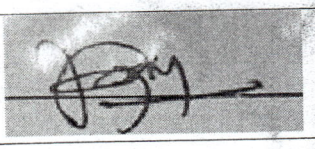
PK DAS INSTITUTE OF MEDICAL SCIENCES

Document Name:	**Maintenance Department Manual**	
Document No.	**22**	
Issue No:	**02**	
Issue date:	**02/01/2019**	
Revision No.	**02**	
No. of Pages	**40**	
Prepared By:	**Designation**	**Maintenance Manager**
	Signature	
Approved By:	**Designation**	**Director(Operations)**
	Signature	

P K DAS COLLEGE OF NURSING
PANAYUR (P.O)
VANIYAMKULAM
OTTAPALAM
PALAKKAD DT
KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

AMENDMENT SHEET

SL No	Page No.	Details of amendment	Reason for amendment	Signature of preparatory authority	Signature of the approval authority

PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM
PALAKKAD DT
KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

CONTROL OF THE MANUAL

The authority over control of this manual is as follows:

Preparation	Approval	Issue
Maintenance Manager	Chairman	Accreditation Co-ordinator

The manual with original signatures of the above on the title page is considered as 'Master Copy', and the photocopies of the master copy for the distribution are considered as 'Controlled Copy'. The Master copy will be sealed as 'Master Copy' and Controlled copies will be sealed as 'Controlled copy'

Distribution List of the Manual:

Sl.No	Designation
1.	Chairman
2.	Accreditation Co-ordinator
3.	Maintenance Manager

PK DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

The holder of the copy of this manual is responsible for maintaining it in good and safe condition and in a readily identifiable and retrievable mode.

The holder of the copy of this Manual shall maintain it in current status by inserting latest amendments as and when the amended versions are received.

Maintenance Manager, Maintenance Department is responsible for issuing the amended copies to the copyholders, the copyholder should acknowledge the same and he /she should return the obsolete

copies to the Maintenance Manager.

If amendment regarding any point is required, the person who prepared the manual should cor Quality Coordinator, prepare the amendment and get approval from approval authority. It sh attached to the Master copy and details to be entered in its amendment sheet. Quality Coordi responsible for issuing copy of amendment(s) to the controlled copyholder and he/she acknowledge the same. Quality Coordinator should also enter the amendment details in the amer sheets provided in the controlled copy.

The manual is reviewed once a year and is updated as relevant to the hospital policies and proce Review and amendment can happen also as corrective actions to the non conformities raised durir self assessment or assessment audits by NABH.

PK DAS COLLEGE OF NURSING PANAYUR (P.O), VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

1. INTRODUCTION

The Maintenance department is a vital supporting service of the hospital covering aspects of Electrical/Air-conditioning/Plumbing engineering works and management of non-medical (engineering) equipment.

The key function of Maintenance Department is categorized as follows:

- ✓ Routine and preventive Maintenance Activities
- ✓ Breakdown Maintenance and Complaint Handling
- ✓ AMC for equipments & Safety of equipments.
- ✓ UPgradation of engineering Service.

2. List of services provided:

Maintenance Department shall provide service through its in-house team or competent External Agencies for the following:

- Electrical installations/ maintenance.
- Building (coordinated with Civil department)
- AC Systems
- Water supply & Plumbing System
- Elevator System.
- Incinerator

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

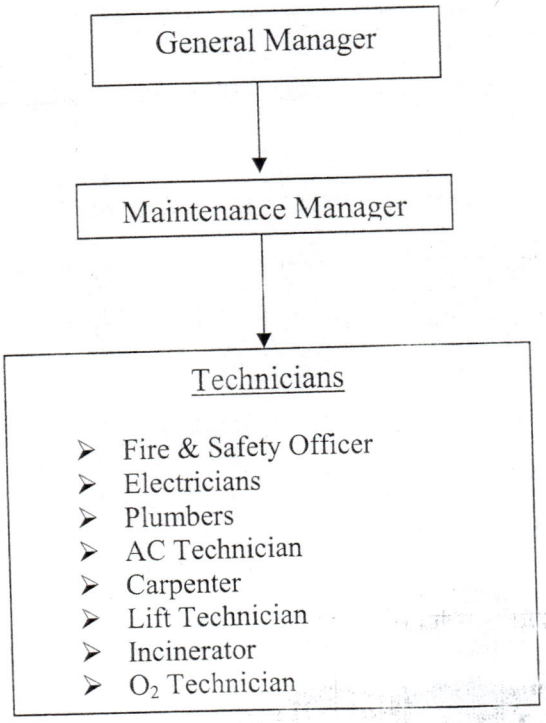
PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

CONTENT

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

3. DEPARTMENTAL HIERARCHY



4. STAFFING PATTERN

Sl. No	Designation	Working Hours	Number of Staff
1.	Maintenance Manager	9 hrs / day	1
2	Fire and Safety Officer	9 hrs/day	1
3.	AC Technician	9 hrs/day	1
4.	Lift Technician	9 hrs/day	1
5.	Electrician cum Plumber	9 hrs/day	14
6.	Carpenter	9 hrs/day	1
7.	O2 Technician	9 hrs/day	1

5. STAFF ROLES & RESPONSIBILITIES

The duties and responsibilities are as follows:

1. Maintenance Manager

- will report directly to the Operation Manager
- will be the member of the purchase committee and will be concerned with the purchase of all non-medical equipment and accessories as per the provisions of the purchase procedure
- Provide technical support for purchase Department for procurement of quality equipments.
- Ensure that all equipment is maintained in proper working condition
- Ensure that all equipment is covered by warranty and proper annual maintenance contract.
- Monitor and control all service expenses

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL P K DAS COLLEGE OF NURSING PANAYUR (P.O), VANIYAMKULAM OTTAPALAM, PALAKKAD DT KERALA - 679522

- All policy matters and status of all equipment are to be reported to the Hospital Management regularly.
- Ensure proper documentation of all records and log books of every equipment

2. Electricians

They provide service and maintain all electric installations of the Hospital. They should possess a Diploma or ITI Certificate in Electrical Engineering and have sufficient working experience in a reputed institution.

Duties and responsibilities are as follows:

- They will work under Maintenance Manager / Maintenance In charge and follows his directions in technical matters.
- They will report directly to Maintenance Manager / Maintenance In charge.
- They will defect faults, service and maintain all electrical installations.
- They should be able to operate the generator and control panels.
- They should check the Generator coolant level, oil level and diesel tank of the Generator daily and keep them in perfect working condition.
- They should keep proper stock book and log books of the Generator.
- They should monitor KSEB meter reading and record the readings at two times and keep proper log book.
- They will report fault / defects which cannot be handled by them immediately to the Maintenance Manager / Maintenance In charge and rectify them as per his directions.
- They should be responsible for maintaining the complaint register and inform the respective people for attending the complaints.

