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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR ELECTRICAL PANEL OPERATION** |

**Objective:**

To establish the Standard Operating System for carrying Electrical Operations

**Policy:**

Smooth & Effective Operations of the Electrical Panels

**Responsibility:**

Electrician / Supervisor

**Procedure:**

1. Ensure cleanliness of electrical panels& Rubber Mats are placed in front of the Main LT Panel/HT panel
2. Check and ensure all the Panels / DBs and doors are properly earthed
3. Check proper ventilation / Exhaust in the Main Distribution Panel
4. Ensure the incoming supply to incoming VCB in Main Distribution Panel
5. Check for balanced three phase in volt meter and healthiness of DC control supply in indicator
6. Check and ensure the protective relays (Over Current, Earth Fault, Earth Leakage, over / Under Voltage etc.) are functional, reset if required
7. Check and ensure the area near the panel is kept free from hindrances
8. Check and ensure all the personnel protective equipment’s and tools are kept handy
9. Check and ensure all the cable entries / panel doors are sealed / closed properly to avoid entry of reptiles and foreign material
10. Check and ensure no tools are left behind in the panel before switching on the supply
11. Check and ensure there are no water seepage / leakage on or near the electrical equipment’s
12. Switch ON the load feeders one by one as per the requirement
13. Monitor and ensure that the Power Factor is maintained between 0.95 and 0.99
14. Monitor different parameters of voltage, PF, running Load etc. ensure these are within the limits and record the same in the LOG Book
15. Ensure that the lighting lux levels are maintained as per the design. All the lights should be kept in working condition
16. Lighting levels (average) in the Operation Floors should be kept between 200 to 350 lumens
17. Lighting levels will be verified on half yearly basis and improved if required
18. Ensure the voltage between Neutral and Earth is less than 2.0 Volts
19. Ensure the earth resistance of the earth pits is less than 2.0 ohm

**Vacuum Circuit Breaker Operation (Close to Open):**

1. Confirm the load on the transformer is isolated
2. Confirm the power to transformer from the HT yard has been isolated
3. Turn the breaker control Switch of the breaker to TRIP position from NEUTRAL position
4. After tripping, the breaker control switch comes back automatically to NEUTRAL position
5. Confirm the Isolation of the breaker by checking the isolation Indicator in OFF Position
6. In case the breaker is not operated electrically with breaker control switch, use the push button to disengage / open the breaker
7. Once the contacts are opened the breaker is to be pulled outside for maintenance by using racking handle, if required
8. To insert the breaker after maintenance the breaker should be put back into the VCB chassis
9. Push the breaker into the terminal slot so that the locking is engaged

**Vacuum Circuit Breaker Operation (Open to Close):**

1. Turn the breaker control switch in the Breaker, which is in NEUTRAL Position to CLOSE position. This switch comes back automatically to NEUTRAL position after closing
2. If the spring is not charged, charge it manually and close the breaker by pressing ON button
3. Note down/record the number of operations from the counter if present

**Emergency Operating Procedure:**

1. In case of emergency, switch off the Power supply by operating the breaker control switch from Neutral to Trip Position and Confirm the Isolation of the breaker by checking the isolation Indicator in OFF Position
2. If the breaker does not trip for any reason push the EMERCENCY STOP button and ensure that the supply is cut off. If the breaker is not tripped even after the emergency stop button is pressed use OFF button in the breaker to switch OFF

**Operation for Air Circuit Breaker:**

**Automatic Operation:**

1. Check the incoming supply in all the 3 phases
2. Keep Auto / Manual switch in “AUTO” position located on LT Panel for Power supply from transformer
3. Check - ACB spring in charged condition
4. Transformer ACB will close automatically
5. The Transformer ACB will trip automatically in case of Mains failure / Under Voltage / Short circuit and DG system will be ON automatically and LT panel is charged

**Manual Operation:**

1. Check the incoming supply of all three phases
2. Keep Auto/Manual switch in “Manual” position located on Transformer ACB
3. Check Transformer ACB spring is in charge condition (If not, charge manually)
4. Close Transformer ACB by pressing “Close” push button located on LT panel and it will close if not closed, press the “Close” push button located on ACB and it will close
5. Check - DG ACB spring is in charge condition. (If not charge manually)
6. The Transformer ACB will trip automatically if no supply available or under voltage or short circuit
7. In case of Mains failure, start the DG manually and close the DG ACB
8. Close Changeover ACB (where applicable) by operating the switchgear
9. Other Outgoing Load MCCBs can be switched “ON”
10. Whenever Mains resumed open the DG ACB and close the Transformer ACB

**Safety Precautions:**

1. Ensure the work area is adequately lighted
2. Carry all necessary tools Tackles (Properly insulated) & personnel protective equipment’s
3. Lock Out/Tag Out (Keep the keys in your possession) the respective incomer supply before commencing the maintenance work
4. Discharge the static current (where-ever applicable) before commencing the maintenance work
5. Wear shock proof shoes / gloves while working on / near live contacts.
6. Remove any ID card, chain etc. around the neck before working on any live panel
7. Check and ensure no tools are left behind in the panel and the same is closed properly after the maintenance is completed
8. Ensure adequate numbers of serviceable Fire Extinguishers / Sand buckets are kept near the panels of LT/DG/HT

**Revision Guide:**

Any change in the system needs review of SOP

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| **Procedure No** | **APMS/SOP/E/EPL/01** | |
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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR AIR CIRCUIT BREAKER OPERATION** |

**Objective:**

To establish a procedure for standard operation of Air circuit breaker

**Policy:**

The Electrical operations shall be carried out in safe, smooth, trouble free without affecting the tenants / occupants with reduced down time

**Responsibility:**

The Electrical Technician is responsible under the guidance of contractor’s supervisor

**Procedure:**

**Procedure for Opening & Closing the ACB:**

1. Check and ensure that all the incoming, outgoing power and control cables are properly terminated
2. Check and ensure the that ACB unit is fully plugged in the chassis by observing status indicator (it should be in ‘Service’ position)
3. Check and ensure that ACB spring is charged. Observe spring charge indicator
4. Check and verify voltage at incoming of the breaker is health (380-430 Volts) before attempting to close the breaker
5. Press ON/BRKKR CLOSE pushbutton on control panel to close the breaker if it is electrically operated
6. Breaker can also be closed by pressing ON (green) pushbutton on ACB unit itself if it is not electrically operated
7. Press OFF/BRKRTRIP pushbutton on control panel to open/trip the ACB if it is electrically operated
8. Breaker can also be opened/tripped by pressing OFF (red) pushbutton on ACB unit itself if it is not electrically operated

