for the concerned hospital staff.

Responsibility of Head of Departments, Mayo Hospital, Lahore.

The heads of the department of the hospital shall be responsible for the proper management of waste generated in their respective departments, and in particular shall:

a. Ensure that all doctors, nurses, clinical staff in their respective departments, is aware of and where required properly trained in waste management procedures;
b. Arrange proper supervision of the sanitary staff to ensure that they comply with waste management procedures at all times; and
c. Liaise with the waste management officer for effective monitoring and reporting of omissions and errors in implementation of the waste management of;

Responsibility of Waste Management Officer, Women Medical Officer;-

A waste management officer shall in addition to his duties and responsibilities, be responsible for the day to day implementation and monitoring of the waste management plan and in particular, shall:

a. *For waste collection;*

i) Ensure internal collection of waste bags and waste containers, and their transportation to central storage facility of the hospital on daily basis;
ii) Liaise with the supplies department of the hospital to ensure that an adequate supply of waste bags, containers, protective clothing and collection trolleys are available the time;

Responsibility of Infection Control Officer:-

The infection control officer should liaise with the WMO on a continuous basis and provide advice concerning the control of infection and the standards of the waste disposal system. His or her duties are to.

a. Documentation of waste generated on daily monthly basis;
b. Identify training requirements according to staff grade and occupation;
c. Organize and supervise staff training courses on safe waste management;
d. Liaise with the department heads, the matron and the hospital manager to coordinate the training.

The infection control officer also has overall responsibility for chemical disinfection, sound management of chemical stores, and chemical waste minimization.

Responsibility of Chief Pharmacist;

The chief pharmacist is responsible for the sound management of pharmaceutical stores and for pharmaceutical waste minimization. His or her duties are to:

1. Liaise with department heads, the WMO, the Matron and the Hospital Manager, giving advice in accordance with the national policy and guidelines, on the appropriate procedures management of pharmaceutical waste;
2. Coordinate continuous monitoring and implementation of procedures for the disposal of pharmaceutical waste;
3. Ensure that personnel involved in pharmaceutical waste handling and disposal receive adequate training;
4. The Chief Pharmacist also has the special responsibility of ensuring the safe utilization of genotoxic products and the safe management of genotoxic waste;

Responsibility of Radiology Officer;

A radiology officer shall be responsible for the sound management of radioactive waste and in particular shall;

a. Give advice regarding formulation of appropriate procedure for management of radioactive waste and coordinate implementation of these procedures;
b. Ensure that the concerned hospital staff members receive adequate training in radioactive waste management procedures and ;
c. Maintain the record of hospital waste generated and transferred for final disposal;

Responsibility of Matron;

The Matron (or Senior Nursing Officer) and the Hospital Manager are responsible for training staff, medical assistants, hospital attendant, and ancillary staff in the correct procedures for segregation, storage, transport, and disposal of waste in wards operation theaters. They should therefore:

Responsibility of Hospital Engineer;

The Hospital Engineer is responsible for installing and maintaining waste storage facilities and handling equipment that comply with the specifications of the national guidelines. She or he is also accountable for the adequate operation and maintenance of any on site waste treatment equipment and is responsible for the staff involved in waste treatment, ensuring that:

- Staff receive training in the principles of waste disposal and are aware of their responsibilities under the hospital waste management plan;
- Staff operating on site waste treatment facilities are trained in their operation and maintenance.