3. AC Technician

They are appointed for the service and maintenance of Air Conditioning. They should possess a Diploma or ITI certificate with sufficient working experience in a hospital or manufacturing firm or continuous running industry.

Duties and responsibilities are as follows:

- Will work under Maintenance manager /Maintenance in charge and follow their directions.

P.K. DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O) VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

- Manage split AC,Ductable AC & Packaged AC
- Proper temperature has to be maintained at all times by checking the installations regularly fo leaks or other defects.
- Responsible for installing, maintaining and repairing heating, ventilation, air-conditioning an refrigeration systems.
- Job duties include reviewing blueprints, installing air conditioning systems, testing systems fo proper functioning
- Performing emergency repairs, maintaining tools, ordering supplies, and making routin adjustments to maximize operational efficiency.
- Perform regular maintenance work on cooling units.
- Diagnose electrical and mechanical defects and malfunctions.
- Install, replace, or repair equipment that has been damaged.
- Make adjustment and do calibrations of thermostatic controls
- Install new air-conditioning systems and equipment.
- Clean blowers and coils, check tensions of belts and motors.
- Maintains log and records keeping in good manner.
- Reports all unstable conditions to Maintenance in charge.
- They should work full time and should be available on call during emergency.
- They should not take up any assignment elsewhere.
- Any other functions from time to time as assigned by the management

4. Electrician / Plumber

They are appointed by the Hospital management to service and maintain the water supply an sewage system of the hospital. He should possess an ITI certificate in Plumbing with sufficie experience in Plumbing work.

Duties and responsibilities are as follows:

- They will work under Maintenance Manager/Maintenance In charge and follow their direction servicing and maintaining the installations.

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

- They will service and maintain water supply, water pumps, Reverse Osmosis plant all sanitary fittings of the Hospital.
- They will be responsible for the steady supply of water in the hospital and regular disposal of sewage.
- They should conduct daily checks of all the installations and rectify defects immediately.
- They should keep register and log books and record their observations.
- They will report faults / defects which cannot be handled by them immediately to the Maintenance In charge and rectify them as per his directions

5. Carpenter

- Install and maintain a wide variety of commonly used locks, file cabinets, and file boxes.
- Combinate and/or recombinate interchangeable core, cut keys for old and newly combinated lock cores.
- Inspect, install and maintain all types of door hardware such as panic bar locking devices, cylindrical and mortise locksets, hinges, and closers of all types, smoke barrier doors, special needs hardware such as hidden hinges and latches.
- Set up and operate hand and power tools used in the locksmithing and carpentry trades such as shapers, jointers, mortises, routers, band saws, sanders.
- Plan and layout metal studs for walls and suspended grid type ceilings using standard trade practices.
- Plan, layout and install vinyl floor tile floor coverings, and soft floor tile.
- Perform a wide variety of maintenance and repair tasks which are unique to a large hospital complex.
- Incumbent will be required to perform various tasks from written and oral request/instructions designs, layouts, and working with their customers in order to see that their needs are met.
- Maintains log and records keeping in good manner.
- Reports all unstable conditions to Maintenance in charge.
- Any other functions from time to time as assigned by the management

6. Lift Technician

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

- primarily responsible for all preventative maintenance and repair work on elevators and similar people-moving machinery
- Elevator repair technicians respond to calls about malfunctioning equipment, often troubleshooting the machinery until the problem can be diagnosed and solved.
- These technicians check wiring and parts for signs of wear, replace parts as needed, oil gears and test electrical systems to make sure the elevator unit is running efficiently.
- Determine the need for and perform major overhaul or replacement of defective equipment
- Perform proper time keeping and accounting of materials and expenses for assigned projects
- Read and interpret blueprints
- Follow appropriate maintenance and service procedures
- Meet and assist with third party municipal inspections
- Any other functions from time to time as assigned by the management

7. Fire & Safety Officer

- Watch out for fire hazards in the workplace while work is performed by other employees.
- Maintain the conditions and requirements stated on the safety permit.
- Keep flammable materials from ignition sources.
- In the event of fire, extinguish it immediately or turn a fire alarm on.
- Stop operations if you find any hazardous condition.
- Make sure you and other employees are aware of the exact location of fire fighting equipment in the immediate area.
- Maintain constant means of communication.
- As much as possible, keep visual and voice contact with other employees.
- Before and during each shift, inspect the entire work area and look for potential release of flammable vapors or liquids.
- Be prepared to operate fire extinguishers, hydrants, fixed monitors, and hose carts anytime.
- Ensure all equipment is serviced and checked in accordance with current legistation
- Ensure fire safety signage is current and correct as per policy.
- Ensure staffs are aware of fire policy and how to respond in the event of fire.

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

- Conduct drills in accordance with practice policy.
- Any other functions from time to time as assigned by the management

8. O_2 Technician

- Cleans, sterilizes, disinfects, orders/stocks and maintains routine Oxygen equipment and supplies.
- Maintain Oxygen, supplies and equipment according to needs and schedules cleaning chemicals.
- Cleans, organizes and maintains Oxygen workroom, supplies and equipment. Oxygen cleaning of cylinders valves and regulators.
- Perform basic trouble shooting for monitors and equipment and reports defective equipment and equipment malfunctions appropriately/immediately.
- Maintain established departmental policies, procedures, quality improvement, safety, environmental and infection control standards.
- Documents and maintains preventative maintenance and quality records.
- Assists with transport of equipments as necessary.
- Ability to travel between facilities or other treatment locations as necessary.
- Responsible for performing tasks that are within the scope of his/her educational preparation and knowledge.
- Certain units and settings, require special training, skills and proven competency, in addition to the usual skills of the Maintenance.
- Promotes effective working relationships with maintenance department staff and works collaboratively.
- Collaborate with architects and engineers to determine the best placement of Equipments.
- Test devices for improvement, safety, and quality control.
- Update older systems for changes, cost reductions, improvements, safety, and quality control.
- Monitor and analyze Oxygen compatible system components.
- Maintenance of Gas production equipment Compressors, Cylinders, Filtration systems, Gauges
- Any other functions from time to time as assigned by the management.

