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B. B. B. B.



* "All Technical SOP"

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SOP TO START- SWITCH OFF TRANSFORMER FROM ITS CONTROL PANEL		

PURPOSE:

Operation (ON & OFF) of the Transformer's (630 KVA & 750 KVA) from HT & LT Panel.

SCOPE:

This SOP covers all the activities for Transformer 630 & 750 KVA (Transformer No. 01 & Transformer No. 02)

RESPONSIBILITY:

ESS Electrician on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

a) Very first, to start the transformer (630 / 750 KVA) please inspect the following parameters & checks in place as follows.

- ⚡ Check & ensure for Transformer Oil levels these MUST be at the middle and above of the middle mark in the oil level indicator.
- ⚡ Check & ensure the silica gel condition is blue in color
- ⚡ Check & ensure the temperature of the oil must be below 50 degree centigrade
- ⚡ Check & ensure the temperature of windings must be below 50 degree centigrade
- ⚡ Check & ensure all surroundings of the transformer area is clear
- ⚡ The HT / LT panel had NO tripping indications and or alarms active for transformer
- ⚡ UPCL supply is available at the Incoming VCB
- ⚡ UPCL voltage must be at 11 kV at the time of taking any transformer in line
- ⚡ NO load (Amp.) indication must be at "zero" readings


- b) To start any of the transformer by HT & LT Panel, Press TNC (Three Pole Natural) switch towards the close side. Afterwards The TNC switch to close side Transformer will gets inline to cater UPCL 11 kV Power and green indicator will show / glow in HT & LT panel.
- c) After giving start command to the TNC switch ensure the HT / LT Voltages as (11 kV / 440 Volts)
- d) To stop both the transformer by HT & LT Panel, Press TNC switch towards the trip side. Afterwards The TNC switch to Trip side Transformer will off & green indicator will show in HT & LT panel.

REMARK/NOTE:

Do not ON the bus coupler when both the Transformer's ACB are in ON condition.

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	Prepared by	Approved by	Issued by



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SOP FOR STP OPERATION		

PURPOSE:

Operation of Sewage Treatment Plant at Bidholi Campus.

SCOPE:

This SOP covers all activities required for Sewage Treatment Plant.

RESPONSIBILITY:

STP Operator on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

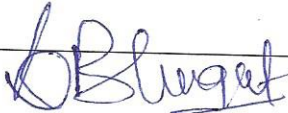


Sewage Treatment Plant

Firstly, to start the pump please ensure the following check points as follows.

- ✦ Firstly check the voltage of three phase motor it shows three equal phases.
- ✦ If there is unequal voltages in all three phases do not operate the pump.
- ✦ Before operating the pump check and record water levels in water storage tanks.
- ✦ Check the pressure from pressure gauge.
- ✦ No load (Amp.) indication must be at "zero" readings.
- ✦ Ensure no loose connection.
- ✦ After starting the pump check for leakage if any.
- ✦ Check the abnormal sound if any.
- ✦ Checking the heating of pumps if any.
- ✦ Inspection of starters on daily basis.
- ✦ Inspection & checking of distribution panel.
- ✦ Record any abnormalities in daily log book and inform to HOD Technical Services.

Process: On the Daily Basis:-

1. Inspection of Bar Chamber and cleaning, oil and grease trap near food court /canteen between 0900 to 1000 hrs.
2. Physical observation of any smell around STP, and cleaning required, is also done.
3. Inspection of all piping, fittings and cabling, fittings. Report and entry of the same in logbook.
4. Observation of the clarity of treated water, report and entry in the logbook
5. Operation of collection tank sewage pump A and B, Filter feed pump A and B.
6. Treated water transfer pump A and B operated.
7. Sludge recycling, filter press screw pump, and plant sump pump operated, according to time allotted, readings recorded in register.
8. Back wash done three times in a day.
9. Chemical (Chlorine) and culture dosing at different timing batch wise, details filled in logbook.
10. Inspection of water flow from flowmeter.
11. Report of stock in logbook and checking of proper functioning.
12. Review of maintenance of electric motor and piping, and updating higher authorities.