**Procedure for racking in, racking out and spring charging:**

1. Pull the racking handle out from the holder (down-right side of breaker)
2. Insert the racking handle in the operating slot (notch) located in the bottom-center portion of ACB
3. Gently rotate the racking handle anti-clockwise to rack out the breaker
4. Observe the status indicator for position of the breaker (Service/Test/Isolated)
5. Breaker will be in Service position when it is fully racked in
6. Both power and control cables will be connected with breaker in Service position
7. When the breaker is racked out half way, it will show ‘Test’ position
8. When breaker is in ‘Test’ position, only control wiring is connected with the breaker and power terminals are disconnected
9. Breaker can be Opened & Closed in ‘Test’ position to check the operation
10. By rotating the handle anti-clockwise further from ‘Test’ position, it will reach ‘Isolated’ position where both power and control wiring is totally disconnected
11. Do not rotate the handle further once the breaker reaches ‘Isolated’ position
12. Gently rotate the racking handle in clockwise direction to rack in the breaker. Rotate until you hear ‘click’ sound and status indicator shows ‘Service’ position to ensure proper seating of contacts
13. Remove the racking handle from the operation slot (notch) and inset it back in holder
14. Manual spring charging can be done by pulling out the spring charging handle out and gently pushing out to right side direction until it moves freely. Observe spring charge indicator while charging the breaker manually

**Revision Guide:**

Any change in the system needs review of SOP.

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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR TRANSFORMER OPERATION** |

**Objective:**

To provide standard procedure for manual start of Transformer

**Policy:**

The starting of transformers should be done in smooth and safe way

**Responsibility:**

Electrician/ Shift Engineers

**Procedures:**

1. Verify healthy power in HT panel from Grid in each phase
2. Verify Control supply is healthy & indication lamps are glowing
3. Check OLTC AVR Control supply is healthy & indication lamps are glowing
4. Check that all safeties is at normal condition
5. Check transformer oil, silica gel conditions in case of oil filled transformers and their safety control relays switches are on line and functional including earth grid
6. Check and record line clearance permit to ensure that no men are on work and all clear permits exist
7. Close the HT Breaker, Check healthy power in LT panel
8. Check the operation instruction as per load condition
9. Log the parameters in log books

**Revision Guide:**

Any change in the system needs review of SOP

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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR CHANGEOVER OPERATION** |

**Objective:**

To establish a procedure for Changeover from EB to DG vice versa during power failure

**Policy:**

To ensure the changeover process during power failure for which the PLC was installed

**Responsibility:**

On duty Technician

**Procedures:Auto operation:**

1. Check Auto/Manual selector switch is in Auto mode
2. Check for uninterrupted power supply for PLC
3. When power fails ensure that EB breaker is open
4. Check below conditions for proper functioning of changeover operation

|  |  |  |  |
| --- | --- | --- | --- |
| **EB Breaker** | **Bus Coupler** | **DG 1 Breaker** | **DG 2 Breaker** |
| ON | ON | OFF | OFF |
| OFF | ON | ON | OFF |
| OFF | ON | OFF | ON |
| OFF | OFF | ON | ON |

**Manual Operation:**

1. Check Auto/Manual selector switch is in Manual mode
2. When power fails ensure that EB breaker is open
3. Check below conditions for proper functioning of changeover operation
4. If the load is more than the designated load, switch OFF Bus-coupler in main LT panel

|  |  |  |  |
| --- | --- | --- | --- |
| **EB Breaker** | **Bus Coupler** | **DG 1 Breaker** | **DG 2 Breaker** |
| ON | ON | OFF | OFF |
| OFF | ON | ON | OFF |
| OFF | ON | OFF | ON |
| OFF | OFF | ON | ON |

**Manual Operation through EGCP:**

1. Select ‘MANUAL’ mode in EGCP on DG control panel. And press ‘Clear’ button to reset alarms if there are any
2. Press ‘START’ button and hold it till such time engine attains required RPM (Protection Green LED should come on)
3. Once the Voltage is developed, press ‘ON’ button in EGCP to close the DG-ACB
4. When EB power returns, check the condition of EB power, such as voltage, frequency, if found normal and stable press ‘OFF’ button in EGCP to open the DG-ACB
5. Then close EB Circuit Breaker as required transferring the load
6. Then after 3 minutes, press ‘STOP’ button in EGCP to stop the engine

# Safety Precautions

1. Check and ensure canopy lights are always in working condition
2. Check and ensure the emergency stop button is functional
3. Ensure all safety guards are kept intact
4. Ensure strict vigilance, supervision while carrying out activities like welding which may lead to fire
5. DO NOT touch any part/ carry out any maintenance while DG set is in running condition
6. Check and ensure the Doors of the canopy are closed while the DG is in running condition
7. Strictly follow Lock Out, Tag Out procedure while carrying out maintenance
8. DO NOT Open the radiator cap while the DG set is running or in hot condition
9. Check and ensure the floor, parts are free from grease, lube oil, diesel where maintenance is carried out to avoid slipping
10. Check and ensure there is no spillage of Diesel/Lube oil. If observed, place a metallic tray to collect the same
11. Check and ensure adequate numbers of appropriate serviceable Fire Extinguishers /sand buckets are placed in the DG yard

**Revision Guide:**

Any change in the system needs review of SOP

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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR ELECTRICAL RESISTANCE CHECK** |

**Objective:**

The objective of this document is to establish a procedure for maintaining healthy condition of the earth pits

**Policy:**

To ensure healthy condition of earthing and electrical system

**Responsibility:**

Electrician / Technical Supervisors need to ensure timely maintenance of system. Site In-charge to ensure that electricians and technical Supervisors are fully aware about maintenance and safety precautions during earth pit checks

**Instructions:**

1. Weekly maintenance has to be carried out by Electrician & Supervisor
2. Ensure looping of the earth pit before disconnection from earth pit
3. Use only calibrated equipment for testing
4. Ensure availability of adequate salt at site as per consumption pattern
5. Do not touch the earth pit with naked hands
6. Ensure all the earth pits are covered

