

Work order No-

PTW-

Format No: ER 5/10- F2,

JOB SAFETY ANALYSIS (JSA), IB THERMAL POWER STATION, OPGC

Serial No.	Department	Equipment	Location	Job description: Electrical maintenance activities inside ITPS colony			
1	F/M	Ceiling fan	ITPS Colony	Ceiling fan repair/replacement/ installation			
2	F/M	Tube light/ CFL/Bulb/ Calling bell	ITPS Colony	Tube light/ CFL/Bulb/ Calling bell repair/replacement/ installation			
3	F/M	Switch/Socket/Fan regulator	ITPS Colony	Switch/Socket/Fan regulator repair/replacement/ installation			
4	F/M	Main Switch/Energy meter/RCCB/MCB	ITPS Colony	Main Switch/Energy meter/RCCB/MCB repair/replacement/ installation			
5	F/M	Air Conditioner	ITPS Colony	Air Conditioner repair/replacement/ installation			
6	F/M	Street light	ITPS Colony	Street light repair/replacement/installation			
7	F/M	33kV line/Sub-station	ITPS Colony	Maintenance/repair/replacement/installation of 33kV equipments, transformers, structure and cable/conductor			
JSA performed by:	Signature	Reviewed & Approved by	Signature	Date of Issue	Date of revision		Revision No-

HAZARD TEXT/TYPE (For reference to identify the Hazard type)

PHYSICAL HAZARDS	PHYSICAL HAZARDS	PHYSICAL HAZARDS	ELECTRICAL HAZARDS	CHEMICAL/ GAS HAZARDS	EXCAVATION	OTHERS	
Noise	Fall from height	Force (Push/Pull)	Shock/ Electrocutation	Flammable/ Explosive substances	Collapse/Sliding	Fire	
Radiation	Fall (Slip/Trip)	Caught in/on or between	Static electricity	Inhalation of toxic fumes	Underground live cable damage	Heavy Wind/Rain	
Confined space	Fall down/below	Struck by/against	Arcflash/ blast	Ingestion/Absorption	ERGONOMICS	Dust exposure	
Exposure to pressurised Steam/Air	Fall of Objects from height	Extreme weather (Hot/Cold)	BIOLOGICAL HAZARDS	Body/Eye Contact	Poor Posture	Oil spill	
Contact with Hot surface	Contact with moving parts	Poor illumination	Snake/Insect bite/Virus infection	Spillage	Repeatative motion	Human factor	

PPEs to be used Safety hand gloves, Safety Shoes, Safety helmet, Safety goggles, Nose mask, Ear plug, Ear muff

Tools required LT megger(Insulation tester), Multimeter, Insulated plier, Insulated screwdriver set, FRP ladder, Spanner set, Brazzing set, Air blower, Copper pipe cutter, Hammer, chiesel etc.

Important Note- While deciding hazard control measures, consider hierarchy of hazard control steps in order of preference.

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures
		Elimination/ Substitution	Engineering	Administrative	PPE	
Work permit to be taken from E/M colony	SAFETY			Intimating and getting authorised permission to work with LOTO procedure / Self Isolation		Yes
	Electrocutation/Shock			Incomming power supply made off and LOTO fixed, tagging done.	Use Safety Helmet, safety hand gloves, safety shoes, safety glass	Yes

Ceiling fan repair/replacement/ installation	Electrocution/Shock			Ensure the proper isolation and put local LOTO on the RCCB/Main switch. Ensure zero voltage before starting the job. Use insulation mat while doing isolation.	Use Safety Helmet, safety hand gloves, safety shoes, safety glass	Yes
	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Body eye contact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Fall of ladder			Ensure healthiness of ladder and its rungs before work. Ensure that only A-type FRP ladders are used. The ladder should be placed on a flat and rigid surface.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Poor Posture			Take Rest in between the job. Do not overstretch your body. Keep in mind about your body limits.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling from height of workmen		Ensure that the ladder should be placed on a flat and rigid surface.	Use A-type FRP Ladder and one person must be holding the ladder at the time of climbing/decending. Have a firm grip on the ladder and maintain a 3-point contact while climbing/decending on the ladder.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
				Ensure that the rungs are not damaged. Have a clear vision of the area before climbing, to avoid hitting hanging objects.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Tube light/ CFL/Bulb/ Calling bell repair/replacement/ installation	Electrocution/Shock			Ensure the proper isolation and put local LOTO on the RCCB/Main switch. Ensure zero voltage before starting the job. Use insulation mat while doing isolation.	Use Safety Helmet, safety hand gloves, safety shoes, safety glass	Yes
	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Body eye contact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Fall of ladder			Ensure healthiness of ladder and its rungs before work. Ensure that only A-type FRP ladders are used. The ladder should be placed on a flat and rigid surface.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes