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SOP FOR OPERATION OF SOLAR PLANT

PURPOSE:

Operation of Solar Power plant in Bidholi Campus.

SCOPE:

This SOP covers Solar Power entire Bidholi Campus.

RESPONSIBILITY:

Solar Engineer at plant & Sr. Manager Technical Services is responsible for implementation of this procedure.

PROCEDURE:

Before operating the solar power plant panel needs to follow the below mention points.

STARTING PROCESS

- a) Switch on battery isolator CB-11
- b) Press FULL AUTO and then ENTER key for full auto mode.
- c) Switch on solar isolator CB-12
- d) Switch on load CB-4 and then grid CB-2

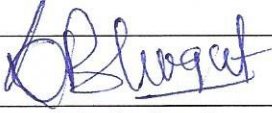
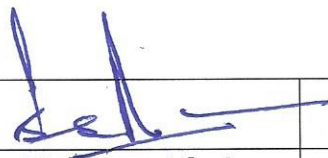
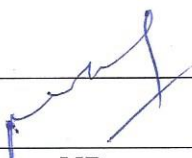
SOP FOR OPERATION OF SOLAR PLANT


SHUT DOWN PROCESS

- a) Press SYSTEM OFF and then ENTER key for system off.
- b) Switch off solar isolator CB-12.
- c) Switch off battery isolator CB-11.
- d) Switch off Grid CB-2 and Load CB-4.

FAULT RESET:-

Pressing the fault reset key will help clear any fault displayed in LCD display and turn off the system-fault indicator.

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SOP FOR BUILDING MAINTENANCE		

PURPOSE:

Operation of Entire Campus Building Maintenance.

SCOPE:

This SOP covers entire campus Maintenance in Bidholi Campus.

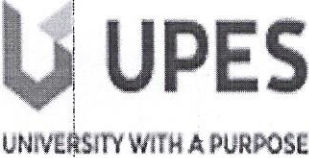
RESPONSIBILITY:

Assist. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

One Time Work

- ✦ Inspection of various building blocks as per year planner, integrated with customer complaints, the works are given a job card description and allocation.
- ✦ A fairly detailed (not exhaustive) measurement is worked out, quotations are called, and cover note is prepared for approval of work from various departments including budget.
- ✦ On the basis of inputs, alterations, addition, budgetary demarcations in the approval requisition, a revised approval note is prepared and processed for approval. After the work is approved a work order is issued to the vendor (competent and Sound) for a timely and safe execution of the work.
- ✦ Daily monitoring of the work is done to ensure quality, and timely execution in all its fairness is done and hurdles are removed as early as possible.
- ✦ After the work is done, work inspection and fine touching are pointed out, rectified.
- ✦ The Bill for the payment is prepared by the vendor, inspected, checked and verified by the technical staff.
- ✦ Payment order is prepared and forwarded for payments.

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SOP FOR BUILDING MAINTENANCE		

Recurring Works

- ✦ Painting and White wash works: Annually painting is done and white wash is also done, wherever it is unavoidable, after repairs, as per the annual rate finalized and approved.
- ✦ Grit wash repairs: Annually the work is done as per rates finalized and worked, normally after the monsoon, as some damages are observed to occur during heavy monsoon.
- ✦ Preventive maintenance are done to minimize the damages done during monsoon, such as drains cleaning, silicon treatment (3 years interval) and critical areas serviced for waterproofing.
- ✦ Post monsoon repairs: The damages done are repaired and restored, by proper finishing's.
- ✦ Plumbing repairs are executed on daily basis (at emergency level) wherever required, by maintaining stores and putting up requisition for purchase of stores, on the projected estimates based upon the consumption in the last months.

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SOP FOR WATER TANK CLEANING

PURPOSE:

Operation to clean entire campus Overhead & Underground tanks.

SCOPE:

This SOP covers entire campus tank cleaning.