**Procedure for monthly maintenance:**

1. Ensure barricading the area before start of maintenance
2. Ensure that all the earth pits are covered as part of maintenance
3. Remove all the foreign objects from the earth pits
4. Ensure that the contacts are cleaned and greasing/petroleum gel is applied to terminals.
5. Ensure that all the earth pits numbers and associated equipment is mentioned on the earth pit cover
6. Take 02 kg of salt for each earth pit
7. Mix the salt in 10 liter of water
8. Slowly pour the salt water inside the earth pit funnel
9. Pour additional water without salt around the funnel
10. Ensure proper covering of the earth pit post maintenance
11. Keep the record of earth pit maintenance and update in PPM calendar

**Procedure half yearly earth pit value checks:**

1. Ensure that all the necessary precaution taken during the maintenance
2. Ensure looping of earth strip to another earth pit to maintain continuity of system
3. Ensure disconnection of the earth pit during earth resistance checks
4. The value of earth pit should not be more than 2Ω. If the value exceeds the limiting value undertake maintenance of the earth pit
5. Earth pit resistance is measured by Megger/Earth tester, having four terminals P1, P2, C1, C2 i.e. Two potential & Two Current terminals
6. During earth pit testing, P2 & C2 are  shorted and C1 connected to current spike(Conductive rod)  which should be inserted into soil at around 30 meter distance from earth pit and P1 is connected to potential spike (Conductive rod) inserted at around 15 meter. Away from earth pit in the direction of current spikes. By rotating the handle of meter / or by pressing test button earth resistance can be obtained
7. Record all the required information in log book/ earth pit test check list
8. Earth value records need to be maintained for inspection by Electrical Inspector

**Environmental health & safety precautions:**

1. Ensure appropriate Personal Protective Equipment such as hand gloves, safety shoes are used during the maintenance
2. Ensure barricading of the area to avoid any accident
3. Place signage of maintenance in progress near the earth pit
4. Ensure no spillage of water around the earth pit on the floor
5. Ensure secondary containment is provided to prevent leakage

**Revision Guide:**

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Any change in the system needs review of SOP.

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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR LIFT EMERGENCY RESCUE OPERATION** |

**Objective:**

To establish the standard Operating System for the Lift Operations

**Policy:**

To provide a smooth rescue operation

**Responsibility:**

Lift Technician

**Procedures:**

In the event of intermittent power, the elevator should automatically restart once supply is restored within 10 seconds

**Rescue Operation:**

1. As soon as the call is received, go to the respective tower lift and reach the floor where the lift car is landed
2. Insert the Emergency door key and turn in anticlockwise. Simultaneously pull the doors of the lifts
3. Check whether the lift car has landed exactly at the floor level and if found inform the persons to come out of the lift
4. On the other hand if the lift car has not landed at the floor level and if it is In between the floors, then immediately go to the lift machine room and switch OFF the input power supply to the respective lift
5. Release the brake by inserting the lever and simultaneously bring the lift car to the nearest floor level by rotating the wheel in the drive unit in anti-clockwise/clockwise direction till the marking on the wire rope matches.
6. Go the respective floor and repeat instructions 2 & 3
7. Then go to the lift machine room and Switch ON the input power and check the proper functioning of the lift. If not put the lift in “Under Service”. Then inform to the Service Agency for further actions

**Revision Guide:**

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Any change in the system needs review of SOP

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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR STP OPERATION** |

**Objective:**

Standardize procedure for operation of Sewage treatment plant to obtain maximum efficiency

**Policy:**

To ensure that plant is operated for the purpose which the plant was installed

**Responsibility:**

STP operator / Shift Engineer

**Procedures:**

1. Check bar-screen chamber. Clear it from clogging materials if any
2. Check the water level of equalization tank. Always maintain a proper level
3. Start Air Blowers for aeration of the sewage in Equalization tank and for other systems
4. Start Raw Sewage pumps and ensure that raw sewage water is transferred to the SBR tanks rapidly and continuously till the SBR tank is full to free board level depending on the inflows into the equalization tank. This process boosts the growth of certain micro-organisms with better settling characteristics.
5. Ensure for proper operation of air blowers
6. Stop the raw sewage pumps to start the reaction phase. Allow the aeration to continue for the prescribed time, the reactor is aerated allowing the waste water to undergo further process of oxidation and nitrification
7. Stop the SBR air blowers after the prescribed time. By suspending the Air blowers, solids are allowed to settle to the bottom of the tank
8. After the settling phase, supernatant water is transferred from the SBR to the decant tank by decanter mechanism
9. Clean SBR tank surface area from any algae formation or clogging materials
10. Check fluidized sludge from the bottom is transferred/ drained periodically from SBR to sludge holding tank
11. Let the SBR be idle for few minutes and start the next cycle by starting the raw sewage pumps
12. Fix liquid chlorine dosage to disinfect the treated water
13. Start transfer water pump i.e. filter feed pumps for filtration through PSF (Pressure Sand Filter) and ACF (Activated Carbon Filter)
14. Check pressure drop in the filters and back wash the filters if the drop across the filters is more than 0.2Kg/cm2
15. Test quality of water and treated water for its designed TDS, BOD level and pH value
16. Check Hydro Pneumatic System for proper supply of irrigation & flush water
17. Check and ensure the working of drain pit de-watering pumps. Divert water from the drain pit chamber when required
18. Check sludge volume in sludge holding tank (SHT). Divert the excess water to SBR/Equalization tanks. Check for suspended solids in SHT by settling test. If adequate quantity is available, start centrifuge feed pumps
19. Collect the output de-watered sludge in a tray and recycle the liquid output to Equalization tank
20. Record parameters in the log sheet

**Backwashing the Filter:**

Backwashing the filters to wash out the dirt accumulated on top of the filter beds is an essential part of the operation routine. The frequency of backwash depends upon the turbidity of the water to be filtered. The filter is provided with a gauge panel on which are mounted two pressure gauges connected to the inlet and outlet of the filters. The difference in the gauge readings will indicate the loss of head through the filters. Normally, a head loss of 6 feet (3 PSI) is allowed and if it exceeds, backwashing has to be taken up