	Poor Posture			Take Rest in between the job. Do not overstretch your body. Keep in mind about your body limits.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling from height of workmen		Ensure that the ladder should be placed on a flat and rigid surface.	Use A-type FRP Ladder and one person must be holding the ladder at the time of climbing/decending. Have a firm grip on the ladder and maintain a 3-point contact while climbing/decending on the ladder.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
				Ensure that the rungs are not damaged. Have a clear vision of the area before climbing, to avoid hitting hanging objects.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Switch/Socket/Fan regulator repair/replacement/ installation	Electrocution/Shock			Ensure the proper isolation and put local LOTO on the RCCB/Main switch. Ensure zero voltage before starting the job. Use insulation mat while doing isolation.	Use Safety Helmet, safety hand gloves, safety shoes, safety glass	Yes
	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Body eye contact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Poor Posture			Take Rest in between the job. Do not overstretch your body. Keep in mind about your body limits.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Main Switch/Energy meter/RCCB/MCB repair/replacement/ installation	Electrocution/Shock			Ensure the proper isolation and put local LOTO on the RCCB/Main switch. Ensure zero voltage before starting the job. Use insulation mat while doing isolation.	Use Safety Helmet, safety hand gloves, safety shoes, safety glass	Yes
	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Body eye contact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Fall of ladder			Ensure healthiness of ladder and its rungs before work. Ensure that only A-type FRP ladders are used. The ladder should be placed on a flat and rigid surface.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Poor Posture			Take Rest in between the job. Do not overstretch your body. Keep in mind about your body limits.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes

	Falling from height of workmen		Ensure that the ladder should be placed on a flat and rigid surface.	Use A-type FRP Ladder and one person must be holding the ladder at the time of climbing/decending. Have a firm grip on the ladder and maintain a 3-point contact while climbing/decending on the ladder.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
				Ensure that the rungs are not damaged. Have a clear vision of the area before climbing, to avoid hitting hanging objects.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Air Conditioner repair/replacement/installation	Electrocution/Shock			Ensure the proper isolation and put local LOTO on the RCCB/Main switch. Ensure zero voltage before starting the job. Use insulation mat while doing isolation.	Use Safety Helmet, safety hand gloves, safety shoes, safety glass	Yes
	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Body eye conact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Fall of ladder			Ensure healthiness of ladder and its rungs before work. Ensure that only A-type FRP ladders are used. The ladder should be placed on a flat and rigid surface.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Poor Posture			Take Rest in between the job. Do not overstrech your body. Keep in mind about your body limits.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling from height of workmen		Ensure that the ladder should be placed on a flat and rigid surface.	Use A-type FRP Ladder and one person must be holding the ladder at the time of climbing/decending. Have a firm grip on the ladder and maintain a 3-point contact while climbing/decending on the ladder.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
				Ensure that the rungs are not damaged. Have a clear vision of the area before climbing, to avoid hitting hanging objects.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Pressurizing or depressurising the compressor		Calibrated healthy pressure gauge must be used and safe pressure limits to be	Engage inline experienced work person, Use healthy and tested Tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Brazing of copper pipes		A healthy fire extinguisher must be kept throuout the work.	Flamable materials should be removed from the area of work.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes

				Heat resistant/Leather gloves to be used	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Cleaning of filters/condenser			Power isolation must be ensured. A healthy air blower to be used. Nose mask/ear plug to be work during cleaning.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet, Nose mask, ear plug	Yes
	Drilling hole in wall			Healthy tools to be used. Only inline experienced persons to be used for the job.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet, Nose mask, ear plug	Yes
				Both side of the wall to be checked to avoid falling of debris on man/material.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet, Nose mask, ear plug	Yes
Street light repair/replacement/ installation	Electrocution/Shock			Ensure the proper isolation and put local LOTO on the RCCB/Main switch. Ensure zero voltage before starting the job. Use insulation mat while doing isolation.	Use Safety Helmet, safety hand gloves, safety shoes, safety glass	Yes
	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Body eye conact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Fall of ladder			Ensure healthiness of ladder and its rungs before work. Ensure that only A-type FRP ladders and rolling type fixed ladders are used. The ladder should be placed on a flat and rigid surface.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Poor Posture			Take Rest in between the job. Do not overstrech your body. Keep in mind about your body limits.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Moving vehicle/object/people/stray animals			Barricade the working area. Use caution tapes and barriers wherever required. One person, wearing safety reflective vest, shall watch the moving objects and be alert throughout the work.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling from height of workmen		Ensure that the ladder should be placed on a flat and rigid surface.	Use A-type FRP Ladder and one person must be holding the ladder at the time of climbing/decending. Have a firm grip on the ladder and maintain a 3-point contact while climbing/decending on the ladder.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes