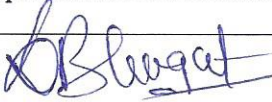
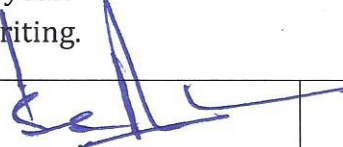
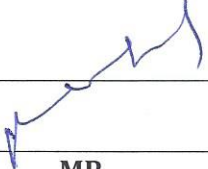
RESPONSIBILITY:

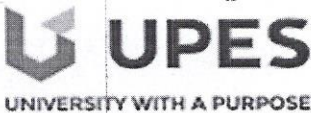
Sr. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

Water Tank Cleaning.

- ✦ Dewatering and de-silting by using submersible pumps of adequate capacity to reduce time.
- ✦ Removal of deposits of salts and any other biological bodies, sand, clay and any other foreign material from entire inner surface by using high pressure jet sprayer at pressure 80 to 120 bars as suitable for the type of surface.
- ✦ Washing of all internal surfaces with super chlorinated water using low-pressure spray jets.
- ✦ Cleaning and drying of entire surface from inside by using high capacity vacuum pumps including collection chambers.
- ✦ Killing of remaining germs and bacteria by using ultraviolet lights in all corners and joints of tanks.
- ❖ Process as above will be carried out twice a year.
- ❖ After action, report shall be submitted in writing.

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	UNIVERSITY OF PETROLEIUM & ENERGY STUDIES , DEHRADUN	Procedure No. QSP/6.3/01/F14
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SOP FOR WORK PERMIT		

PURPOSE:

To lay down procedure for issuing work permit for maintenance of all equipment's/ Infrastructure/ Facilities used by the organization.

SCOPE:

It covers all equipment/ Infrastructure/ Facilities –

- a) Buildings (Academic blocks,, Energy House, IT, Library & Food Court, MAC)
- b) Hostel Boys & Girls
- c) MDC, MDC Annex & Guest House
- d) R&D & Lab complex
- e) Enrolment office & Pavillion
- f) Electrical Sub- Station (ESS)
- g) STP

RESPONSIBILITY:

Sr. Manager Technical Services is responsible for implementation of this procedure.


INPUTS:

Work permits will be issued to execute works safely. It consists of precautions to be taken by workers while performing various jobs. Permit must be received by owner of the firm. Nature of work, validity, works location, contacts details of officers are to be given on permit. Owner will issue ID cards to the workers and work will not be continued beyond the permissible time limit. All labor laws will have to be followed by firm.

Precautions to be taken by Contractor/Workers

1. Works at Height

If height is more than 10 feet, works will be performed by ladder. Safety belts must be used by worker and one person will hold the ladder tightly. Belt clip will be fastened with ladder. There must be two persons if works are being done on roof. Persons will tie themselves with rope and its other end will be tightened with infrastructure.

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SOP FOR WORK PERMIT		

2. Electrical Works

- a. Insulated gloves must be used while working on 11 kV system and it should be duly earthed. TPMS switch must be locked when cut.
- b. If work has to be done in feeders originated from ESS, proper shutdown will have to be taken from Substation officer. Ensure that main switch is in off position. Don't operate /Men at work board should be tagged. The same person who has taken it will return shutdown and then feeder will be reactivated.
- c. If work has to be done in sub feeders, proper shutdown will have to be taken from electrical supervisor. Ensure that main switch is in off position. Do not operate /Men at work board should be tagged. The same person who has taken it will return shutdown and then sub feeder will be reactivated.

3. Welding /Cutting works

- a. Gas cylinder is to be sited at least 3 meter from burner. Fire extinguisher must be kept near welding machine. Electrician will do electrical connection /disconnection. Always use specs to avoid eye injury.

4. Handling Chemicals

- a. Use gloves while handling chemicals. Ring immediately if it falls on body.