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

6. POLICIES AND PROCEDURES(APPLICABLE)

DEPARTMENT FUNCTION

Purpose:

The maintenance department is responsible and accountable for maintenance activities across the whole organisation. It is responsible for the way equipment runs and looks and for the costs to achieve the required level of performance.

Scope:

- To define overall policy and procedure of the hospital with regard to the functioning of the maintenance service.
- To define the role and responsibility of various maintenance staff.
- To define the various procedure for the functioning of the department.

Responsibility:

The Maintenance Manager shall be responsible for overall functioning of the maintenance department. Maintenance Manager is responsible for performing and monitoring of preventive maintenance activities and maintaining relevant records as required.

Definition: Nil

Description:

Equipment Management

- All major general equipment of the hospital shall be controlled using a unique identification number. This number shall be visibly labeled / stenciled on all the equipment for easy identification.
- In case of a breakdown /problem for any machines/ equipment, the respective department shall report it to maintenance department and register the complaint.
- The maintenance department will maintain an updated copy of all equipment list along with their equipment number and location.

Equipment Procurement and Management

PK DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679 2

- The organization shall plan for equipment in accordance with its services and strategic plan. This shall also take into considerations future requirement. The plans shall be fully implemented and there shall be a process for periodic review of plans.
- Maintenance Manager is responsible to indent the new requirements to Maintenance store after getting approval from Project Manager.
- A feasibility study is done by the Purchase officer and Maintenance manager to identify the need for procurement of a new equipment or replacement of existing equipment. The feasibility study includes cost analysis, efficiency, space requirements and merits and demerits in terms of Operations
- Upon receiving and installation, the equipment is inspected for functioning and specification as mentioned in the Purchase order requirements. Any difference is to be reported to Project manager /Manager Operations
- It is ensured that the manufacturer of the equipment imparts appropriate training after installation to the concerned personnel.
- All new equipments, electrical devices, are allotted ID no.
- After being convinced of the conformity of the equipment specifications, the details of the equipment (Name, Model No, Brand Name, Serial number as per the Manufacturer, Equipment ID no as allotted by the department, Annual Maintenance Contract status/ self maintenance by the department, Warranty status with warranty period, Date of installation, Location of the Equipment in the Hospital etc.) will be updated in the System.

Preventive Maintenance Planning & Execution

- The maintenance Department shall plan the preventive maintenance activities through an Annual Preventive Maintenance Plan (Non Medical Equipment).
- Based on the Annul preventive maintenance plan the internal preventive maintenance activities and AMC visit of the service providers shall be executed.
- The details of the preventive maintenance / service done for each equipment shall be recorded in the service report and marked in the annual maintenance plan which is being kept in the department.

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

Complaints and Repairs: Attending Break down Calls

- The user departments shall intimate the maintenance Department on the breakdown / complaint Each complaint shall be given a number and the details will be entered in the Complaint Regist cross-checked by the maintenance Department shall analyze the nature of the breakdown complaint and take appropriate action for in house service or engaging service agencies an status will be recorded in the complaint register.
- All work requests from various departments shall be submitted to maintenance Department in th work request form, which shall have work approval.
- Safety work permits should be issued from Fire & Safety department for high ri maintenance activities which are carried out in the hospital premises, and the details will documented.
- Nature of repair or complaint, location, nature of work, materials used, the date and time completion of repair, technician name, sign etc are documented properly.
- On completion of job allotted, status will be updated to Maintenance Manager.

Response to Complaints

- ✓ In acute problems, the complaint is to be attended within 30 minutes.
- ✓ In all other cases the problem is to be attended as soon as possible but not later than 24 hrs.
- ✓ Technician attending the complaint analyze the problem after making prelimina investigations and enters the exact description of complaint in Work Order Format.

AMC / CMC

- Annual Maintenance Contract Registers is maintained for all items that are coming und maintenance.
- The Equipments on AMC are identified and recorded.
- It contains the preventive maintenance frequency and calibration requirements and break do maintenance details
- On the basis of the information gathered, Periodic Preventive Maintenance (PPM) schedule made.

PK DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL PK DAS COLLEGE OF NURSING PANAYUR (P.O), VANIYAMKULAM OTTAPALAM, PALAKKAD DT KERALA - 679522

- Maintenance department follows the PPM schedule in conjunctions with the user department on the availability of the machine to conduct the preventive maintenance by the contract agency.
- The maintenance Manager collects and documents the Service report of the maintenance conducted by the AMC contractor.
- All the spares details are recorded.
- The response time of the AMC contractor is recorded
- After the Service, the Machine is thoroughly tested by the maintenance in charge and hands over to the User department.
- The work order request is forwarded to Project Manager if the service was done on a break down maintenance. Under mentioned Details will be entered in the work order request

  a. Name of the Equipment

  b. Equipment ID number

  c. Service provider's name

  d. Contact person

  e. Address

  f. Frequency of the service annually

  g. Tenure of the contract
- The Contract Period is reviewed and renewed accordingly by the Maintenance Manager.
- The service provided during the visit is documented and filed as Service Reports. The service reports are retained till the completion of the Contract tenure.
- Instruction/operating guidelines are provided to all personnel handling the Equipments/Elevator.
- The frequency and visits of the AMC service provider is monitored. Reminder are sent in case of delay and Manager Operations is also informed
- Petty Spares Purchase is routed directly through the maintenance department .After purchase the details /documents will be submitted to Accounts department. Equipment details are updated and intended through Maintenance Store.

Procedure for Repair and Servicing of equipments from outside

P K DAS COLLEGE OF NURSING PANAYUR VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

a. Any equipment found defective will be repaired locally at the engineering department.

b. If the Equipment is not under Annual Maintenance Contract or the nature of the repair is out of the scope of the AMC then, the requisition for repair is raised to the Maintenance Manager.

c. In case the equipment requires any service from AMC Service provider's premises/any outside premises then the equipment will be sent for repair by the Maintenance staff through a gate pass. No equipment can be taken out of the Hospital premises without a gate pass. The gate pass will be signed by the maintenance manager and store manager.

Condemnation of Equipments

There shall be a documented procedure for equipment disposal. Organization shall dispose / condemn equipment in a systematic manner as per condemnation committee decision and approval. All records pertaining to condemnation of equipment shall be maintained and the decision of condemnation shall be taken by the decision of Maintenance Manager by verifying the depreciation of the equipment history.