Responsibility of Supply Officer;

The Supply Officer should liaise with the WMO to ensure a continuous supply of the items required for waste management (plastic bags and containers of the right quality, spare parts for on-site health-care waste treatment equipment, etc.) these items should be ordered in good time to ensure that they are always available, but accumulation of excessive stocks should be avoided. The supply officer should also investigate the possibility of purchasing environmentally friendly products (e.g. PVC-free plastic items).

iii) Ensure that sanitary staff and sanitary workers immediately replace used bags and container with the new ones of the same type and where a waste bag is removed from containers, it is properly cleaned before a new bag is fitted therein; and

iv) Directly supervise the hospital sanitation staff assigned the duties to collect and transport the waste;

b. For waste storage;

i) Ensure correct use of the central storage facility and that it is kept secured from unauthorized access and the waste from central storage facility shall be transferred to disposal site within twenty four hours;

ii) Prevent unsupervised dumping of waste bags and waste containers on the hospital premises even for a short period of time; and

iii) Maintain the record of waste brought to the central storage facility, type of waste entered, weight of waste, date and time of entrance of waste as well as when it was transferred from central storage facility to disposal site;

c. For waste disposal;

i) Coordinate and monitor all waste disposal operations, and for this purpose meet regularly with the concerned representative of the local council;

ii) Ensure that the correct methods of transportation of waste are used on site to the central storage facility or incinerator, if installed, and off site by the local council;

iii) Ensure that the waste is not stored on the hospital premises for longer than twenty four hours by coordinating with the incinerator operators and with the local council; and

iv) Ensure proper labeling of waste collection bags, the type of waste stored in them, weight of the waste and date of collection;

d. For staff training and information;

i) Liaise with the head of the department of the hospital, head of administration and senior matron to ensure that all doctors clinical staff, nursing staff, laboratory staff and medical assistants are fully aware of their duties and responsibilities under the waste management plan; and

ii) Ensure that sanitary staff and sanitary workers are not involved. In waste segregation and they only handle waste bags and container in the correct manner; and

iii) Record the quantities of waste generated by each department of the hospital on weekly basis;

An estimated Number of Personnel required for the waste collection from the waste generation point is approximately 60

Procedures for the Management of waste requiring special treatment such as autoclaving before final disposal

EXTRA ORDINARY ISSUE

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LAHORE MONDAY AUGUST 15, 2016

GOVERNMENT OF THE PUNJAB
LAW AND PARLIAMENTARY AFFAIRS DEPARTMENT

NOTIFICATION
(119 of 2016)

12th August 2016

[illegible] The following Notification No. SO(G)/EPD/7-26/2013-4 Dated 05.08.2016 regarding the Punjab Environmental Quality Standards for Treatment of Liquid and Disposal of Bio-medical Waste by Incineration, Autoclaving, Microwaving, and Deep Burial is published for general information:

DR SYED ABUL HASSAN NAJMEE
Secretary
Government of the Punjab
Law and Parliamentary Affairs
Department

Government of the Punjab
Environment Protection Department

NOTIFICATION: No. SO(G)/EPD/ 7-26/2013: In exercise of the powers conferred under clause (c) of sub-section (1) of section 4 of the Punjab Environmental Protection Act, 1997 (XXXIV of 1997), the Environmental Protection Council has approved the following as the Punjab Environmental Quality Standards for Treatment of Liquid and Disposal of Bio-medical Waste by Incineration, Autoclaving, Microwaving, and Deep Burial

All bio-medical waste incinerators shall meet the following operating and emission standards.

A. Operating Standards:

1. Combustion Efficiency, computed as given below, shall be at least 99.0%:

$$\text{Combustion Efficiency} = \frac{\%CO_2}{\%CO_2 + \%CO} \times 100$$

2. Minimum temperature of the primary chamber shall be 800°C.

3. The gas residence time in secondary chamber shall be at least 1 (one) second at the temperature of 1200 ± 50°C with at least 3% oxygen in the stack emissions.

B. Emission Standards:

No.	Parameter	Standard	
1.	2.	3.	4.
		Limiting concentration in mg/NM³ unless stated	Sampling Duration in minutes, unless stated
1.	Particulate matter	50	30 or 1NM³ of sample volume, whichever is more
2.	Nitrogen Oxides expressed as NO_2	400	30 for online sampling or grab sample
3.	HCl	50	30 or 1 NM³ of sample volume, whichever is more

No.	Parameter	Standard	
1.	2.	3.	4.
4.	Total Dioxins and Furans	0.1 ng TEQ/N³ (at 11% O_2)	8 hours or 5NM³ of sample volume, whichever is more
5.	Hg and its compounds	0.05	2 hours or 1NM³ of sample volume, whichever is more

Note:

(a) Air pollution control devices shall be installed or retrofitted with the incinerator to achieve the above given emission standards. All existing incinerators shall comply with these standards within a period of 2 years from the date of this notification.