FORMAT

Date :

Permit No :

Valid Up to:

Issuing Department :

Party name :

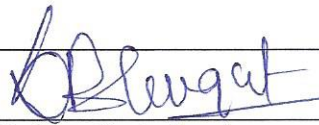
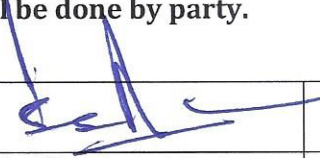
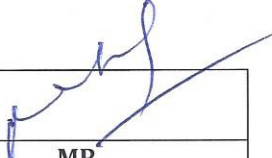
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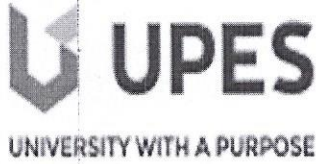
SOP FOR WORK PERMIT

Nature of work
Location of work :
Working hrs. permitted:

Precautions to be taken by Contractor:

1. Gas cylinder is to be sited at least 3 meter from burner.
2. Fire extinguisher should be in place during welding.
3. Connection & disconnection of welding machine will be done by UPES staff.
4. Safety shoes, helmets will be used by workers.
5. Shut down/men at work - board to be used while working at electrical installations, Ensure that shutdown was taken properly & main switch is in OFF position. Use gloves on 11 KV system which must be earthed before starting work TPMO must be locked before starting work.
6. Ground hole should not be left open at the end of work on any day.
7. Safety belt will be used while working on height.
8. Two persons must be present if works are being done on roof. Tight you with the rope already connected with infrastructure.
- 9 site will be cleared by party after work completion.
- 10 Labor laws must be followed.
11. Work man compensation policy will be adopted by party.
- 12.- ID cards will be given by party to the workers.
- 13 safety barricading, side covering will be done by party.

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**Procedure No.
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Dated: 24/01/19

SOP FOR WORK PERMIT


14 Contact Number Of UPES Officers – Technical Services

**Sohan Bhagat
Vijay Issachar
Inder Thapa
J Thapa
Security Supervisor**

**7060544455 , 8920383872
7895348413, 9410706712
9997120265
9760078878
9997799855**

Issued by – Name & Sign

Received by – Name & Sign

 UPES UNIVERSITY WITH A PURPOSE	UNIVERSITY OF PETROLEIUM AND ENERGY STUDIES , DEHRADUN	Procedure No. 02
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SOP TO START- SWITCH OFF DG FROM ITS CONTROL PANEL		

PURPOSE:

Operation of (start – switch off) DG from its control panel at Bidholi Campus.

SCOPE:

This SOP covers all activities required for DG operation.

RESPONSIBILITY:

ESS Electrician on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

1. Firstly, to start the DG (500 & 250, 125 KVA) please inspect the following parameters & checks in place as follows.
 - ✦ Check and ensure that the lube oil in DG is in level.
 - ✦ Check the level of coolant is in level if it is short kindly fill it.
 - ✦ Check & ensure battery physical conditions.
 - ✦ Check & ensure there is no leakage inside the engine.
 - ✦ Check and ensure the fuel level in diesel service tank.

- ⊕ Check & ensure there is no abnormal sound inside the gensets.

It covers DG-2 & DG-3 - (500 KVA)

2. TO START DG

- a) Turn the key from RUN to CRANK and release the key after 6 seconds, DG will start and key will automatically return to RUN.
- b) Press idle rating red push button after 15 seconds to run the DG on 1500 rpm.
- c) The voltages in between RY, YB, BR. It should be 415 to 420 volts.
- d) The frequency of supply, it should of 49.5 to 50 HZ.
- e) The no load (Amp) indication must be zero readings.
- f) To start any of the DG ACB from LT Panel, Press TNC (Three Pole Natural) switch towards the close side. Afterwards The TNC switch to close side DG will gets inline to cater Power and green indicator will show / glow LT panel.

3. TO STOP DG

- a) To stop the DG by LT Panel, Press TNC switch towards the trip side. Afterwards The TNC switch to Trip side DG will off & green indicator will show in LT panel.
- a) Press idle rating red push button to run the DG on low rpm
- b) After 30 seconds, turn the key from RUN to OFF. DG will switched off.
- c) Key will return to RUN position.
- d) Engine will stop automatically.

It covers DG-4 (250 KVA) & DG-1 (125 KVA)

To Start DG in Manual & Auto Mode:-

- a) If there is no screen.
- b) Press button no.3 screen will come
- c) Press button no.2, button no. 3 blinks
- d) Press button no. 3, DG will start.
- e) The voltages in between RY, YB, BR. It should be 415 to 420 volts.