Backwashing is done by sending a current of water at a high rate through the filter bed in a reverse upward direction. The high velocity agitates the filter sand bed, loosens and carries away the accumulated dirt out through the backwash drain pipe

**Procedure for Backwashing the Filter:**

This consists of the following steps:

1. Close all valves of the filter and stop the pump
2. Open Backwash inlet and outlet valve **V3**&**V4** fully
3. Start both pumps and immediately open their delivery valves fully. Observe the dirty water coming out of the drain pipe. This backwashed water can be let into the Equalization tank
4. Continue the operation until the water coming out is clear
5. Stop the pump and close the valve **V3**&**V4**

**Caution:**

The filter beds should not be allowed to become dry at any time. Otherwise under dry conditions, the filter media will cake up. Afterwards it becomes difficult to break it by back washing. Whenever, the filter is to be shut down, close all valves tightly and lock up the water inside the filter

Leaky valves & joints should be attended immediately. An efficiently backwashed filter will show a head loss of 1 to 2 feet at normal flow. In due course, due to accumulation of dirt on the filter bed, the head loss increases. When it reaches 6 feet or 3 psi or 0.2 kg /cm2, the filter has to be backwashed immediately. Do not operate for long periods at high head losses

**NOTE:**

Life of the activated carbon depends upon the quality of feed inlet from the pressure filter. When the carbon bed is exhausted, it has to be replaced. It is anticipated that the carbon bed will last minimum 6 months

**ACTIVATED CARBON FILTER:**

The filter water from the Pressure Sand Filter passes through an Activated Carbon Filter which comprises of Vertical Pressure vessel, perforated plates fitted with polystyrene strainers at the bottom, top and in between the filter media comprising 900 mm deep Activated Carbon granules over a bed of Graded Gravel. Outlet is led to final sump. One on line chlorine solution is dosed into the line for disinfection before disposal

**PROCEDURE FOR AC FILTER INTO NORMAL OPERATION:**

To operate Activated Carbon filter procedure as under

1. Keep all the valves of the A.C. Filter closed
2. Open valve **V6**
3. Water flows into the Carbon Filter
4. After ensuring that the Filter is full and under pressure open the outlet valve **V7**
5. Filter is now in operation and the inlet water flows through the Carbon bed. This will result in absorbing Residual odor and color if any

**BACKWASH THE A.C. FILTER :**

Backwash the carbon filter periodically as it is necessary to remove any dirt and to thoroughly agitate and homogenize the carbon bed. This may be done once as a routine. The strainers on the top of the filter prevent the carbon granules from getting washed out and only the fine particles are washed out

**Proceed as follows:**

1. Keep all valves of the Carbon Filter closed
2. Open the backwash inlet valve **V8**
3. Start the filter feed pumps and the Pressure Filter in normal mode
4. Now open the backwash drain valve **V9**
5. Carbon filter backwash is now on
6. Backwash for about 5 to 10 minutes should be sufficient
7. After backwash close all valves and stop the pump

**TO SHUT DOWN THE A.C. FILTER**

Close inlet and outlet valves **V6 & V7**

# Safety Precautions

1. Never descend into any tank for whatsoever reason, unless another operator is also present
2. Check and ensure the safety guards are intact
3. DO NOT Carry out any work while pump is in operation
4. Exercise care while making up chemical solution for dosing. Use appropriate safety equipment
5. Keep and maintain coupling guard, motor covered at all the times
6. When working on Air Blowers, Motors and Pumps, switch off respective motor at the panel
7. Never run the pumps with Inlet and Outlet valves closed
8. Lock Out/Tag Out the power supply from incoming feeder before commencing any maintenance
9. Care must be taken while opening rusted nut bolts which are prone to be broken / cause slippage
10. Ensure thorough cleanliness of the area before and after the maintenance work
11. While inspecting the pumps/blowers in operation, keep safe distance

**Revision Guide:**

Any change in the system needs review of SOP

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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR WSP OPERATION** |

**Objective:**

To establish the standard Operating procedures for smooth operation of Water Softening Plant

**Policy:**

To ensure that plant is operated for the purpose which the plant was installed

**Responsibility:**

WSP operator / Shift Engineer

**Procedure:**

1. Check water level in raw water tank
2. Check for healthy power supply (R, Y, B) availability in the electrical panels
3. Check controls and valves of dual media filters/ activated carbon filter/ sand filter and all other valves of the system
4. Start filter feed pumps and check pressure drop in the filters, if media found packed, agitate system with air or back wash the media till media is activated for an adequacy of filtration
5. Check quality of water from softener and confirm the necessity for regeneration
6. Regenerate softener with brine solution
7. Ensure the chlorine levels in chlorine dosing tank and Start chlorine dosing pump
8. Test water for adequacy of pH value, free chlorination level and softening quality
9. Start treated water pumps and check the pressure
10. Monitor the level of water being filled in the final tanks through level sensors/ manually. Ensure no spillage of water from the final tanks
11. Stop the treated water pumps when the level of water is full in final tanks
12. Record parameters in the log sheet

**Regeneration mode:**

1. Prepare Brine tank by making 26% concentration. For ex. For 10kg of salt water to be added 10/0.26= 38.46 lts
2. **Backwash**( Step Time : 10 min):-
3. Open wash outlet valve fully
4. Very slowly, open wash inlet valve and adjust it such that level of water in the drain sump is up to the wash marker/water float
5. After 10 min or when it is cleaner (same as that of inlet water), close Wash inlet valve fully
6. Backwash is now complete
7. **Brine Injection**( 20 to 30 min):-
8. Open Rinse out let valve fully
9. Open ejector Suction valve fully
10. Open and adjust ejector Power Water valve such that level of water in the Brine sump comes to INJ mark on the V- notch board
11. Now the brine injection has started. Continue this step till complete brine solution from the tank is injected
12. **Slow Rinse** (20 to 30 minutes):-
13. After the brine gets completely injected, close Ejector Suction valve fully. Rinse outlet valve and ejector Power water valves are open from previous step. Further open ejector Power Water valve to re-adjust the level of water in the drain sump to INJ marker. Now the SLOW Rinse step operation has started. Slow rinse is continuation of Regeneration (injection) step only as the remnant brine in the vessel is displaced by slow rinse water and regeneration takes place completely.
14. After about 20 min, close all the open valves. This completes Slow Rinse step.
15. **Fast Rinse** (20 to 30 min):-
16. Open Rinse Outlet valve fully
17. Open Inlet valve and adjust till level in drain sump V- notch board reaches to “Rinse” marker. After about 20 min, check quality of water from the sample point at Outlet by opening valve. If the total hardness is found to be commercially zero, close both the valve (in case, the quality of the water is not achieved yet, continue the fast rinse step till quality is achieved). The unit is now ready for service