(b) Secondary combustion chambers and pollution control devices of existing incinerators shall be suitably retrofitted, if necessary, to achieve these standards.

(c) Chlorinated plastics shall not be incinerated and the wastes incinerated shall also not be chemically treated with any chlorinated disinfectant.

(d) Ash from incineration of biomedical waste shall be disposed of at a Hazardous Waste Treatment and Disposal Facility. However, it may be disposed of in municipal landfill, if the toxic metals in incineration ash are within the regulatory quantities as defined under the Hazardous Waste or as revised from time to time.

(e) Only low Sulphur fuel such as Light Diesel Oil, CNG, or LGP shall be used as fuel in the incinerator.

(f) Stack gaseous emissions shall be monitored under maximum capacity of the incinerator once in three months through a laboratory approved under the Punjab Environmental Protection Act, 1997 and record of such analysis results shall be maintained and submitted to EPA Punjab. For dioxins and furans, monitoring shall be done once in a year.

(g) Continuous emission monitoring system for the CO, CO_2, and O_2 parameters shall be installed in stack and its data shall be transmitted in real time to the servers at EPA Punjab.

(j) The monitored values shall be corrected to 11% Oxygen on dry basis.

(k) In addition to complying with temperature and residence time standards, incinerators (combustion chambers) shall be operated with such temperature, retention time and turbulence, as to achieve Total Organic

Carbon (TOC) content in the slag and bottom ashes less than 3% or their loss on ignition shall be less than 5% of the dry weight.

(l) Combustion gas analyzers shall be used to measure CO_2, CO and O_2.

DEEP BURIAL

1. A pit or trench shall be dug about 2 meters deep. It shall be half filled with waste, then covered with lime within 50 cm of the surface, before filling the rest of the pit with soil.
2. It shall be ensured that animals do not have any access to burial sites. Covers of galvanized iron/wire meshes may be used.
3. Burial shall be performed under close and dedicated supervision.
4. The deep burial site shall be relatively impermeable and no shallow well should be close to the site.
5. The pits shall be away from habitation, and sited so as to ensure that no contamination of any surface water or ground water occurs. The area should not be prone to flooding or erosion.
6. The location of the deep burial site shall be authorized by EPA Punjab.
7. A record of all pits for deep burial shall be maintained.

AUTOCLAVING

Dedicated autoclave shall be used for disinfecting and treating bio-medical waste.

1. In a gravity flow autoclave, medical waste shall be subjected to:
   (i) a temperature of not less than 125°C at 15 pounds per square inch (psi) with a residence time of not less than 60 minutes; or
   (ii) a temperature of not less than 135 °C and a pressure of 30 psi with an autoclave residence time of not less than 45 minutes; or
   (iii) a temperature of not less than 150 °C and a pressure of 50 psi with an autoclave residence time of not less than 30 minutes.
2. In a vacuum autoclave, medical waste shall be subjected to a minimum of one pre-vacuum pulse to purge the autoclave of all air. Waste shall be treated at:
   (i) a temperature of not less than 125 °C and pressure of 15 psi with a autoclave residence time of not less than 45 minutes, or
   (ii) a temperature of not less than 135 °C and a pressure of 35 psi with an autoclave residence time of not less than 30 minutes.
3. Medical waste shall be deemed treated if all parameter (residence time, temperature and pressure) indicators indicate that their required values

were reached during the autoclaving process. If for any reasons, either of the parameter (residence time, temperature or pressure) was not reached, the entire batch of waste shall be autoclaved again until all the required parameters (temperature, pressure and residence time) are achieved.