Safety Aspects of Non- medical Equipment

- Preventive maintenance shall be done to ensure that all parameters are within prescribed limits and noted in the service report / observation sheet. In case of the parameters are not within the specified limits, the equipment shall be withdrawn from use with immediate effect and appropriate repairs made.
- Before re-installing the maintenance Manager / Maintenance In charge shall verify the electrical safety parameters once again and approve the re-installation in case the parameters are found to be within the specified limits.

Lay out and floor plan

The maintenance manager keeps the up to date drawings which shows the detailed site lay out, floor plan and fire escape route. It is ensured that sufficient space and other facilities are provided in the building and infrastructure to the extent possible as prescribed by the national standard.

Equipment Manuals and Checklists

- The maintenance manager shall maintain the relevant service and operation manuals of the various equipment. The files for periodic maintenance will be maintained.

P.K.DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

- These files shall act as guidelines for the preventive maintenance of the equipment. These shall be compiled by referring to the manufacturer's instructions provided in the service manuals

Quality Management System

The response time for the complaints register is monitored as an indicator on a monthly basis. The water, diesel, electricity consumption are also monitored as an indicator.

- Records: Nil
- Reference:
  - World Health Organization, (1998): District Hospital: Guidelines for Development
  - Sakharkar BM, (1998): Principles of Hospital Administration

ENERGY & RESOURSE CONSERVATION

Purpose:

The purpose of this policy is to reduce energy consumption in an economical and environmental sound manner.

Scope:

The policy covers the conservation electricity, fuel and water in the hospital.

Definition:

Energy conservation is the practice of decreasing the quantity of energy used while achieving a similar outcome.

Responsibility:

Management will be responsible for providing resources for implementing various energy conservation techniques throughout the hospital.

Description: Nil

Portable water

The hospital ensures supply of portable water round the clock. Major sources of water are as follows:

i) Water Tank

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

ii) Bore well
iii) Pond

Water Tank Details

Location	Tank Name	Purpose	Capacity(Approx.)
Ramp Area	Tank No 1	Fire	198000 L
	Tank No 2	Domestic	155580 L
	Tank No 3	Flush	42420L
Roof Top	Tank No 4	Domestic	24000L
	Tank No 5	Fire	27000L
	Tank No 6	Dialysis	22000L
	Tank No 7	Flush	22000L

The technician shall do a proper check on the source of water supply system and the storage area a pumping mechanism every shift. He checks the water level and proper operation of motor etc

The water will be properly chlorinated to proper dose prior to the supply. The dosing pump connected in the same pumping with the different circuit of the motor are manually operated dosed per the preset pulse.

The portable water quality is monitored and documented. Water testing includes bio-chemical (once three months) and microbiological analysis (once in month).water will be collected at the user end ta

In case of RO plant of dialysis unit water from the inlet port of dialysis machine will be collected a tested for endotoxin levels every month .All the reports of the tests is maintained by the Maintenan Manager.

The water from the source (open pond & bore well) will be pumped into the sump tank and pumped overhead tank and also stored for the fire requirement.

In case any failure of the Water sources and corresponding circuitry it is to be immediately informed the Maintenance Manager.

COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

All the possible steps are taken for the water conservation like rain water storage in the pond, recycling of STP water for gardening etc.

Electricity

Alternative sources of electricity in our hospital are

- Generator set of 250 KVA - 2 nos & 500 KVA - 1 no are installed in the hospital to meet the overall power requirement of the hospital.
- UPS system also available in the hospital.
- Periodic checking and tests are carried out for all power supplying equipments.
- Preventive and breakdown maintenance plan also implemented.

Conservation of electricity

- Lights are to be turned off in unused areas.
- Fluorescent tube, CFL and LED lights are used in all areas.
- Awareness is given through intranet and posters in all concerned areas.
- Electronic ballast should be used.
- **Use of Extension Boards**
  - Wooden Extension boards should not be used. Only plastic extension boards shall be used.
  - Use only one extension board for one equipment.
  - Extension boards can be used for power restoration in case of temporary power failure
  - Proper earthing should be provided

Air conditioning Systems and refrigeration

Air Conditioners are installed in the following areas of the hospital:

- OT Complex
- Emergency Department.
- Labour room
- Radiology.
- Pharmacy Store
- Laboratory, Blood Bank
- CATH Lab
- Doctors OPD
- CCU and ICU
- Office of the Managing Director, Medical Superintendent
- AC Executive Rooms/Delux Rooms.

PK DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

- Conference Rooms.
- Dialysis
- IT Server Room

All room temperature controls will be set within a temperature range based on room design.

AC Technician / Maintenance Manager must be notified with the dates, time and location of spe events, in advance. These requests should be kept to a minimum to assure the most efficient economical operation of the facilities.
Building occupants and staff are requested to keep windows and outside doors closed while the conditioning is on

Refrigeration:

Refrigerators are kept at the following locations.

- Generally provided in wards and departments
- General Store.
- Blood bank refrigerator
- Medical stores.
- Managing Director

Conservation of fuel

1. Poly V belt or synthetic flat belt should be used for pump in sewage treatment plant, A blowers of 5.5kW & above for air compressor.
2. Bio gas used for water boiling purpose in restaurant kitchen.

Conservation of water

1. Water from sewage treatment plant is used for irrigation.
2. Water flow is controlled in all areas except where fast flow is needed (e.g. OT, Lab etc)

Reference: Nil

Annexure: Nil

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

POLICY FOR DIESEL GENERATIOR

Purpose:

To ensure the diesel generator is in proper working order, tested and inspected regularly in order to provide backup power for the hospital.

Scope:

The policy covers the diesel generators in the hospital.

Definitions:

A diesel generator is the combination of a diesel engine with an electric generator (often an alternator) to generator electrical energy

Responsibility:

Maintenance technician /Manager will be responsible for monitoring and testing the diesel generator to provide backup power for the hospital.

Policy

- ✓ The hospital has a defined procedure for the diesel procurement
- ✓ The hospital has a scheduled plan for periodic maintenance of DG sets and all the associated testing will be carried out.

Procedures

- **Procurement**

- The Diesel is always procured only from the Approved vendor decided Company as per an annual contract.
- The safe stock of 900 litres of diesel is always maintained in the hospital in summation of the all the two existing diesel storage facility.
- When the stock falls below our safe stock limit the technician request for the Diesel indent voucher from the authorities.
- The diesel indent form duly filled by the authorized signatory and signed is handed over to the technician.
- The technician arranges for the transport through the approved transport provider and the payment for the transport through the petty cash

P K DAS COLLEGE OF NURSING VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

- The technician is sent with the transport to the Gasoline station and ensure the quantity and quality
- The diesel is brought in the storage tank of the hospital and then unloaded to storage place.
- The Acknowledgement receipt from the gasoline station is given to Finance Department.
- The payment for the diesel is done on a monthly basis by the Finance Department with proper checking of acknowledgement receipt and monthly bill from Gasoline Station.
- The stock above the stipulated storage level is decided by the technician/supervisor depending on the nature of the contingency.