				Ensure that the rungs are not damaged. Have a clear vision of the area before climbing, to avoid hitting hanging objects.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Biohazard (Stray dogs/ wild hogs/ poisonous snakes/ honeybees/ monkeys etc.)			Keep a thick and long stick throuout the work for animals/reptiles. Be alert for any honey bee hives, keep a blanket to cover yourself for covering yourself in case of honeybee attack.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Dust/Ash/fumes			Keep dust/fume mask with you. Use wherever needed.Check, whether the filters of the mask are clean before using. Use clean masks.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Fall of pole/structure			Ensure healthiness and verticality of structure. Pull the pole/structure from a height of 4 mtrs from the ground using 20mm PPE rope. Maintain 15 mtrs distance from the pole while pulling. Ensure nobody remains inside the circle of 15 mtrs around the pole/structure.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Steam Bowing activity at ITPS Plant area	Noise			Use proper PPEs, Use ear pugs. Keep propers means of communication for passing instruction and proper supervision must be done during work.	Use Ear plug / ear muff	Yes
Working of 33KV Overhead Feeder for Colony of OPGC	Shock/ Electrocuton			Intimating and getting authorized permission to work from EM Colony		Yes
Isolation and LOTO	Shock/ Electrocuton		Electrical power isolation, - Upstream isolator to C-type SS opened locked and taged at old	Engage authorized and inline experience electrician, use ARC flash suit, HT tested Hand gloves, insulated Rubber mat. Double ensure locking and tagging process	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Isolation of 11 KV feeder of near by WESCO line	Shock/ Electrocuton		Electrical power isolation, - Upstream isolator of WESCO line	Engage authorized and inline experience electrician, use ARC flash suit, HT tested Hand gloves, insulated Rubber mat. Double ensure locking and tagging process	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Un rolling of conductor from drum by manually	Body injury			Use proper PPEs, Engage inline experience work person, Use healthy and tested Tools and equipments.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Contact with moving object			Barricade the working area, Keep proper watch on movement of vehicle on road	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Snake/Insect bite/attck of wild hog			Proper supervision of the working area, Proper inspection of working area with a long stick, Keep a long strong stick near by.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Removal of conductor	Electrocuton			Local earthing to be done and ensure zero voltage with power isoation before starting the job	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling for height of workmen		Ensure the soil is leveled, flat, & compact.If soil is heaped or shallow, level and compact it	Use FRP Ladder with two person must be holding the ladder at the time of climbing.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes

	Falling of Object from height			Barricade the working area. Proper supervision to be done, restrict unauthorized entry.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Fall of structure (Slip/trip)			Barricade the working area. Ensure healthiness of structure/pole. Proper stay system to be provide. Proper supervision to be done. Ensure proper healthiness of lifting and stringing tools	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Body eye contact/ hand injury			Use proper PPEs, Engage inline experience work person, Use healthy and tested Tools and equipments.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Installation of new conductor	Electrocution			Local earthing to be done and ensure zero voltage with power isoation before starting the job	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling from height of workmen		Ensure the soil is leveled, flat, & compact.If soil is heaped or shallow,	Use FRP Ladder with two person must be holding the ladder at the time of climbing.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Falling of Object from height			Barricade the working area. Proper supervision to be done, restrict unauthorized entry.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Fall of structure (Slip/trip)			Barricade the working area. Ensure healthiness of structure/pole. Proper stay system to be provide. Proper supervision to be done. Ensure proper healthiness of lifting and stringing tools	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Body eye contact/ hand injury			Use proper PPEs, Engage inline experience work person, Use healthy and tested Tools and equipments.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
	Poor Posture			Take Rest in between the job. Keep drinking water	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Charging of 33KV line	Electrocution			Ensure all local earthing to be removed from line before charging	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
				Ensure twice that all man and materials has been removed from the charging 33KV line	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
				Keep safe distance from charging line, proper supervision to be done	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
Pole cross arm positioning	Falling from height of workmen			Ensure that while positioning the cross arm no one should be working on the pole/ standing on the ladder	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes

Pole/ structure stability	Fall of structure			Pull the pole at four meter height from ground level using 20 mm PP rope from various directions to ensure pole/ structure stability.	Use safety hand gloves, safety shoes, safety glass, Safety Helmet	Yes
				Maintain safe distance during pulling, No person must be standing below the structure		
				Ensure the physical condition/ healthyness of ladder prior to use		
				Use fall arrester when accending and desending		
Restoring the power supply	Electrocution/Shock			Remove the local LOTO on the RCCB/Main switch. Ensure zero voltage. Use insulation mat while normalising the power supply.	Use Safety Helmet, safety hand gloves, safety shoes, safety glass	Yes
Emergency Safety Measures (Rescue/Fire Brigade etc):		Emergency Contacts-Main Control Room- 222, 233,244, Fire- 777, 222257, Ambulance- 248/337, Hospital-666				
Overall Job Risk Category-						
JSA Review during PJB:						
Pre Job Briefing (PJB) is applicable to all persons involved with the task.						
Pre Job Briefing (PJB) Acknowledgement: I undertake that the JSA is communicated to me effectively						
Name	Agency's name	Signature				