4. For recording of operational parameters, each autoclave shall have graphic or computer recording devices which will automatically and continuously monitor and record dates, time of day, load identification number and operating parameters throughout the entire length of the autoclave cycle.

5. The autoclave should completely and consistently kill the approved biological indicator at its maximum design capacity. Biological indicator for autoclave shall be *Bacillus stearothermophilus* spores using vials or spore strips with at least 1×10^4 spores per milliliter.

6. Under no circumstances will an autoclave have minimum operating parameters less than a residence time of 30 minutes, regardless of temperature and pressure, a temperature less than 125°C or a pressure less than 15 psi.

7. A chemical indicator strip/tape that changes color when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste package at different location to ensure that the inner content of the package has been adequately autoclaved.

STANDARDS OF MICROWAVING

1. Microwave treatment shall not be used for cytotoxic or radioactive wastes, contaminated animal carcasses, body parts, and large metal items.

2. The microwave system shall comply with the efficacy test/routine tests and a performance guarantee provided by the manufacturer/supplier.

3. The microwave should completely and consistently kill the bacteria and other pathogenic organisms that is ensured by approved biological indicator at its maximum design capacity. Biological indicators for microwave shall be *Bacillus Subtilis* spores using vials or spore strips with at least 1×10^1 spores per milliliter.

LIQUID WASTE

The effluent generated from a hospital should conform to the following limits:

PARAMETERS	PERMISSIBLE LIMITS
pH	6.3-9.0

Training Courses and programs on Waste Management and Emergency Procedures

MAYO HOSPITAL LAHORE

MEDICAL WASTE MANAGEMENT TRAINING MANUAL

Total duration : 14 hours

Total Session No: 12

Sl no	Name of the session	Total time period	Remarks
1	Introduction of Medical waste management	45 minutes	
2	Classification of Medical waste	45 minutes	
3	In-house Medical waste management	90 minutes	
4	Medical waste management: WHO guiding principle, strategy and policy	60 minutes	
5	Composition of medical waste, consequences, risk and hazard	60 minutes	
6	Factors influencing external waste management, final disposal technology and element	60 minutes	
7	Occupational Hazards: Bio-Safety, Prevention and Management	110 minutes	
8	Medical Waste and Infection Control Measures	[illegible]	
9	Temporary Waste Storage & Transportation	60 minutes	
10	Supervision and monitoring in Medical waste management	60 minutes	
11	Roles and responsibilities of concern personnel for implementation of MWM	60 minutes	
12	Use of check list	60 minutes	
	TOTAL TIME	840 minutes = 14hours	

EMERGENCY ACTION PLAN

The emergency action plan must be followed to ensure the proper storage or disposal of medical waste in event of natural disaster, spill, treatment system breakdown, power failure etc.

Handling hazardous waste leaves room for emergency situations caused by mistreatment of the emergencies in the following ways:-

- Maintain spill and appropriate emergency response equipment in an accessible area.
- Train Employees in the Emergency response procedures that are appropriate for your site.

MAYO HOSPITAL, LAHORE

DEPARTMENT OF THE WASTE MANAGEMENT

HAZARDOUS WASTE CONTINGENCY PLAN

Mayo Hospital, Lahore
Department of Waste Management
Hazardous waste contingency plan

Hazardous Waste Contingency Plans

Contingency Plan Preparation Guidance

Contingency Plan and Emergency Procedures require that large quantity hazardous waste generators and treatment, storage and disposal facilities (TSD's) must have, and be prepared to implement, a Contingency Plan which is designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

The following discussion provides guidance on key elements of the contingency plan. Also attached is a suggested outline for a contingency plan and a model plan. This guidance applies to generators and to facilities under interim status.

The plant-specific Contingency Plan will, of course, be organized and worded as is best suited to the facility. The Plan, and all parts, should be specific regarding what to do, who to notify, and in the case of off-plant assistance, what those groups will and will not do during the emergency.