- **Maintenance Procedure**
  - ✓ The diesel generator must be tested every day for minimum 5 minutes to ensure the machinery in proper working condition. Perform pre check and records level, Oil level, Coolant level, Battery electrolyte level, Diesel tank.
  - ✓ Once diesel generator is running perform running checks of the louvers battery charger and record the following.
    - Starts
    - Lube oil pressure
    - Coolant temperature
    - Rpm
    - Percentage of load
    - Battery voltage
    - Frequency
    - Generator voltage phase 1,2 & 3
    - Generator Ampere phase 1,2 & 3
    -
  - ✓ Daily hours run of DG set and actual fuel consumption is recorded in the Register. Monthly consumption details will be provided by KSEB and the details are documented properly.
  - ✓ Preventive Maintenance is done as per manufacturing guide lines. This will helps to limit overflow, reduce spillage during refilling and overhauling of engine whenever necessary.

Records:

- ✓ DG log book
- ✓ DG Fuel book
- ✓ DG Check book
- ✓ DG Service Book

P.K. DAS COLLEGE OF NURSING
PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

Reference: Nil

RISK MANAGEMENT OF LIFT

Purpose:

This policy describes the management of Elevators/Lifts in PKDIMS hospital.

Scope:

This policy is applicable to entire hospital and deal with movement of patient, staff & visitors. It also covers transfer of items including Linen, Biomedical Waste etc.

Definition: Nil

Responsibility:

- ✓ Maintenance Manager, security officer and Lift Technician.

Maintenance

- Emergency telephone is made available in all lift.
- Services of all lifts will be done monthly using checklists
- Maintenance department shall maintain service reports.
- The department must have properly scheduled maintenance there by regular work flow is not affected. All scheduled maintenance shall be undertaken as availability.
- Proper maintenance of lift shall include maintenance of fan, light, painting etc.

Security

- The lift operator shall ensure all lifts are working properly
- Emergency contact number is marked in all lifts which can be utilized during on all breakdowns and disrupted functioning of lift.
- Adherence of this policy is the responsibility of security staff.

Reference: Nil

OPERATION AND MAINTENANCE POLICY OF RO PLANT

- ✓ **Refer RO plant Manual**

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

OPERATION AND MAINTENANCE POLICY FOR INCINERATOR

Purpose

To provide general guidance for operating the incinerator and follow good environmental practices related to waste management.

Scope

Applicable to incinerator at PKDIMS

Definition

An incinerator is a furnace for burning waste. The incinerator is a double chamber, controlled air incineration system designed to incinerate nonhazardous solid waste comprising of paper, cardboard, and other general domestic waste.

Responsibility

- ✓ Operator and Maintenance Manager

Policy & Procedure

- We have two incinerators having capacity 150 kg/hr and 80 kg/hr to manage general waste. These can be manually operated
- A scrubber is installed to clean the debris and ash on the sides of the incinerator and trays.
- As the scrubber system is included, black smoke is filtered and released as white smoke.
- The valve of the water scrubber system should be opened while burning the waste.
- Water is pumped up through pipelines installed along scrubber which will clean the inside walls of incinerator.
- Ratio of input waste is 60% dry waste and 40% wet waste
- All wastes are segregated at source and are to be placed in transparent bags
- Prior to loading the waste batches in the incinerator, the feed materials will be visually inspected by the incinerator operator to ensure it does not contain inappropriate waste materials.
- Do not overload the incinerator
- The burn cycle should not be interrupted by opening the charging door until after the burn is complete and the unit has cool down.
- Daily maintenance checking includes burner, water flow check , tray etc
- Filters will be checked monthly

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

PK DAS COLLEGE OF NURSING
PANAYUR (P.O)
VANIYAMKULAM
OTTAPALAM
PALAKKAD DT
KERALA - 679522

- As per the policy annual preventive maintenance will be carried out.

SEWAGE WATER TREATMENT PLANT

Sewage treatment plants are required to treat the sewage from both the industry and the municipal sectors. Sewage treatment plants uses physical, biological and chemical treatment processes to remove the contaminants from the sewage. The main purpose of sewage treatment plant is to prevent pollution by producing disposable water without causing harm to the surrounding environment. It also produces treated solids (sludge) for disposable which can also be used as fertilizers.
The process used in STP plant is the Sequencing Batch Reactor (SBR) of treatment.

Purpose:
To ensure proper operation and maintenance of sewage water treatment plant.

Scope:
This policy is applicable to the Sewage Treatment Plant in the hospital.

Definition:

Sewage Treatment Plant: a place where sewage is cleaned so that it is not harmful or dangerous to the environment