**Taking the softener in service:**

1. **Refill:** 
   1. Open Inlet Valve and Air Release Valve
   2. When water starts coming out Full Bore from Air Release pipe, close air Release Valve
   3. This completes Refill (Air Release) operation
2. **Service:** 
   1. Open Outlet valve fully. Open and adjust Inlet Valve such that the service flow is achieved

**Service Mode:**

1. Close the inlet Valve of the water line
2. Select the handle position to service mode on the softener tank
3. Open the inlet water valve & set the water pressure to 2 bar by adjusting the valve & switching the primary pump ON
4. Keep the MCB on the control panel to ON position
5. Check for the operation of water pump
6. Measure the PPM of water at the inlet of final tank, ensure the PPM should be less than 5 immediately after regeneration

**Manual operation (STOP)**

1. Press Stop push button on the WSP Panel
2. Records stop timings

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# Safety Precautions:

1. Check and ensure all the safeties are intact
2. No unwanted material is kept in Pump Room
3. Tag out / lock out electrical supply from the incoming source before filter cleaning/open backwash
4. Adjust the position of the motor while replacing the damaged “V” belts

**Revision Guide:**

Any change in the system needs review of SOP

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| **Procedure No** | **APMS/SOP/WSP/08** | |
| **Rev : 02** | **Prepared By** | **Approved By** |
| **Date:01.12.2017** |  |  |

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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR LOTO** |

**Purpose**:

To establish, document to set out the requirements for Lock out tag out procedures for plant and equipment’s so as to protect the employees/ workers from serious injuries that could happen due to unexpected release of energy while servicing machinery/ equipment’s

**Scope**: This procedure provides guide lines on LOTO process shall be carried out in safe smooth environment by all the APMS staff members

**Responsibility:** Technician / Supervisor

**Operational Procedure:**

1. Should there be a need for system/ equipment maintenance/ service, the Initiator will communicate the same to Supervisor as a first step
2. Shift Technician will check the availability of power sources affecting that equipment/ machine like electrical and cleaning of vessels
3. If the power sources are not affecting the equipment/ machine then the Supervisor /Technician will allow the maintenance person to perform service/ maintenance on the system/ equipment
4. In case there are any power sources affecting the machine/ equipment, the shift technician/Supervisor will alert the operator that for performing maintenance of the system/ equipment, lock-out tag-out procedure compliance is required
5. Lock-out Tag-out related activities will be permitted only if the following three conditions are met
6. The activity is being performed by the person designated to perform the specific task who is familiar with the equipment, its operation, its energy sources, isolation points, sequence of isolation and any materials transported by the equipment
7. LOTO permit form is filled and duly signed by the Supervisor
8. Person conducting this task has completed LOTO specific induction
9. Once the need for the LOTO has been established and person (initiator) identified, the initiator will fill the LOTO tag and attach to the equipment
10. On completion of service/ maintenance, the technician will ensure that all the equipment’s are safe to operate. Only on such confirmation, initiator will remove the lock-out tag-out. LOTO tags will not be permitted to be removed by anyone other than initiator and unless the equipment has been testing for safe operation. Once work has been completed, the person removing the tag must also complete and sign off the Register at the facility Management office
11. On removal of the Lock-out Tag-out, Supervisor will again check for the proper functioning of the machine/ equipment which had undergone maintenance work and upon getting fully satisfied will sign on the LOTO permit form to close it as well as sign on the LOTO register
12. If there is an Organization requirement to reinstate this equipment, in the absence of those who installed the locks & tags, it is permissible for the Supervisor or other person authorized by the operation head, to remove the locking devices and tags. This action may only be taken after a detailed Safety Inspection is carried out and confirmation witnessed by at least one other suitably qualified person authorized by the Client. Both must sign the register

**Safety Instructions:**

1. In addition to LOTO tags, Caution boards must also be used for the areas where more attention and visibility is required. There are mainly two types of caution boards as mentioned below – (Red background & white letter). This caution board is to be utilized (with a lock where possible) when isolating a source of energy to isolate a piece of equipment and placed at the point of isolation
2. A lock-out mechanism must be used where there is a possibility that the persons or equipment would be at risk if other unsuspecting persons or members of the public were to operate the equipment. Only locks issued by the plant in charge will be permitted to be used
3. The person who has placed the isolation must ensure that the isolation is tested prior to the commencement of work. Where the energy source is electricity, conductors must be checked for live electricity (e.g. voltmeter, test lamp, buzzer, etc.) and/or attempting to start the machine
4. If the isolation is to be overnight or longer then all details must be entered on the Excel sheet, which will then be pasted to the notice board at the plant office and the same information must be recorded in a LOTO Register
5. Tag No: “The unique number on every tag must be
   1. Maintained by Supervisor e.g. “(01 – 100…)”
6. Permit No.: “Permit Number (XX-122334 ….)”
7. Location: “Every location has a name”
8. Company: “Company name of service provider”
9. Responsible Person: “Person placing Lock &/or Tag”
10. Contact Phone No: “Phone number of the person who put on the tag”
11. Equipment: “Name of the equipment that has been locked out”
12. Tag Placed: “Date of Installed”
13. Tag Removed: “Date of Removed”

**Revision Guide:**

Any change in the systems will need a change in the SOP.