Although the contingency plan provides a plan of action during and following an emergency situation, training is necessary and required to ensure that the correct actions are taken during an emergency. In addition to the training given to all personnel, the emergency coordinators should receive specialized training for this role. A crew of employees should also be specially trained to assist the emergency coordinator in dealing with an emergency.

Contingency Plan Implementation

The contingency plan is a document which sets out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or its hazardous constituents which could threaten human health or the environment. The plan need not address all produc spills but must address spills of materials which are hazardous wastes.

The contingency plan must be implemented for an on-site, as well as an off-site release that could threat human health and the environment, even if the emergency coordinator does not believe that the was will leave the site. The contingency plan was designed to deal with threats to facility personnel, as wel with threats to people outside the facility.

At a minimum, the plan must map out general strategies to deal with both sudden and non-sudden events. Such strategies must involve outlining a series of steps to be taken in response to an incident and should include decision points where outside assistance may be required and the circumstances under which evacuation of the facility is advisable. The following criteria should be used in the contingency plan implementation decision process:

1. The contingency plan must be implemented if an imminent or actual incident could threaten the environment or human health.

   a. Spills

      The spill could result in release of flammable liquids or vapors creating a fire or gas explosion hazard.

      The spill could cause the release of toxic liquids, vapors or fumes.

      The spill can be contained on-site but the potential exists for groundwater pollution due to aquifer contamination.

      The spill cannot be contained on-site resulting in off-site soil contamination and/or ground or surface water pollution.

   b. Fires

      The fire could cause the release of toxic vapors or fumes.

      If the fire spreads, it could ignite materials at other locations at the site or cause heat-induced explosions.

      The fire could spread to off-site areas.

      Use of water or water and chemical fire suppressant could result in contaminated run-off.

   c. Explosions

      An imminent danger exists that an explosion could occur, resulting in a safety hazard due to flying fragments or shock waves.

      An imminent danger exists that an explosion could ignite other hazardous waste at the facility.

      An imminent danger exists that an explosion could result in release of toxic material.

      An explosion has occurred.

Emergency Coordinators

The facility must select at least one (1) employee who is either on the facility premises during normal operational periods or is available to respond to an emergency by reaching the facility within a short period of time. This employee must be designated the primary emergency coordinator. The emergency coordinator is responsible for coordinating all emergency response measures, and being thoroughly familiar with:

-- The facility's contingency plan;

-- All operations and activities at the facility;

-- The location and characteristics of waste handled;

-- The location of all records within the facility; and

-- The physical layout of the facility.

The selected emergency coordinator must have the authority to expend funds and recruit employees to implement the Contingency Plan. The owner/operator should also select alternate emergency coordinators if for some reason the designated emergency coordinator may be unavailable.

Emergency Response Procedures for Spills, Fires, and Explosions

The appropriate level of response to a particular incident is largely a matter of professional judgment. However, the full range of response methods to be employed in a variety of potential situations can be anticipated and, thus, should be outlined as emergency procedures. The level of detail appropriate for these response procedures is dependent upon a number of factors including:

-- The type of waste handled.

-- The potential for fires, explosions, or releases.

-- The immediate health and safety effect of the incident upon personnel.

-- The potential hazard to the outside environment.

The contingency plan must contain elements which address emergency procedures to be undertaken:

-- Immediately upon discovery of an emergency.

-- During emergency control phase.

-- Immediately following attainment of control.

Immediately upon discovery of an imminent or actual emergency, the first duty of the emergency coordinator is to warn the operating personnel, since they are likely to be the first group exposed to danger. Secondly, appropriate State or local emergency response agencies should be called if their assistance is needed to cope with the emergency.

In the event of a release, fire, or explosion, the emergency coordinator must identify the character, exact source, amount, and extent of any released material. He also must assess possible hazards to the environment and human health. The identification of the discharged material may be accomplished through observation, review of manifests, and if necessary, by chemical analysis, although response should not be delayed until the analysis is complete.