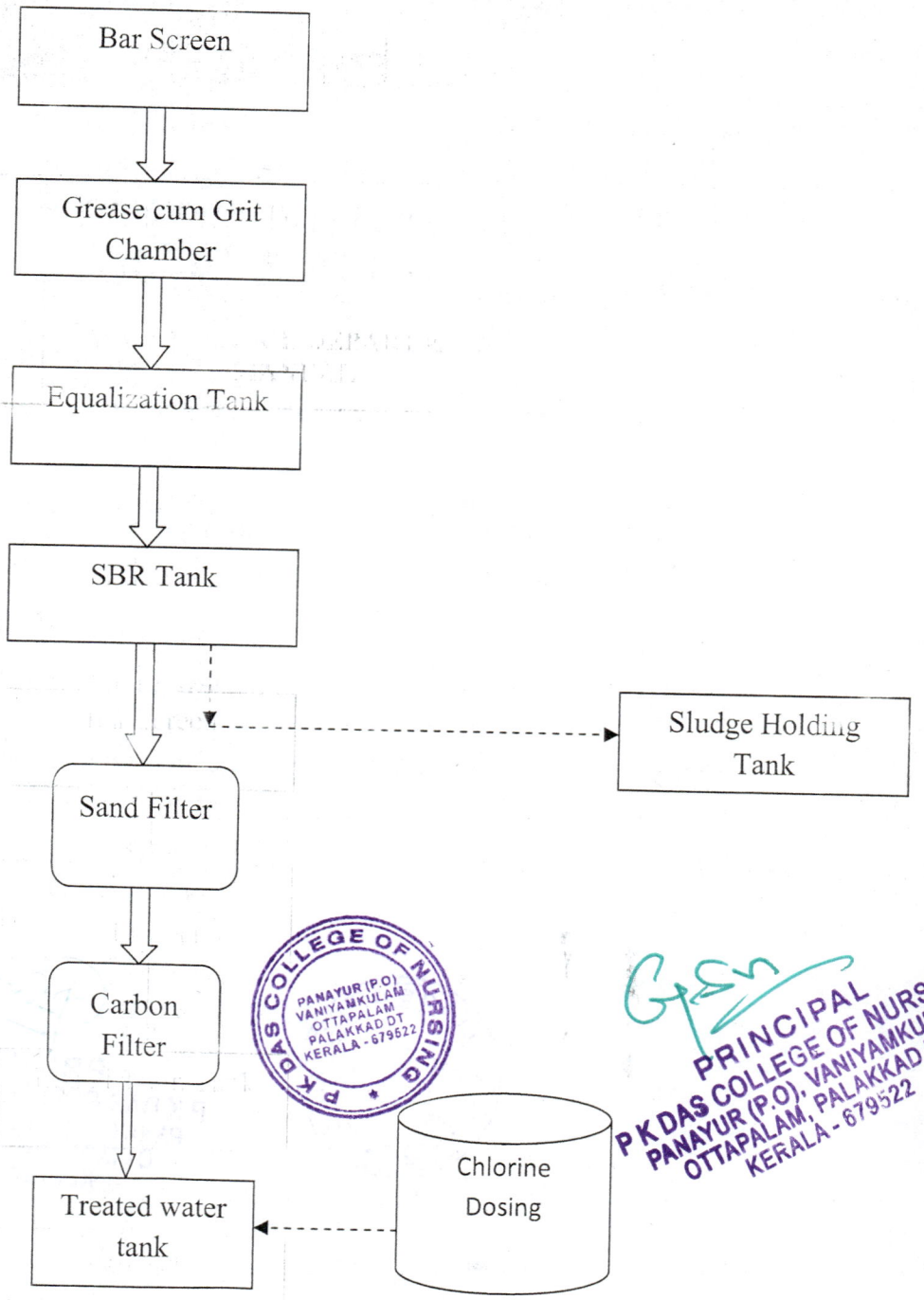
Responsibility:

Maintenance Manager and STP Operator

P K DAS COLLEGE OF NURSING
PANAYUR (P.O)
VANIYAMKULAM
OTTAPALAM
PALAKKAD DT
KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

Process flow Diagram



Process Description

I. Primary treatment method(Physical Treatment)

Primary treatment method in sewage treatment plants includes removal of the suspended particles from entering the biological reactions of the treatment plant. These are the physical separation method like screening, grit removal ,oil removal etc.These methods remove the suspended debris, grits ,excess oils and scum's, plastics etc from the incoming raw sewage.

Raw sewage and sullage is coming through different lines with two different treatments.

a. Sewage: The raw sewage from the tank flows by gravity to the bar screens provided to remove the incoming debris and suspended particles bigger than 10mm.This is very important as the excess debris is not present in the biological treatment basins to interfere with the solids which need to be settled. Screening also provides protection to the pumps.

   The screened sewage then flows into the anaerobic tank for further treatment. This is done for the basic anaerobic treatment of the incoming sewage to facilitate more growth of microorganisms required for the biological reactions

   The anaerobically treated sewage then flows to the equalization tank provided for the flow equalization.

b. Sullage: The raw sullage from the tank directly flows to the equalization tank and is then taken for further biological requirement.

II. Secondary Treatment Method(Biological Treatment)

The biological treatment used here is Sequencing Batch Reactor.SBR tank receives the sewage from equalization tank with the help of sewage transfer pumps during fill phase.Aerator transfer more oxygen to the water due to increased surface area in contact with the water. After biological treatment, the sewage water is allowed to settle the degraded biomass at the bottom of the tank. Once the settling

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

process is completed, the decanter system will starts its function for decanting the clear water (treate sewage water) from the SBR.It is important that the decant volume is the same as the volume adde during the fill phase.The biologically treated sewage water is taken for tertiary treatment

III. Tertiary Treatment Method(Filtration)

Tertiary treatment is very important to remove the traces of solids which escape the clarifier. Filtratio occurs in the following two steps

a. **Pressure Sand Filter** –These are used to trap the small solids coming in the sewage. This i basically a pressure vessel provided with the graded media which consists of sand and grave media. The sand present in the filters acts as the filtration media and the gravels are provided t support the sand particles. The sand used here is specific for this purpose and comes i different sieve sizes. The filter media is supported by the gravel bed and the under drain syste which collects both the filtered water and distributes the backwash water to clean the filte beds. The solid particles in the water get entrapped and enmeshed in the spaces between th sand particles. Gradually the space between sand particles gets filled with incoming solids This blocks the passage of water through the sand layer. As a result, the pressure at the outle drops rapidly and wastes pumping power, and reduces the throughput of the filter. When th pressure drops beyond a limit, the sand is cleaned by backwashing of the filter(back flushing with water, in which water is passed in the reverse direction(from outlet to inlet).This proces agitates, fluidizes and expands the sand bed. The back wash water carries away the lighte pollutant solid particles as backwash waste. The filter vessel is provided with 3 major nozzle for inlet, outlet and backwash.

b. **Activate Carbon Filter** – The filtered sewage from the pressure sand filter enters into th activated carbon filter. An activated carbon filter further helps to remove the turbidity, colo odor and mainly excess chlorine present in the water. This filter works on the principle o adsorption technique. Activated carbon is typically manufactured from coconut shell o charcoal, the "activation "process creating a highly porous material with a very large surfa area. Organic pollutant molecules are physically absorbed and held fast within the catacomb

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA

like porous structure of the activated carbon. Granular activated carbon is typically used for this purpose. Unlike in the case of the sand filter, trapped molecules in the carbon cannot be backwashed and media cannot be reused again and again Hence activated carbon in the filter has a finite capacity to adsorb and hold the pollutants, after which the carbon is said to be exhausted. The exhausted material is removed from the filter and disposed off. Fresh activated carbon is charged in the filter. However rinsing of the filter is required .The activated carbon filters are again a pressure vessel having minimum three nozzles.

Treated Water Tank - The ware from the activated carbon filters enters the treated water tank and is stored there.