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| **Procedure No** | **APMS/SOP/LOTO/09** | |
| **Rev : 02** | **Prepared By** | **Approved By** |
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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR HEIGHT WORK PERMITE** |

**Purpose**:

To establish, document to set out the requirements for procedure that ensures the health and safety of all persons who work at heights on any of worksites. Serious acrotection equipment according to the procedure to prevent or minimize accidents can result from falls. All employees of the COMPANY must utilize fall p due to falls

**Scope**:

This procedure provides guide lines on Height work process &shall be carried out in safe smooth environment by all the BIAC staff members

**Process Owner**:

Power Network In-charge / Engineers /Operators and Technicians

**Prerequisites:**

All employees & contractors working on site shall comply and ensure to follow this procedure

**Responsibility:**

Technician / Engineer

**Operational Procedure:**

**General Work Guidelines**

1. Employees shall select, wear and use the appropriate fall protection system as required by the procedure whenever there exists the potential for a fall. Helmets, Safety jackets, Safety shoes, Lanyards and Safety horns will be applicable depending on heights
2. Employees must inspect the fall equipment daily before any work at heights. The inspection should identify breaks, cuts, rust on metal parts, wear on seams/threads, cleanliness and other hazards
3. Properly store and care for all fall protection equipment if any fall protection equipment has been used to arrest a fall, this must be immediately reported to the Supervisor. When choosing an anchor point, it must be located above the worker’s head or as high as feasible so the distance of falling is as short as possible
4. Do not hang anything from fall protection equipment. Use a sturdy canvas bag to carry materials or tools and hang it from a support point within the work area
5. Any work requiring assembly must be done on the ground in order to minimize work at height
6. If there are people working at lower levels, a canvas must be placed (under the net, if applicable) at a distance suitable to protect people from any falling materials or tools
7. If there is no one working at a lower level, the perimeter of the Work at Height area must be fenced with a red tape and signs reading: “DANGER – KEEP OUT”, “PERSONNEL WORKINGOVERHEAD” or similar message
8. It is forbidden to leave or store surplus material, cuttings, bolts, tools, etc. on structural beams, roofs, uncompleted levels and the like. IN assembly work involving high levels and voids, hand rails or strong platforms with stops, must be placed around the hole to prevent falls

**Responsibilities of engg**:

1. Ensure that fall protective equipment inspections are conducted annually and documented by Engineer /Environmental officer
2. Ensure that the life line systems and nets are properly designed and installed, and inspect them daily
3. Make sure that all personnel have their PPE for working at heights
4. Make sure that the personnel are anchored through the anchor line at all times
5. Provide proper fall protection equipment and ensure the fall protection system being utilized is appropriate for the task
6. Ensure that all employees use appropriate fall arrest or fall restraint systems

## Procedures:

This procedure applies to all functional areas, operations, offices, including employees, Vendors, visitors and contractors within the scope of the Integrated Management System is understood, applied and observed within their area of authority

## Safe Use of Ladders

As a rule ladders should be used as a means of access and egress or for short-term work. Mobile platforms, elevated work platforms or scaffolds should be used for heavy or lengthy work. If a ladder is used, ensure that

1. Only industrial rated ladders having a minimum load rating of 120 kgs are used in the workplace
2. Only one person is on a ladder at any one time
3. When ascending or descending the ladder, always face the ladder and maintain three points of contact at all times. Do not climb from one ladder to another
4. When working on a ladder, always work within easy arms reach and remain centered between the stiles, maintaining three point of contact
5. A tool-pouch, shoulder bag or haul bag is used to convey tools
6. Only light work is undertaken while on the ladder, where three points of contact can be maintained and tools can be operated safely with one hand
7. Where a portable or fixed ladder is used as a working platform and a fall of more than 1.8 meters is possible, a fall-restraint or arrest system should be used
8. Do not attempt to ‘walk’ or move a ladder while a person is on the ladder
9. No person stands on a ladder any higher than 900 mm from the top
10. Portable ladders are not erected on elevated walkways, scaffolding or elevated work platforms to gain extra height
11. Ladders are not used for ‘hot work’ such as welding or oxy-acetylene cutting
12. Two persons handle long and heavy ladders (greater than 20 kg)
13. The manufacturer’s instructions regarding the erection use and maintenance of the portable ladder are followed
14. Metal, wire reinforced or otherwise conductive ladders shall not be used on or near equipment if an electrical hazard might result from their use

## Pitch angle

1. A portable ladder should be positioned at a slope of 1 in 4 e.g. a 4.0 meter long ladder should be placed with the foot of the ladder 1 meter out from the wall as illustrated in figure
2. Appropriate fall protection is required whenever there is a danger of falling which could cause personal harm
3. Safety belts must only be used for fall restraint. They must never be used when there is potential for falls to a different level. Surface Maintenance will not use safety belts
4. A full body harness with a Self-Retracting Lifeline must be used when working at height with a fall potential that is less than 18 feet.
5. A full body harness with lanyard and shock absorber or a full body harness and Self-Retracting Lifeline (SRL) is required when total fall height is greater than 18 feet
6. Fall protection must be used when a worker is within 10 feet of a roof edge, open hole, open stop or other unprotected edge
7. In the case of work at heights where a life line is not used and movement is required on the structures, workers must use a two-way lanyard line (100% tie off)
8. Fall protection must always be used when working over moving machines, hazardous chemicals, over slopes (de-thatching and samplings) and when there are no hand rails, guards or other fall protection devices
9. Work areas must be cordoned off in such a way to prevent entrance of personnel beneath working areas when working on roofs or surfaces above 12 ft. If the area cannot be effectively cordoned off, or if employees are working below the work at heights above 12 ft. a net must be placed around the work to prevent falling materials from hitting those below
10. If people move along split levels or slopes and there is a possibility to fall, the edges facing the space must have hand rails. The hand rails must have pipes, battens or 3/8” steel cables with a resistance of 200 pounds located 42 inches high (upper hand rail) and 24 inches high (intermediate hand rail), respectively, of the scaffolds platform
11. All bridges connecting the same level or split levels to allow people to pass must have hand rails
12. Fall protection must be used in accordance with the procedure. Anchor points for a fall arrest system must be capable of supporting no less than 5000Pounds per employee attached
13. Anchor Points for a fall arrest systems shall be installed in such a matter as to minimize “Swing Fall”. Lanyards SHALL NOT be linked together or knotted
14. Personal fall protection equipment SHALL be worn whenever working from man lifts or man baskets. Man Lifts or Man Baskets SHALL be provided with anchor points capable of supporting no less than 5000 pounds per employee attached

