

PTW NO-	Department	Equipment	Location	Job description: Construction of MCC & Control Building for Bottom Ash Augmentation System for Unit # 3&4 at ITPS			
JSA performed by:	Signature	Review & Apprd. 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 Helmet, Safety Shoe, Safety goggle, Hand glove, Safety belt etc.

**Tools required** Spanner , hammer , Ajax flory , Concrete Mixer , Vibrator

**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
		Elimination/ Substitution	Engineering	Administrative	PPE	
Work start-up & obtaining PTW	1.Unauthorized work. 2. Invalid permit . 3. Lack of competency 4. Lack or poor communication 5.Haste or shortcut	Access should be free without obstacle.	Responsible person will conduct inspection, monitor the work activities and have to ensure safety standards and procedures are strictly adhered to	Obtain a valid work permit before starting the job. Adequate Supervision for the task to be done. Be attentive on the job.	Basic PPES used	Supervisor must ensure that all work activities are carried out by competent personnel. Before start of the activity, Conduct pre-job briefing and have close monitoring for supervision.
Vehicles & Machinery Movement	1. Bodily injury to the road users/drivers/ helper. 2. Material/ equipment damage.	Road condition to be even/follow safe route.	Speed limit inside the plant should not be more than 20 KM/H.While reversing the trucks, Machinery banks man shall be available and away for prier guiding the vehicles.	Skilled & trained driver with Valid DL to be deployed.Vehicle shall be checked prior to start the work.Inspect the vehicle on daily basis through checklist & maintain the record. Vehicle should be in good working condition with back up alarms functioning.	Shoes, helmet, goggles, vest, face shield & hand glove , Nose mask.	Don't park the vehicle on passage of vehicle movement.Vehicle shall be checked prior to start the work.

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Excavation Work	1.Collaps of soil. 2.Under ground Utilityline damage. 3.Strike to Man & Machinery 4.Electrical hazard.	Hard barication to be provided. Clear access . Ensure lighting arrangement provided. Excavation soil kept away 1.5 m from the edge of the pit. Shoring to be provided	Equipment physical condition and valid documents to be ensured. During Excavation flagman provided . Experience operator with valid licence must be engaged in the job	Area clearance electrical and all utility line must be checked. PTW system follows. Slope maintain as per approved drawing.	Basic PPE used.	Supervisor/Engineer must ensure that all work activities are carried out by competent personnel. Before start of the activity, Conduct pre-job briefing and have close monitoring for supervision.
Dewatering	1.Electrocution 2. Physical Injury	Access egress clear should be free of material. Joints cable should be avoided.	Main supply power cable should be double insulated. All the elctrical equipments should be through RCCB.	Permit to work system to be followed. Experience supervisor to be assigned. Cables must be overheaded. Cable joints to be avoided.	Helmet. Shoes.rubber handgloves. goggles. Jacket, Gum boot etc.	Rotary part to be gurded. Illumination system to be installed. Certified Electrician must be deployed
Steel Reinforcement Work	1.Fall of matrial. 2. Hit by rod while bending & shifting. 3.Crush between materials. 4.Eletrocution	Access egress clear should be free of material. Secure the rod properly while shifting and fixing RCCB must be provided with proper earthing	Protruding rebar shall be protected with mushrumcap. Cuting machine inspected & tagged before activity.	PTW system follows. Conduct PJB before starting the job. Proper supervision.	Basic PPE used.	Shoulder pad must be used during Rod shifting.
Shuttering Work	1.Phisicaly hazard. 2.During shuttering fixing fall of shuttering matrial. 3.Electrical shock.	Working area to be cleared from un wanted materials. Shuttering material to be stacked proper .	Shuttring cuting machine physicaly cheked & tagged. Skiled work man deployed. Cuting machine power cable proper insulaated. Connected 30ma RCCB must.	As per drawing procedure follows. PTW system and daily PJB to be conducted befour activity.	Basic PPE used.	During shuttering fixing safe distance should be maintined. Wooden harmer or plastic grip hammer should be used.
Working at Height	1. Fall of person from height and serious injury 2. Fall of material	Provide proper access for ascending and descending.	Adequate supervision to be provide up to finish of the activity. Scffolding material of good quality & fixed bt trained worker	Work Permit Package for the job to be performed.	Mandatory all PPEs like Safety shoes, safety helmet, hand gloves,FBH, Reflective jacket etc. to be ensured.	Only skilled and trained persons to be allowed for height works. Work at heights training to the people involving in job only having authorization pass
Material Handling (Concrete Material) Manual & Mechanical.	1. Falling material on men. 2. Slip and trip of men. 3. Traffic Hazards. 4. Physical	Access egress clear should be free of material.	Keep strict monitoring during the material handling.Adequate Supervision for the task to be done. Be attentive on the job.Don't exceed the manual lifting capacity alone if required increase number of working strength.	PJB and TBT should be conducted prior start the activity.Only authorized operator need to be deploy to operate the vehicle.	Shoes, helmet, goggles, vest, face shield & Rubber hand glove , Nose mask ,Gum boot.	Provide the flag man in both end of the road.