If the release, fire, or explosion could threaten the environment or human health outside the facility, the emergency coordinator must immediately notify the appropriate local authorities and notify either the on-site scene Punjab Environmental Protection Agency (EPA) coordinator for that geographical area.

During the emergency control phase, the emergency coordinator must take all reasonable steps necessary to ensure that explosions and releases do not occur, recur, or spread to other hazardous wastes at the facility. These steps include, where applicable, stopping operations. The emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever appropriate. Details should be provided to emergency personnel concerning the types of on-site emergency equipment to be used and the need for personnel protection equipment.

Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material. The recovered material must be handled as a hazardous waste unless it is a characteristic hazardous waste only, which is analyzed and determined not to be hazardous. The emergency coordinator must ensure that in the affected areas of the facility, no waste that may be incompatible with the released material is treated, stored, or disposed until cleanup procedures are completed. All emergency equipment must be cleaned and made fit for its intended use before operations are resumed.

Emergency Equipment

Hazardous waste regulations, specifies that the plan include a list of all emergency equipment at the facility. In addition, the location of this equipment is to be noted and a physical description of each item on the list is to be provided along with a brief outline of the equipment's capabilities. Emergency equipment will vary from facility to facility, but must include the following as required by the regulations unless none of the hazards posed by waste handled at the facility could require the equipment's use:

-- An internal communication or alarm system capable of providing emergency instructions.

-- A device capable of summoning external assistance (telephone or two-way radio).

-- Portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment.

This list will be used by facility personnel during an emergency. The format for the list should, therefore, allow identification of any needed equipment and its location in the easiest possible manner. It is suggested that a plot plan showing the locations of the equipment also be included in the Plan.

Evacuation Plan

The Contingency Plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. Where no possibility exists that facility evacuation could ever be necessary, this plan element may be omitted. Situations which would warrant partial or complete evacuation are as follows:

Suggested Outline Contingency Plan

1. Facility Identification and General Information

   a. Name of Facility
   b. Address of Facility
   c. Name, Title, Home Address, and Telephone Number (office and home) of Primary Emergency Coordinator
   d. Type of Facility
   e. Site Plan
   f. Description of Generator, TSDF Activities

2. Emergency Coordinator

   a. Primary Coordinator
   b. Alternate Coordinators
   c. Duties and Authority to Commit Resources

3. Implementation of the Contingency Plan

   a. Spills
   b. Fires
   c. Explosions

4. Emergency Response Procedures for Spills, Fires, and Explosions

   a. Immediately upon discovery of an emergency (Notification)
   b. During the emergency control phase (Control and Containment)
   c. Following attainment of control (Follow-up)

5. Emergency Equipment

   a. Emergency Equipment Inventory
   b. Location of Emergency Equipment (Facility Diagram)
   c. Equipment Capabilities
   d. Emergency Equipment Available from Other Sources

6. Coordination Agreements and Telephone Numbers

   a. Police
   b. Fire
   c. Hospital
   d. Other Emergency Response Units
   e. Spill Contractors

MEETING NOTICE

A Meeting of Hospital Waste Management Team is schedule to be held on **30-11-2022(Wednesday)** at **11:00 am** in the Conference Room **Surgical Tower, Mayo** Hospital Lahore, under the Chairmanship of **Chief Executive Officer, Mayo** Hospital Lahore. The following members are requested to please make it convenient to attend the meeting on the stipulated date, time and venue positively.