**Safety Instructions:**

Remove all defective equipment from service and put a label in a visible place, reading. “DO NOT USE”. If the equipment has been used to arrest a fall, regardless of the distance, immediately remove it from service, destroy it and dispose of it; in the case of a retractable lanyard place a “DONOT USE” tag on it and give it to your supervisor

**Revision Guide:**

Any change in the systems will need a change in the SOP

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| **Procedure No** | **APMS/SOP/HW/10** | |
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| **Date:01.12.2017** |  |  |

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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR FIRE PUMP OPERATON** |

**Objective:**

To establish the standard Operating System for the Fire pump operations

**Policy:**

Smooth & Effective Operations of the Equipment

**Responsibility:**

Fire Technician/ Supervisor

**Procedure:**

**Sequence of Auto operation**

1. Ensure that the fire tank is always full
2. Ensure power is available to firefighting control panel
3. Ensure that there is enough fuel is available in day tank for Diesel Driven Pump
4. Check all suction and discharge valves are in open position
5. Switch off the Power Supply and check the pump rotation; it should rotate freely when rotated by hand. Switch ON the Power Supply
6. Turn all the pump mode selector switches to Auto mode
7. Jockey pump will start if system pressure drops to 8 Kg/Sq.cm, and automatically cut off at10 Kg/Sq.cm
8. If system pressure drops to 4 Kg/Sq.cm, Main pump start automatically and will not cutoff automatically
9. If system pressure drops to 2 Kg/Sq.cm, Diesel driven pump will start automatically and will not cutoff automatically
10. Turn all three pumps mode selector switches to Manual position and press Stop Push button
11. Ensure the line is charged as per desired set pressure
12. Check and re-install activated sprinklers and closed all fire hydrants, and turn all the pump mode selector switches to Auto

**Manual operation:**

1. Ensure that the fire tank is always full
2. Ensure power is available to firefighting control panel
3. Ensure that there is enough fuel is available in day tank for Diesel Driven Pump
4. Check all suction and discharge valves are in open position
5. Switch off the Power Supply and check the pump rotation, it should rotate freely when rotated by hand. Switch ON the Power Supply
6. Open test line Valve
7. Turn the mode selector switch to Manual for the pump to be operated
8. Start the pump by pressing Start push button
9. Observe the discharge pressure gauges and ensure that the discharge pressure does not rises beyond the limits
10. Once the desired set pressure reaches close the valve and simultaneously press stop push button of the tested pump

# Safety Precautions

1. Ensure the work area is adequately lighted
2. Carry all necessary tools, tackles and personnel protective equipment
3. Tag out / Lock out the respective incomer supply before commencing any electrical work in the panel / motors
4. Switch off the Power Supply to the panel while checking the free rotation of the pump coupler
5. Switch ON the Power Supply and ensure the pump panel is on Auto Mode
6. Ensure the safety guards on the couplers are properly fitted

**Revision Guide:**

Any change in the system needs review of SOP

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| **Procedure No** | **APMS/SOP/FPO/11** | |
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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR TANK/SUMP CLEANING** |

**Objective:**

To establish the standard Operating System for the Cleaning of Water Tank/Sump

**Policy:**

To ensure good quality of domestic water

**Responsibility:**

Plumber / Supervisor

**Procedures:**

**Cleaning of Water Tank / Sump**

1. Notify the society and building occupants in particular one-week in advance about the scheduled cleaning of the Water tank and alternate arrangements availability
2. Ensure the water in tank is below the low level float before draining
3. Check the power supply and functional aspect of sump pump
4. Turn the dependent pump/selector switch to manual mode
5. Switch off the power to the pump with a tag stating “DO NOT OPERATE”
6. Lock out all the washrooms with Tag stating “Under Maintenance”
7. Drain / empty the water from the Tank
8. Close outlet valve of the tank
9. Take precaution while handling the level sensors
10. Prior to entering the tank open the lid and provide sufficient ventilation to avoid suffocation
11. Ensure safe entry and exit
12. Ensure adequate lighting inside the tank. Torchlight (non-sparking) to be kept handy before starting the cleaning operation
13. Remove all the silt, sludge, scaling and foreign material from the tank.
14. Scrub the inner surface of the tank properly
15. Carry out de-scaling with the help of chemicals, anti-scaling, corrosion inhibitors, micro biocide, anti foul (to prevent micro biological growth), dispersant (to prevent accumulation of deposits of dust, silt and other suspended matters), eco-friendly biocides, aerobic inhibitors. Leave the chemicals in the tank for duration of six hours and circulate the same with the help of pump
16. Wash and scrub the inner surface of the tank with fresh water and remove the waste water manually
17. Clean the probe of the level sensor
18. Place the sensors at appropriate levels
19. Record the measurement of the complete tank viz. length, breadth, height of all walls in order to quantify the area having been cleaned
20. Turn the selector switch to Auto Mode and switch on the Supply to the Pump and ensure the motor starts in Auto Mode
21. Check the water level in the overhead / under-ground tank
22. Open the lower most taps for release of air in case of OHWT cleaning
23. Once the overhead tank is full, open all the taps and drain the water till clear water flow is observed
24. Remove the tags and open the washrooms for use

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# Safety Precautions

1. Take work permit before initiating tank cleaning
2. In case of underground tank cleaning barricade the area to avoid accidental fall
3. Once the tank is emptied, place the ladder and secure it properly for gaining access to the tank
4. Ensure that minimum two persons are on the cleaning job at any point of time
5. Ensure initial external support is provided while entering the tank
6. Ensure the persons are wearing proper PPE while carrying out the cleaning
7. DO NOT throw the sludge removed from the tank to avoid injury to people walking around
8. Use tripod to lift sludge
9. Once the cleaning operation is over close the tank with lid / cover firmly

**Revision Guide:**

Any change in the system needs review of SOP

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| **Procedure No** | **APMS/SOP/TC/12** | |
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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **STANDARD OPERATING PROCEDURE FOR CONTROL COMMAND CENTER OPERATION** |

**Objective:**

To provide standard procedure for Control Command Center Operation

**Policy:**

To ensure alertness in duty staff besides monitoring the equipment installed and to address /respond to emergencies and contingencies