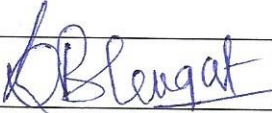
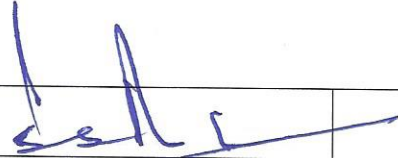

- f) The frequency of supply, it should of 49.5 to 50 HZ.
- g) The no load (Amp) indication must be zero readings.
- h) To start any of the DG ACB from LT Panel, Press TNC (Three Pole Natural) switch towards the close side. Afterwards The TNC switch to close side DG will gets inline to cater Power and green indicator will show / glow LT panel

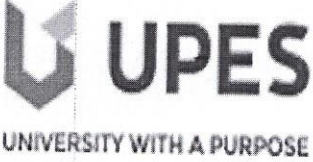
Switch off DG in Manual & Auto Mode:-

- a) Press button no.6, DG will be switched off.
- b) To stop the DG by LT Panel, Press TNC switch towards the trip side. Afterwards The TNC switch to Trip side DG will off & green indicator will show in LT panel.

REMARKS/NOTE:-

1. If NOT IN AUTO is mentioned on screen, and we want AUTO mode
Press button no.1, button no.2 blinks, press button no. 2
DG will come in AUTO mode.
2. Please note that before resuming the Transformer supply keep in mind that ACB of -DG in OFF condition.
3. Press Button Manual on DG display when the LT panel on manual mode. Do not Press the manual button of DG if the LT Panel is on Auto.

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SOP TO CHECK VOLTAGE AT ESS		

PURPOSE:

Operation to check voltage at voltmeter in three phases.

SCOPE:

This SOP covers to check Voltage in ESS Bidholi .

RESPONSIBILITY:

ESS Electrician on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.

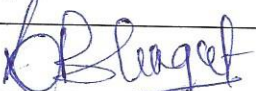
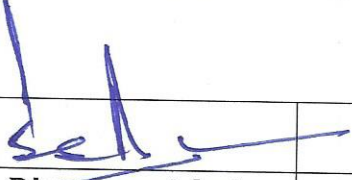
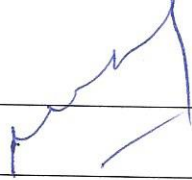
PROCEDURE:


If ESS is running in manual mode always, keep in mind that power corporation supply should have equal voltages in all three phases - only then give supply to the connected load.

1. Supply can be checked in HT panel room at HT voltmeter (kV Meter). Press the center knob untill red light comes in RY LED, now meter will show RY voltage. Press knob again now YB LED will glow and meter will show YB voltage.

Again, press knob, now BR LED will glow and meter will show BR voltage.

All three voltages must be 10 - 11 kV.

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SOP TO CHECK VOLTAGE AT ESS		

2. Three phase Supply can be checked from multifunctional meters too. This meter is fixed above ACBs of both transformers. Method is given below.

Normally, ULL - A - PF screen is set on the meter. Press →knob two times U 12 - U23 - U31 screen will come. You can see line-to-line voltage of three pairs. All three voltages must be in the range of 415 volt. Now we should set original ULL - A - PF screen. To do it press yellow knob again & again until RUN 5 appears.

After that press once now you will get original screen.

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SOP FOR RESETTING OF RELAY AT HT PANEL		

PURPOSE:

Operation to reset relays of HT panel at Bidholi Campus.

SCOPE:

This SOP covers resetting of HT panel at ESS Bidholi Campus.

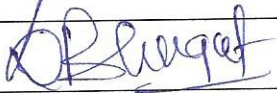
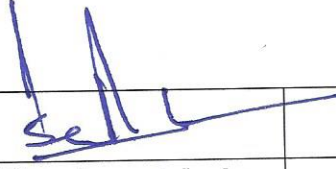
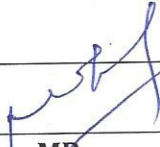
RESPONSIBILITY:

ESS Electrician on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

If master relay trips at HT panel following steps should be taken to restore the power supply.