Preventive Maintenance:

Preventive maintenance schedule is the periodical checks and precautions by which possibilities of failures and breakdowns are minimized. The following points will be checked during daily and annual checks.

a. Daily checks

- ✓ Back wash
- ✓ Head loss across the screens
- ✓ Check screen material -rust etc
- ✓ Filter treated with highly concentrated Chlorine solution
- ✓ Filtered water turbidity
- ✓ Head loss through water filter
- ✓ Pump-noise and vibration
- ✓ Pump-Lubrication of mechanical seals
- ✓ Valves for leaking seals
- ✓ Pipes for corrosion and leaks
- ✓ Meter Reading

b. Annual Checks

- ✓ Check motor pumpset for worn out parts
- ✓ Each filter drained and inspected
- ✓ Condition of media
- ✓ Media Depth

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

- ✓ Media sample analysed for media size distribution
- ✓ Acid solubility of media sample
- ✓ cleaning of storage tanks
- ✓ Cleaning of feed tanks
- ✓ Check Ultra filtration unit

WATER TREATMENT PLANT(WTP)

Purpose

Water treatment is any process that improves the quality of water to make it appropriate for a specif end-use. The end –use may be drinking, industrial water supply, irrigation etc.Water treatme removes contaminants and undesirable componenets, or reduces their concentration so that wa becomes fit for its desired-end use.

Scope

This policy is applicable to the water treatment plant of PKDIMS

Responsibility

Maintenance Manager and Operator

Policy and Procedures

Design

The water treatment plant (WTP) in PKDIMS is designed and constructed as per the best availab standard and specification. Water is filtered with sand filter, carbon filter and iron removal. Wat sterilization is done by injecting chorine in the treated water tank

All the interconnecting pipes are of PVC non corrosive pipes, guaranteed for many years of troub free operation.

Proposed filtration systems have two mono block pumps, which are installed on safe platforms using ant vibration pads. These pumps have capacity of 30000 liters/hr.

PK DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

b. Sand Filter

- ✓ Carry out back washing as per requirement
- ✓ Open the manhole and check the free board level once in six month
- ✓ Calibrate pressure gauge once in six months
- ✓ Service the filter once in a year
- ✓ Check the stroke once in a month
- ✓ Check suction fitting once in month

c. Carbon Filter

- ✓ Carry out back washing as per requirement
- ✓ Open the manhole and check the free board level once in six month
- ✓ Calibrate pressure gauge once in six months
- ✓ Service the filter once in a year
- ✓ Check stroke once in a month
- ✓ Check suction fittings once in a month

d. Iron Removal Filter

- ✓ Carry out back washing as per requirement
- ✓ Open the manhole and check the free board level once in six month
- ✓ Calibrate pressure gauge once in six months
- ✓ Service the filter once in a year
- ✓ Check stroke once in a month
- ✓ Check suction fittings once in a month

e. Electrical Control Panel

- ✓ Confirm that all terminals are tight properly once in two months
- ✓ Check Electrical load of all equipment once in every month

f. General Instructions

- ✓ Never run any pump without water
- ✓ Never do any maintenance without proper electrical installation
- ✓ Never add any unaccepted chemical in the pool.
- ✓ Never run a pump with suction valve or discharge valve in closed condition
- ✓ Never run the filter with more than 25 psig pressure

P.K. DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P.K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

System Description

a. Filtration System for Sand Filter

Water shall be filtered by sand, carbon and iron filter, which is fed by Mono block pumps. Initially the raw water will be filtered by sand filter, then by carbon filter and lastly by Iron removal filter. Chemical will be injected into the treated water line.

Sand filter is designed to absorb all suspended particles of the circulating water. All operations of the system are to be done with the qualified technicians. Operations of isolation valves are to be carried out properly to avoid any malfunctioning .Water analysis to be recorded for all references.

b. Filtration System for Carbon Filter

Granular Activated Carbon (GAC) is commonly used for removing organic constituents and residual disinfectants in water. The two principal mechanism by which activated carbon removes contaminants from water are adsorption and catalytic reduction.

c. Filtration System for Iron Filter

The process through which iron is removed from water is known as Oxidation Filtration that involves the Oxidation Filtration that involves the Oxidation of the soluble forms of Iron(Fe) and Manganese(Mn) to their in soluble forms and then removal by filtration.

d. Filtration System Chlorine

Beside disinfection, Chlorine also oxidizes Iron, Manganese, and Hydrogen Sulphide in the water giving a highly cost-effective and efficient water treatment solution. The Chlorination system includes the Injection pump, Chlorine holding tank, tubing and the injection port.

Preventive Maintenance

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

a. Filtration Pump

- ✓ Check weekly for any abnormal sound or vibration
- ✓ Lubricated bearing once in six months
- ✓ Check foundation bolts for any loose
- ✓ Check motor terminals once in a month

- ✓ Never run a motor when it is hot
- ✓ Daily maintenance is must
- ✓ Clean the suction strainer periodically
- ✓ Backwash the filter as per the requirement. Watch the running equipment on daily basis
- ✓ Watch the condition of pump room
- ✓ Watch for any water leakage from any pipes
- ✓ Fill a log sheet on daily basis

Operation and Maintenance of Effluent Treatment Plant (ETP)

Effluent treatment plant, also known as ETP is a waste water treatment process (WWTP) that is used to treat waste water. Effluent Treatment Plant plays a significant role in the treatment of industrial waste water as well as domestic sewage.
Annual preventive maintenance measures are taken as per schedule.

Operation and maintenance policy for incinerator

Purpose

To provide general guidance for operating the incinerator and follow good environmental practices related to waste management.

Scope
Applicable to incinerator at PKDIMS

Definition
An incinerator is a furnace for burning waste. The incinerator is a double chamber, controlled air incineration system designed to incinerate nonhazardous solid waste comprising of paper, cardboard, and other general domestic waste.

Responsibility

- ✓ Operator and Maintenance Manager

P K DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

Policy & Procedure

- We have two incinerators having capacity 150 kg/per and 80 kg/hr to manage general waste.