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Concrete Work	1.Physical injury. 2.Slip & trip . 3.concreate enter eye. 4.Fall of concrete. 5.Topple of vehicle	Working area access should be clear. Area to be levelled.	Skiled masson deployed. Area cordenof. Boom and miller condition phisicaly ensured. Authorized oprator deployed. flagman provided.	PTW system follows. Conduct PJB job specific must. Proper supervision. Daily checklist must be ensured	Basic PPE used.	Proper illumination must be available during night job & flag man must be delayed with batten light
Brickwork	1.Physicaly injury. 2.Fall of brick. 3.Ergonomic hazard.	Working area should be cleared. No stock huge bricks on platform.	Area must be barricaded. Skilled person deployed	PJB brifing on daily basis	Basic PPE used.	
Plastering Work	1.Fall of person & material 2.Physical injury.	Working platform and access and egress to be provided. Platform inspection & tagged	skiled mason deployed. Area cordenof.	PTW system follows. Proper supervision.	Helmet. Shoes.rubber handgloves. goggles. Jacket.	
REBAR CUTTING/BENDING WORK (Cutting m/c)	1.Wheel damage,cracks etc. 2.Electric shock, 3.Breaking of wheel. 4. Fire hazard. 5. Serious cut injury. 6. Noise	Before starting cutting make sure the area is clear of all types of combustibile materials	Cutting wheel shall be from reputed brand of specified diameter and quality. Check physical damage to the wheel before mounting.Check expiry date of cutting wheel.Ensure the connection for cutting machine through 30mA ELCB .Double insulated cable shall be used and joints must be connected with male and female connector.Based on RPM of machine should be selected.	Only skilled and trained worker have to perform the cutting the rebar.	Shoes, helmet, goggles, vest, face shield & Leather hand glove	Make sure guards are fitted to all moving parts. Maintain the equipment such that it reduce noise level.
CHIPPING WORK WITH ELECTRICAL HAMMER AND BRAKER MACHINE.	1. Electrical shock 2. Physical Injury 3. Eye injury. 4.hiting by banksman.	Access egress clear should be free of material. working area hard barication must .area clearance must be checked.	Main supply power cable should be double insulated. All the elctrical equipments should be through 30 mA RCCB.joints must be connected with male and female connector.	Only skilled and trained worker have to perform the cutting the rebar.authorised oprator to be deployed banksman provide must.	Shoes, helmet, goggles, vest, face shield & Leather hand glove , Nose mask , ear plug	
Hot Work (Gas cutting, Welding)	1. Fire 2. Chances of shock 3. Burn 4.Physical injury	Remove all combustibile materials before starting work. Side is covering with fire blankets or GI sheets	Ensure the use of flashback arrester at cutting torch and LPG/DA Cylinder. ensure the connection for welding machine through 30mA ELCB & body earthing.	Only skilled worker have to perform the welding, cutting activity. PTW & Hot work permit to be taken Trained fire watcher to be deployed for all hot work activity.	Shoes, helmet, goggles, vest, face shield & Leather hand glove , Nose mask.	Fire extinguishers and sand bucket to be at work place.Cylinder kept in trolley and away from hot work activity.
Flooring Work	1.Physical injury. 2.Slip & trip . 3.Splashing of Material	Access egress clear should be free of material.	skilled mason deployed. Area cordenof.	PTW system follows. Proper supervision.	Helmet. Shoes.rubber handgloves. goggles. Jacket.	

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Plumbing & Sanitary Work	1.Physical injury. 2.Slip & trip .	Access egress clear should be free of material.	skilled mason deployed. Area cordenof.	PTW system follows. Proper supervision.	Helmet. Shoes.rubber handgloves. goggels. Jacket.	
Painting Work	1.Physical injury. 2.Slip & trip . 3.Fall of Material form height 4.Toppling of Scaffolding	Access egress clear should be free of material.Scaffolding must be build & certified by competent person	skilled mason deployed. Area cordenof.	PTW system follows. Proper supervision. Height work permit must be taken	Helmet. Shoes.rubber handgloves. goggels. Jacket.	Full body hardness with inspection tag must be used by person engaged at height.
House Keeping Work	1. tripping over loose objects on floors, stairs and platforms. 2. Being hit by objects. 3. Slipping on greasy, wet or dirty surface. 4. Striking against projecting, poorly stacked	Clear on obstructed walk way.	Segregate the materials in designated place. Unwanted materials to be removed on regular basis.	PJB brifing on daily basis	Basic PPE used.	
Emergency Control Measures: Keep ready Foam Type Fire Extinguishers		Main Control Room- 7077743444, CHP Control Room- 8018084333, Fire- 07077225454/777, 222257, Ambulance- 07894035500/ 248/337				
Overall Job Risk Category- (High/Low) :						
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 & understand the hazards & risks						
Name	Agency's name	Signature	Name	Agency's name	Signature	