

Format No: ER 5/10- F2,		JOB SAFETY ANALYSIS (JSA), IB THERMAL POWER STATION, OPGC					
Serial No.	Department	Equipment	Location	Job description:			
	Main Plant Civil		Main Plant Area	Extension of Control Room at CHP-2 (LOTO Room)			
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 shoes, hand gloves ,safety helmet, Nose mask, Ear plug/muff, Safety goggles, reflective vest, etc.						
Tools required	Hoe, pick axe, spade, digging bar, measuring box, head pan, masonry trowel, circular saw, float, ladder, line and pins, measuring box, measuring tape, plumb bob, sand screen, spade,						
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 adequate to mitigate the risk (Yes/No)	
		Elimination/ Substitution	Engineering	Administrative	PPE		
Excavation and back filling for plinth, drains, flooring and brick work.	Electrocution/Shock from underground/burried cables			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.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes	
	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes	

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
	Body eye conact/ hand/leg injury while digging/manual excavation			Engage inline experienced work person, Use healthy and tested Tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Poor Posture			Take Rest in between the job. Do not overstretch your body. Keep in mind about your body limits.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Collapse/sliding of soil			Keep the excavated soil at a distance of 1 mtr from the excavated pit/trench. Barricade the area of work.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	
	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	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Fall of person inside excavated pit/trench			Barricade the working area with hard barrication. Use caution tapes and barriers wherever required.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
Centering and shuttering work for slab,beam, coloumn,lintels etc	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Body eye conact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.Use safety goggles to avoid any foreign material to go inside your eye.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
	Fall of ladder/platform		Ensure that the ladder/platform should be placed on a flat and rigid surface.	Ensure healthiness of ladder and its rungs before work. The ladder/platform should be placed on a flat and rigid surface.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Poor Posture			Take Rest in between the job. Do not overstretch your body. Keep in mind about your body limits.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Falling from height of workmen		Ensure that the ladder/platform 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/platform and maintain a 3-point contact while climbing/decending on the ladder/platform. In case of scaffolding, ensure height work permit.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
M.S. Reinforcement bar cutting, binding and placing for beam, coloumn, slab, lintel.	Electrocution			Ensure the insulation of reinforcement cutting machine and its cable. Ensure that the power source is from a 30mA sensitive RCCB.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes

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		Elimination/ Substitution	Engineering	Administrative	PPE	
	Body eye conact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools. Use safety goggles to avoid any foreign material to go inside your eye.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace, ensuring height work permit	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Noise from cutting machine			Use good quality ear plugs/muffs. Take rest in between the job. Do not expose yourself to continuous noise	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	
	Poor Posture			Take Rest in between the job. Do not overstretch your body. Keep in mind about your body limits.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
Cement plaster/ punning (finishing work) for plinth drain and flooring	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Body eye conact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools. Use rubber hand gloves to avoid direct contact with cement.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Poor Posture			Take Rest in between the job. Do not overstretch your body. Keep in mind about your body limits.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes

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Brick work for foundation and superstructure.	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Body eye conact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Poor Posture			Take Rest in between the job. Do not overstrech your body. Keep in mind about your body limits.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Falling of workmen from height		Ensure that the ladder/platform 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/platform and maintain a 3-point contact while climbing/decending on the ladder/platform. In case of platforms, ensure that top rail and midrails are healthy and strong.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
Priming & painting of wall and ceiling.	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes

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		Elimination/ Substitution	Engineering	Administrative	PPE	
	Body eye conact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.Use safety goggles to avoid any foreign material to go inside your eye.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Fall of ladder/platform		Ensure that the ladder/platform should be placed on a flat and rigid surface.	Ensure healthiness of ladder and its rungs before work. The ladder/platform should be placed on a flat and rigid surface.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Poor Posture			Take Rest in between the job. Do not overstretch your body. Keep in mind about your body limits.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Falling of workmen from height		Ensure that the ladder/platform 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/platform and maintain a 3-point contact while climbing/decending on the ladder/platform. In case of platforms, ensure that top rail and midrails are healthy and strong.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
				Ensure that the rungs are not damaged. Have a clear vision of the area before climbing, to avoid hitting hanging objects.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes

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Fabrication & erection of M.S doors / grills/ shutters	Electrocution			Ensure the insulation of grinding and steel cutting machine and its cable. Ensure that the power source is from a 30mA sensitive RCCB	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Inhalation of toxic fumes			Use good quality nose mask.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Noise from cutting machine			Use good quality ear plugs/muffs. Take rest in between the job. Do not expose yourself to continuous noise	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Body eye conact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.Use safety goggles to avoid any foreign material to go inside your eye.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace, ensuring height work permit	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Fall of ladder/platform		Ensure that the ladder/platform should be placed on a flat and rigid surface.	Ensure healthiness of ladder and its rungs before work. The ladder/platform should be placed on a flat and rigid surface.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes

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	Fire hazard			Remove any combustibile subastance from the fabrication yard. keep fire extinguisher and water &sand bucket at site.Ensure hot work permit before starting of job.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
Removing of construction debris.	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Body eye conact/ hand injury			Engage inline experienced work person, Use healthy and tested Tools.Use safety goggles to avoid any foreign material to go inside your eye.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	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	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Poor Posture			Take Rest in between the job. Do not overstrech your body. Keep in mind about your body limits.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
Tractor loading and unloading for shifting of materials at site.	Body injury (Slip/trip)			Have a 360 degree vision and be alert about the area of work. Use proper and healthy tools.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes

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	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	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Falling of Object from height			Proper supervision to be done, restrict unauthorized entry to the workplace.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	Yes
	Poor Posture			Take Rest in between the job. Do not overstrech your body. Keep in mind about your body limits.	Safety shoes, hand gloves ,safety helmet, safety goggles, nose mask, ear plug/muff	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-	HIGH					
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				