**Responsibility:**

Security Guard

**Procedures:**

1. Verify healthy power in HT panel from Grid in each phase
2. Verify Control supply is healthy & indication lamps are glowing
3. Check OLTC AVR Control supply is healthy & indication lamps are glowing
4. Check that all safeties is at normal condition
5. Check transformer oil, silica gel conditions in case of oil filled transformers and their safety control relays switches are on line and functional including earth grid
6. Check and record line clearance permit to ensure that no men are on work and all clear permits exist
7. Close the HT Breaker, Check healthy power in LT panel
8. Check the operation instruction as per load condition
9. Log the parameters in log books

**Revision Guide:**

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Any change in the system needs review of SOP

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|  | **APARNA PROPERTY MANAGEMENT SERVICES PRIVATE LIMITED**  **APMS STAFF DUTIES AND RESPONSIBILITIES** |

1. **Technical Services**
2. **In charge – Facilities**
3. Fulfill the commitments as per the schedule work on day –to- day basis.
4. Going round (observation of seepages/ shaft leakages/ over flowing tanks / STP etc.) of facility and coordinate with supervisors if any deviations observed.
5. Functional check of critical equipments like Transformers/DG/Fire fighting system/Fire alarm system/Elevators / LT panels / HT panels etc.
6. Team briefing and work assignment.
7. Closely follow up with Helpdesk to close customer complaints on day to day basis.
8. Maintain a track of Daily consumptions of water, Electricity and Diesel.
9. Maintain track of Critical spares and consumables
10. Reconciliation of Diesel consumption and electrical/plumbing consumables
11. Follow up with AMC vendors for equipment timely maintenance
12. Coordinate with Substation and HMWS departments
13. Coordinate with projects department to close pending issues/ works
14. Maintain Daily, Weekly and Monthly reports and share with society.
15. Prepare and follow-up 52 week maintenance
16. Maintain good relations with customers
17. Ensure Day to day operations
18. Monitoring the shift timings of the technicians.
19. Allotment of jobs to the technicians as per the schedule.
20. Follow up with help desk to close customer complaints
21. Monitoring activities of the technicians on the allotted jobs.
22. Issuing of tools and materials to the technicians and ensures the work is carried out in a proper manner.
23. To plan for the next day activities and to ensure all the material and tools are available.
24. Ensure the technicians are following standard safety practices and procedures during their duty timing.
25. To coordinate in preparing weekly schedules.
26. To ensure the day scheduled activities are carried out and completed
27. Coordinate with service vendors for equipment maintenance
28. Maintain checklists and records
29. **ELECTRICIANS**

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| **S.NO** | **Morning shift** | **Afternoon shift** | **Night shift** |
| 1 | Checking LT rooms ,Transformers , DG sets etc. | Checking LT rooms ,Transformers , DG sets etc. | Checking LT rooms ,Transformers , DG sets etc. |
| 2 | DG trail run | Record parameters of UPS, Transformers | Record parameters of UPS , Transformers |
| 3 | Cross-check the noted readings (EB & DG). | Pump room’s inspection & Monitor electrical panels of STP, WTP &LMR electrical panel. If required replace the spares | Note down Day consumption EB & DG and Attend customer complaints |
| 4 | Collecting parameters of LT panels for every 4 Hrs. | Street lights maintenance | Switching off parking lights wherever it is applicable |
| 5 | Maintenance of electrical Panels | Switching on street lights | Switching off street lights @6am |
| 6 | Coordinate with AMC vendors for preventive and breakdown maintenance | Switching on parking lights | If required top up the diesel in tanks and maintain track |
| 7 | Replacement of fused lamps and other spare of common area | Replacement of fused lamps and other spare of common area | Fused Lamps identification work. |
| 8 | Manual rescue if lift get struck | Manual rescue if lift get struck | Manual rescue if lift get struck |
| 9 | Record power failure log | Record power failure log | Record power failure log |
| 10 | Attend customer complaints | Attend customer complaints | Attend customer complaints |
| 11 | Monitor Lift operations | Coordinate with Housekeeping team to clean utility room | Check elevator functioning |

1. **PLUMBERS**

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| **Day shift Plumbers** | **Night shift Plumbers** |
| 1. Inspection of water tanks ,Underground sumps , Pump rooms | Inspection of water tanks ,Underground sumps , Pump rooms |
| 2. Attending in house customer complaints | Attending in house customer complaints |
| 3.Monitoring water levels at regular intervals (Every 3 hrs) | Monitoring water levels at regular intervals (Every 3 hrs) |
| 4. Note down Day consumption of water | Note down Night consumption of water |
| 5. Receive water from HMWS | Note down parameters of water levels |
| 6. Two plumbers deployed for checking common area drain lines maintenance and water level monitoring |  |
| 7. Maintenance of domestic pumps, PRV(Pressure regulating valve) & Flush Pumps (STP final tanks) | Dedicated person in the night for fire pumps pressure monitoring. |
| 8. Switching on water pumps to fill overhead tanks | Switching on water pumps to fill overhead tanks |
| 9. Replacement of faulty spare of common area | Attending in-house customer complaints |
| 10. Inspection of shafts for leakages |  |
| 11. Underground drain line maintenance when required |  |
| 12. Monitoring water levels and coordinate with HMWS for water |  |

1. **STP Operator**
   1. To take-over the plant from the previous shift operator after checking and ensuring the plant condition. To notify any abnormalities and inform the same to the concerned person.
   2. To fill the check-list and daily report properly according to the operations carried in the day.
   3. To physically check the aeration tank water color, clarifier condition and note down MLSS value periodically.
   4. To update the status of PSF, ACF and Electro-Mechanical Equipment.
   5. To Back-wash both sets of filters in each shift, to cross check the pressure difference and note the same in the log book.
   6. To clean the Bar-screen, Aeration tank filters and Blower air-filters according to the given schedule.
   7. To take part in tank cleaning activities by properly coordinating with other team members.
   8. To react fast and report any problem pertaining to the plant to the concerned person and ensure proper flow of plant operations.
   9. To operate the centrifuge and its subsystems daily, and to maintain it according to the preventive maintenance plan.
   10. To hand-over the plant to the next shift operator by mutually cross-checking and signing the Equipment status and check lists.

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| **Procedure No** | **APMS/SOP/ APMS STAFF DUTIES /15** | |
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| **Date:01.12.2017** |  |  |

**STANDARD OPERATING PROCEDURES**