- a) Remove fault condition.
- b) Reset the master relay by pressing its knob.
- c) Reset the earth fault and over current relay by pressing its knobs.
- d) Reset fault screen.
- e) Close the breaker.

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SOP FOR OPERATION ON LT PANEL REVIEW

PURPOSE:

Operation for LT panel PLC section in ESS Bidholi Campus.

SCOPE:

This SOP covers DG master selection from PLC panel at ESS.

RESPONSIBILITY:

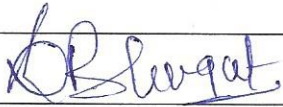

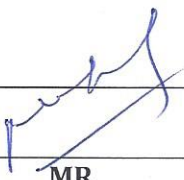
ESS Electrician on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

Before operating PLC section keep in the following instructions.

➤ **MASTER DG SELECTION**

GO TO MENU BY PRESSING ←
SELECT DG BY SELECTING ↑ OR ↓ KEY
ENTER BY PRESSING ←I
PRESS → MASTER SELECTED

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SOP FOR OPERATION ON LT PANEL REVIEW

➤ **2. PUTTING DG IN TESTING MODE**

GO TO MENU BY PRESSING ←

SELECT DG BY SELECTING ↑ OR ↓ KEY

ENTER BY PRESSING ←I
PRESS F4

DG WILL COME IN TEST MODE


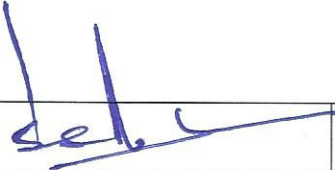

➤ **3. TO SEE DG SCREEN**

GO TO MENU

SELECT DG BY SELECTING ↑ OR ↓ KEY

ENTER BY PRESSING ←I

SCREEN WILL COME.

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SOP TO RUN ESS IN MANUAL MODE

PURPOSE:

Operation to run ESS in manual mode at Bidholi Campus.

SCOPE:

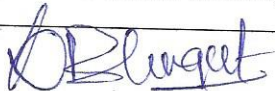
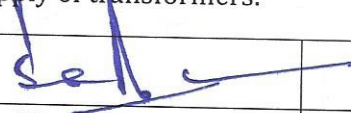

This SOP covers ESS Operation in manual mode.


RESPONSIBILITY:

ESS Electrician on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

- a) Move the PLC Selection switch from 1 to 0
 - b) Move auto-manual switch of Transformer -1,2 , DG - 2,3,4 , Bus coupler 1,2,3 to position 2.
 - c) Any breaker can be switched ON -OFF by turning the knob of breaker control switch.
 1. Turn the knob towards CLOSE and leave if you want to switch ON any breaker.
 2. Turn the knob towards TRIP and leave if you want to switch OFF any breaker.
 - d) Bus coupler -2 will be in trip condition If transformer -1 & transformer -2 are running
 - e) Bus coupler -3 will be in trip condition If DG-2 & DG-4 are running
 - f) Bus coupler -3 will be in trip condition If DG -3 & DG-4 are running
 - g) Bus coupler -2 will be in trip condition If DG -2 & DG - 3 are running
- Trip the breaker of DG Sets before giving supply of transformers.

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SOP FOR ESS OPERATION		

PURPOSE:

Operation of ESS in Bidholi Campus.

SCOPE:

This SOP covers all activities required for ESS Operations in Bidholi Campus.

RESPONSIBILITY:

ESS Electrician on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

ESS: - Electrical Sub Station

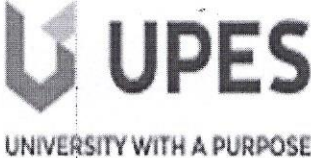
ESS Sections: - It have two sections.

1. HT SECTION

2. LT SECTION

Process: On the Daily Basis: - HT SECTION

- a) Physical observation of any smell around HT Room, and cleaning required.
- b) Inspection of all energy meters, relays and cabling.
- c) Reading of the energy meters and entry of the same in logbook.
- d) Review of maintenance of electric panels and controls system, updating / informing to higher authorities.