1.	Chief Executive Officer	Chairman
2.	Medical Superintendent	Member
3.	Additional Medical Superintendent (Admn)	Member
4.	Additional Medical Superintendent (Peads)	Member
5.	Additional Medical Superintendent (OPD)	Member
6.	Additional Medical Superintendent (R&W)	Member
7.	Additional Medical Superintendent (Surgical Tower)	Member
8.	Additional Medical Superintendent (Stores)	Member
9.	Director Accident & Emergency	Member
10.	Waste management Officer	Member
11.	Infection Control Officer	Member
12.	Registrar AVH	Member
13.	H.O.D Clinical & Pathology Laboratory	Member
14.	H.O.D Blood Bank (Indore & Emergency Department)	Member
15.	Chief Pharmacist	Member
16.	Chief Nursing Superintendent	Member
17.	Pharmacist Waste Management	Member
18.	Representative Of District Admin to be nominated by D.C.O Health	Member
19.	Representative of District Environmental officer	Member
20.	Representative of A.T. Waste Management Company	Member
21.	Senior Radiologist	Member
22.	Director (Center For Nuclear Medicine)	Member
23.	Bio-Medical Engineer	Member
24.	Chief Sanitary Inspector	Member
25.	All Infection Control Head Nurses / Staff	Member

Medical Superintendent
MAYO HOSPITAL LAHORE.

No. /W.M.O/ 79347-95 /MH. Dated 18-11 /2022

Copy forward to:-

1. The Deputy Director (Environment), 34-Shah Jamal Colony, Near Iqra Roza tul Altaf School, Ferozpur Road, Ichra Lahore with request to please nominated public representative of District Administration to attend the meeting.
2. The District Officer (Environment) City District Government Lahore with request to deputy representative to attend the meeting.
3. All member of the committee mentioned above.
4. All the Officers/ Officials concerned.

Medical Superintendent
MAYO HOSPITAL LAHORE.


BIO WASTE DEPOT
بائیو ویسٹ ڈپو

Weekly Report Infectious Waste Disposal Information

Report Duration 11/09/2023 to 17/09/2023	Month: **September**	Date Submitted : 18/09/2023
District: **Lahore**	Hospital Name: **Mayo Hospital, Lahore**	
Name of MS/ED/MD: **Dr. Haroon Hamid**	Contact No:**0300-8880916**	Official Email Address:mayohospitallahore@gmail.com
Name of Focal Person: **Dr. Hashaam Khalid** (Infectious Waste)	Contact No:**03154414412**	Email Address: **hashaamkhalid@yahoo.com**

2 Infectious waste Information

2.1	How infectious waste material disposed:	2.2	By own incinerator in Hospital:	2.3	Private Company Lift and dispose (Give name) **A.T Waste**
2.2 A	Per day incineration capacity:(kg p/h) (In case of own incinerator):			2.3 A	Per kg cost (In case of private company): **Rs.76**
2.2 B	Type of Incinerator (Click the relevant):	Auto Clave	Microwave Shredder	Incinerator ✓	
2.4	Any other: (give details)/				

		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2.5	Daily infectious waste collection total weight(in Kg)	635	525	684	464	526	476	136
2.6	Last week's total infectious waste disposed (in kg)	4553						
2.7	How many days (last week) infectious waste carried / disposed (tick days IW carried / disposed)	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2.8	How many time daily wastage carried (Last week)	One time	One time	One time	One time	One time	One time	One time
2.9	How many time daily wastage disposed (last week)	One time	One time	One time	One time	One time	One time	One time

3 Yellow Room Information

3.1	Does hospital has its own yellow room	✓ **Yes**	No	Neighboring hospital NO
3.2	if yes: Condition of yellow room (Tick relevant)	Excellent: AC fitted, Yellow Painted, PPEs available, weight machine & register, temperature recorded. Yes		
		Good: AC fitted, Yellow Painted, PPEs available, weight machine & register.		
		Normal: AC fitted, Yellow Painted, weight machine register.		
		Satisfactory: Yellow painted, weight machine & register		
		No so good: weight machine & register		
3.3	Fitted with AC	✓ **Yes**	No	
3.4	Deep freezer / Fridge (to store Placenta/any amputated part of the human body):	✓ **Yes**	No	

Muhammad Hafeez
Supervisor

Dr. Hashaam Khalid
WMO/ Focal Person

Zeshan Aslam
Pharmacist

Addl: Medical Superintendent (Admn)
Mayo Hospital, Lahore