- All wastes are segregated at source and are to be placed in transparent bags
- Prior to loading the waste batches in the incinerator, the feed materials will be visua inspected by the incinerator operator to ensure it does not contain inappropriate wa materials.
- Do not overload the incinerator
- The burn cycle should not be interrupted by opening the charging door until after the burn complete and the unit has cool down.
- Daily maintenance checking includes burner ,water flow check and tray
- Filters will be checked monthly

7. ABBREVIATIONS

- NABH-National Accreditation Board for Hospitals and Healthcare Providers
- PKDIMS –P K DAS INSTITUTE OF MEDICAL SCIENCES
- AMC - Annual Maintenance Contract
- AC Systems- Air Conditioners
- ITI- Industrial Training Institute
- KSEB- Kerala State Electricity Board Ltd
- CMC- Comprehensive Maintenance Contract
- PPM -Periodic Preventive Maintenance
- KVA- Kilovolt-Ampere
- STP- Sewage Treatment Plant
- CFL - compact fluorescent lamp
- LED- Light-emitting diode
- OT-Operation Theatre
- CCU- Critical Care Unit
- ICU –Intensive Care Unit
- IT –Information Technology
- DG-Diesel Generator
- SBR- Sequencing Batch Reactor
- WTP- Water Treatment Plant
- GAC- Granular Activated Carbon
- Fe- Iron
- Mn- Manganese
- ETP- Effluent Treatment Plant
- WWTP- Waste Water Treatment Process

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

8. DEFINITION

Not Applicable

9. LIST OF REGISTERS

SL.NO	NAME OF THE REGISTER	CONTROL NUMBER
1	DG Log Book	PKDIMS/MD/REG-01
2	DG Fuel Book	PKDIMS/MD/REG-02
3	MSB & Transformer Service Book	PKDIMS/MD/REG-03
4	DG Service Book	PKDIMS/MD/REG-04
5	DG Check Book	PKDIMS/MD/REG-05
6	Common Complaint Register	PKDIMS/MD/REG-06
7	Gate Pass Book	PKDIMS/MD/REG-07
8	Duty list Register	PKDIMS/MD/REG-08
9	Water purifier Service Book	PKDIMS/MD/REG-09
10	Water Purifier Complaint Book	PKDIMS/MD/REG-10
11	UPS Service Book	PKDIMS/MD/REG-11
12	Meeting Record Book	PKDIMS/MD/REG-12
13	Lift Service File	PKDIMS/MD/REG-13
14	AC Service File	PKDIMS/MD/REG-14
15	AC Duty work Book	PKDIMS/MD/REG-15
16	Material Request Form file	PKDIMS/MD/REG-16
17	Tank Cleaning Register	PKDIMS/MD/REG-17
18	KSEB -monthly Reading File	PKDIMS/MD/REG-18
19	Electrical Consumption –Doctors Apartment Record	PKDIMS/MD/REG-19
20	Canteen-cafeteria monthly Meter Reading File	PKDIMS/MD/REG-20
21	Preventive Maintenance Report File	PKDIMS/MD/REG-21
22	WTP Operating Book	PKDIMS/MD/REG-22
23	WTP Operating File	PKDIMS/MD/REG-23
24	STP Operating Book	PKDIMS/MD/REG-24

PK DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

25	STP Meter Reading Book	PKDIMS/MD/REG-25
26	ETP Operating Book	PKDIMS/MD/REG-26
27	Fountain Operating File	PKDIMS/MD/REG-27
28	Fountain Operating Book	PKDIMS/MD/REG-28
29	Incinerator Daily Record book	PKDIMS/MD/REG-29
30	Incinerator Monthly Service book	PKDIMS/MD/REG-30

10. LIST OF FORMS

Sl No	Form
1	Fuel Advance Form
2	Material Requisition Form
3	Job Description Sheet

11. LIST OF EQUIPMENTS

P K DAS COLLEGE OF NURSING
PANAYUR (P.O)
VANIYAMKULAM
OTTAPALAM
PALAKKAD DT
KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

Sl No	Equipment Name	Count
1	SPLIT AC	137
2	DUCTABLE AC	18
3	CASSET AC	10
4	COLD STORAGE	1
5	PAKAGE AC	9
6	FRIDGE	53
7	COOLER	23
8	LIFT	11
9	COOLER	23
10	UPS	14
11	GENERATOR DG-500	1
12	GENERATOR DG-250-1	1
13	GENERATOR DG-250-2	1
14	MOTOR 7.5HP	2
15	MOTOR 2 HP	1
16	MOTOR 5 HP	1
17	MOTOR 40 HP	2
18	MOTOR 7.5HP	2
19	MOTOR 5 HP	2
20	SUBMERSIBLE 5HP	8
21	SUBMERSIBLE 7.5HP	3
22	AIR BLOWER 1	2
23	AIR BLOWER 2	2
24	NEW MOTOR-1	1
25	NEW MOTOR-2	1
26	BACK WASH PUMP	1
27	DOSING PUMP	1
28	ADD OUT SIDE MOTOR-1	1
29	ADD OUT SIDE MOTOR-2	1
30	SLEDGE PUMP-1	1
31	SLEDGE PUMP-2	1
32	FILTTER PUMP-1	1
33	FILTTER PUMP-2	1
34	ARIATION TANK SUBMERSABLE	1
35	COLLECTION TANK-1	1
36	COLLECTION TANK-2	1
37	MONO BLOCK	

P.K. DAS COLLEGE OF NURSING PANAYUR (P.O) VANIYAMKULAM OTTAPALAM PALAKKAD DT KERALA - 679522

PRINCIPAL
PK DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522

38	BIO WEST-1	1
39	BIO WEST-2	1
40	JOCKY PUMP	1
41	SPEAR PUMP	1
42	MOTOR	1
43	TV	4
44	FLESH TANK	62
45	WASHING	1
46	DRAYER	2
47	EXTRACTOR	2
48	AMPLIFER 6MIC CHAMAL	2
49	UHF-RECEIVER CODLESS MIC RECEVER WITH CHARGER+CAPLE	1
50	WIRELESS RECIVER MICROPHONE	1
51	TABLE MIC STAND FLEXIBLE MIC	2
52	TABLE MIC STAND ATTACHED FLEXLE MIC	2
53	MICRO PHONE WIRELESS MICRO PHONE	1
54	STAND MIC CABLE STAND MIC TO AMPLIFIRE	1
55	WIRE LESS RECEIVER AMPLIFIRE CABLE	1
56	SPEAKER 90W	1
		1

P K DAS COLLEGE OF NURSING
PANAYUR (P.O)
VANIYAMKULAM
OTTAPALAM
PALAKKAD DT.
KERALA - 679522

PRINCIPAL
P K DAS COLLEGE OF NURSING
PANAYUR (P.O), VANIYAMKULAM
OTTAPALAM, PALAKKAD DT
KERALA - 679522