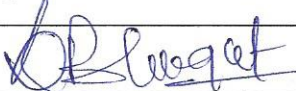
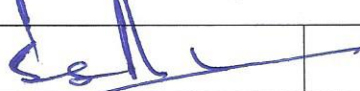

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SOP FOR ESS OPERATION		

Process: On the Daily Basis: - LT SECTION

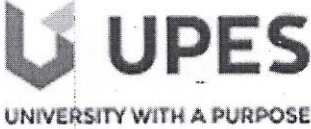
- a) Physical observation of any smell around HT Room, and cleaning required.
- b) Inspection of all energy meters, relays and cabling.
- c) Reading of the energy meters and entry of the same in logbook.
- d) Review of maintenance of electric panels and controls system, updating / informing to higher authorities.

SAFETY MEASURES: HT & LT SECTION:-

- a) All jobs related to the HT & LT room in Electrical Sub Station (ESS) must be informed to Sr. Manager Technical Services & only after go ahead for the same make the work permit to start any job in the ESS (Minor and or Major Jobs).
- b) Inside the panel, (Whenever opening of the Panel is required) ESS operator must use the adequate HT/LT gloves to commence / checking purpose.
- c) For all jobs in HT & LT rooms, HSD Tank area & DG sets area there must be prior approval of HOD maintenance to do the same.
- d) In NO case, the fuses blown (Of the Pole) fixed with internal team due to Height & risky job.
- e) All DG sets must be kept in "AUTO" mode if everything is in normal condition.
- f) Load exceeding to 1350 AMPS must be conveyed to the Sr. Manager Tech Services.

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		Dated: 24/01/19
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SOP FOR AUTOMATIC FIRE EXTINGUISHER		

PURPOSE:

Operation of Ceiling Mounted Fire extinguisher in ESS Bidholi Campus.

SCOPE:

This SOP covers both HT& LT Panel ESS Ceiling Mounted Fire Extinguishers.

RESPONSIBILITY:

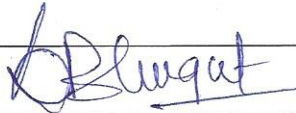
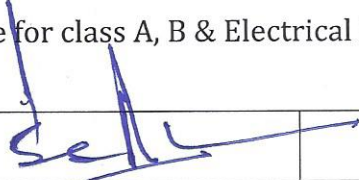
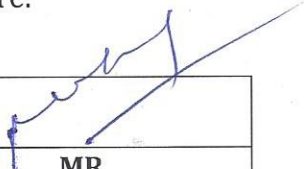
ESS Electrician on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.


PROCEDURE:

- 1) Ceiling Mounted fire extinguisher automatic detect the fire and activate automatically spraying the extinguish ant with maximum force.
- 2) Ceiling Mounted automatic fire extinguisher detect the raising temperature of the area and activate automatically.
- 3) Ceiling Mounted automatic fire extinguisher operate on 62 degree Celsius and will discharge automatically.

REMARK/NOTE:

Celling mounted fire extinguisher are applicable for class A, B & Electrical Fire.

Signature			
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SOP FOR PUMP HOUSE OPERATION		

PURPOSE:

Operation of Pump House No. 01 and Pump House No. 02 at Bidholi Campus.

SCOPE:

This SOP covers all activities required for pump houses.

RESPONSIBILITY:

Shift Pump operator on duty and Sr. Manager Tech. Services is responsible for implementation of this procedure.

PROCEDURE:

PUMP HOUSE No. : - 01

Firstly, to start the pump please ensure the following check points as follows.

- ✦ Firstly check the voltage of three phase motor it shows three equal phases.
- ✦ If there is unequal voltages in all three phases do not operate the pump.
- ✦ Before operating the pump check and record water levels in water storage tanks.
- ✦ Check the pressure from pressure gauge.
- ✦ No load (Amp.) indication must be at "zero" readings.
- ✦ Ensure no loose connection.
- ✦ After starting the pump check for leakage if any.
- ✦ Check the abnormal sound if any.
- ✦ Checking the heating of pumps if any.

- ✦ Inspection of starters on daily basis.
- ✦ Inspection & checking of distribution panel.
- ✦ Record any abnormalities in daily log book and inform to HOD Technical Services.

2. Intake of water in the pump house water tank.

- i) Visual and calibration measurement of quantity in ph1 water tank.
- ii) Adjusting of valves for intake
- iii) Tube well no. 4, Tube well no. 5 and Tube well no. 6 started simultaneously for filling ph1 water tank.
- iv) Water intake from river to filling the pump house tank also.
- v) Water filtered through ACF & DMF filters.
- vi) Water also send from Pump House 2 to Pump House 1 for emergency.
- vii) In case of emergency we can send the water from Pump House-1 to various buildings.
- viii) Water also filled from tube well no. 6 to boy's hostel Water Tank storage.
- ix) Daily water meter readings for entire campus buildings.
- x) Bi weekly back wash of filters.

3. Supply of water to different locations is done by ten separate water line, operated minimum three at times and maximum six lines, by a set of Hydro-pneumatic water pumps 3HP. The tanks are daily inspected for filling. Solenoid valve malfunctioning, overflowing, leakages, running taps or points etc. and dealt accordingly. Water send for Kandoli Pump operations also.

Various lines connected with pump house -1 are as follows.

- | | |
|-----------------------|--|
| i. LINE 01 - 1 ½ " | To Block C |
| ii. LINE 02 - 1 ½ " | To PH2 water tank (UG), Project Office, IT gardening |
| iii. LINE 03 - 1 ½ " | Block 1,2,6, Main gate, g enrollment, g behind Project O |
| iv. LINE 04 - 1 ½ " | Block 4,3,5, garden of Chitrakoot |
| v. LINE 05 - 1 ½ " | Hostel Block D |
| vi. LINE 06 - 1 ½ " | Hostel Block E & B |
| vii. LINE 07 - 1 ½ " | Hostel Block A |
| viii. LINE 08 - 1 ½ " | R & D Block |
| ix. LINE 09 - 1 ½ " | Food Court, Energy Block |

x. LINE 10 - 1 ½ "

Spare, PH 1

PUMP HOUSE NO. 2:-

1. Very first, to start the pump please ensure the following check points as follows.

- ✦ Firstly check the voltage of three phase motor it shows three equal phases.
- ✦ Check the water levels in tank.
- ✦ Check the pressure from pressure gauge.
- ✦ Ensure proper connection of wiring.
- ✦ After starting the pump check the leakage.
- ✦ Check the abnormal sound if any.
- ✦ Check the heating condition

2. Intake of water in the pump house water tank.

- i. Visual and calibration measurement of quantity in ph1 water tank.
- ii. Adjusting of valves for intake
- iii. Tube well no. 1, Tube well no. 2 and Tube well no. 3 started simultaneously for filling PH2 water tank.
- iv. Water filtered from ACF & DMF filters.
- v. Water also send from Pump House 1 to Pump House 2 for emergency.
- vi. In case of emergency we can send the water from Pump House-2 to various buildings.

Supply of water to different locations is done by ten separate waterline, operated minimum three at times and maximum six lines, by a set of Hydro-pneumatic water pumps 7.5HP. The tanks are daily

inspected for filling. Solenoid valve malfunctioning, overflowing, leakages, running taps or points etc. and dealt accordingly.

Various lines connected with pump house -1 are as follows.

- | | | |
|----|-----------------|------------------------------|
| 1) | LINE 01 - 1 ½ " | To M D C Block, Annex, |
| 2) | LINE 02 - 2 " | To Fire Station |
| 3) | LINE 03 - 2 " | HOSTEL C, and PH 1 |
| 4) | LINE 04 - 1 ½ " | Library |
| 5) | LINE 05 - 1 ½ " | Pavilion, IT, 6, AND 7 Block |

NOTE: -

1. In case water pump is not able to pump the water kindly check the foot valve.
2. Bi Monthly check the water pipe line & head of river water.
3. Cleaning of river water sand filter chamber.

Signature			
Designation	Sr. Mgr. Tech. Services	Sr. Director - Admin	MR
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