

Format No: ER 5/10– F2, JOB SAFETY ANALYSIS (JSA), IB THERMAL POWER STATION, OPGC							
Serial No.	Dept	Equipment	Location	Job description:			
	Ash Pond	Ash Pond	Ash Pond	Development of ash dyke for emergency disposal of bottom ash			
JSA performed by:	Signature	Reviewed & Approved by	Signature	Date of Issue	Date of revision		Revision No
		Akhila Satapathy		16.03.2022			
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	Arc flash/ blast	Ingestion/Absorption	ERGONOMICS	Dust exposure	
Exposure to pressurized 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	Repetitive motion	Human factor	
PPEs to be used	Safety Helmet, Safety Shoes, Safety goggle, Dust mask, Hand gloves, Ear Plug, Full body harness etc.						
Tools required	Phowrah, belcha, trowel, bucket, gainti, Excavator, HYVA, JCB, Dozer, Roller, Water Tanker, Concrete Mixer, etc						
Important Note- While deciding hazard control measures, consider hierarchy of hazard control steps in order of preference.							
					SAFE JOB STEPS / HAZARD CONTROL MEASURES		Are control

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	Elimination/ Substitution	Engineering	Administrative	PPE	Measures adequate to mitigate the risk (Yes/No)
1. Cleaning of wild grass from work site.	1.Sliping from the slope. 2.Injury due to slip of sickle.			1. A supervisor must be engaged to monitor the work properly. 2.The workers should move carefully while going down/up the slope of bank. 3.The workers must use dust mark, safety grass during dry weather to protect them shelves from ash blowing.	Wear safety helmet, shoes, safety goggle, dust mask	Yes
2. Mobilisation of construction materials like Earth, ash, chips, sand, by truck / tractor to ash pond	1.Road accident 2.Tilting of vehicle as the road is narrow at work places. 3.Sliping .	1. Narrow dyke top road will be restricted for entry of vehicles.	1. Guard posts/ Safety tape/barication are provided along the road edges for safe movement of vehicles	1.The drivers should have valid dring license. 2.All the vehicles should have valid documents like Fitness certificate, Insurance, R.C.Book. 3.The vehicles should not be driven more than 5 KM/hr. 4.The driver should not drive the vehicle in alchoholic condition. 5.The driver must be accompanied with an assistant. 6.No people should be allowed to sit on trolley. 7.The breaking system should be perfect. 8.Tyre in good condition. 9.The trolley rod should be in good condition. 10.While parking the vehicle for loading & Unloading, stopper should be provided on both front and rear wheel. 11.Only work during day time.		Yes

3. Excavation of earth from borrow area	Slip of excavator / vehicle inside the excavated pit due to collapse of slope of excavated pit	N.A	1. Rigidity of area soil near excavator to be ensured	1. Vehicles must be kept away from the excavated pit and collapsible slope. 2. Excavator must be kept away from collapsible earth/slope.		Yes
4. Loading of earth	Hitting with the Vehicles/ persons during loading.	N.A	1. Rigidity of area soil near excavator to be ensured. 2. Vehicles will be fixed with back gear alarms.	1. No person will be allowed to stay within the swing area of boom of excavator. 2. Supervisor at loading to be kept himself away from the swing area of the excavator; and must keep himself away from the approaching vehicle	Wear safety helmet, shoes, safety goggle, dust mask	Yes
5. Transportation of earth from borrow area and stacking at stack site..	Blowing of dust, Inhalation of dust Air Pollution due to fugitive emission	N.A	1. Sprinkling of water	Before vehicle movement water sprinkling to be ensured	Dust mask to be used by the work men	Yes
6. Transportation of earth from Stack area to filling area site.	Tilting of vehicle as the road will be narrow during formation of emabankment.	1. Restriction of more than one vechicle	1. Saftey warning boards & safety tapes or barricades will be provided along the edges.	1. Speed of the vehicle to be limited to 10 KMPH at the embankment top 2. Vehicle to be ply on the middle of the embankment, and in circumstances it should move to the edge of the dyke.	Vehicle seat belt to be ensured	Yes

7. Unloading of earth in embankment construction	1. Slip of vehicle 2. Tilt of vehicles in the excavated area/ pond area/pit	N.A	Bund will be provided near the edge of the dumping location of the embankment. 2. No vehicle will be allowed to cross the bund 3. Back horn, back light and proper brake to be ensured.	1. Supervisor will be provided in the site for adequate supervision 2. The supervisor must keep himself away from the approaching vehicle. 3. No person will be allowed inside the equipment movement area.		Yes
8. Spreading of earth	Hitting of dozer	N.A	1. Back horn and back light of dozer must be ensured	1. No person will be allowed in the direction of movement of dozer.		Yes
9. Rolling of earth for compaction	Hitting of roller	N.A	1. Back horn and back light of roller must be ensured	1. No person will be allowed in the direction of movement of roller.		Yes
10. Reversing the truck / tractor / vehicles on the narrow dyke, and Unloading of material at site	1.Road accident 2.Tilting of vehicle as the road is narrow at places.			1. Supervisor to be deployed at site alongwith flgman for controlling the vehicle movement 2. Nobody should be allowed in the direction of movement of vehicles		Yes
11. Concreting,brick/ rubble masonry.	1.Falling from height while working. 2.Dust ingress in Nose & Eye during cleaning of surface. 3.Falling of materials on ground while working and create environmental hazard.		1.Scaffolding to be made properly as per requirement. 2.The ground will be cleaned immediately.			Yes

12) Excavation of earth using Excavator / JCB and manually, excavator for sand chimney / sand blanket / pipe removal	1) Contact with live cable/equipment may cause shock/electrocution	na	The existing live cables and water pipe lines to be rerouted as needed.	Excavation clearance may please be taken before starting of excavation.	Use electric shock proof hand gloves,safety shoe safety glass,safety helmet.	Yes
13) Excavation of earth using Excavator / JCB and manually, excavator for sand chimney / sand blanket / pipe removal	2) Fall (Slip/Trip)	na	Working site shall be cleaned properly. Hard Barricading of the excavated pit to prevent any fall.	na	na	Yes
14) Excavation of earth using Excavator / JCB and manually, excavator for sand chimney / sand blanket / pipe removal	3) Struck by/against	na	Experienced operator shall be deployed for dressing/excavation.	Workers shall be instructed to work carefully. License holder & Experienced operator to be deployed for excavation. Signal (Flag) man to be deployed with provision of flags for signalling. Barricade the swing area.	Use safety helmet, shoe, hand gloves and goggles.	Yes
15) Excavation of earth using Excavator / JCB and manually, excavator for sand chimney / sand blanket / pipe removal	4) Fall (Down/Below) after excavation	na	5) Barricade the excavated area after excavation	Barricade the excavated area with hard barrication.	na	Yes
16) Sand filling, back filling, hammering,PCC and other cement concrete works.	1) Body/Hand injury	na	Work carefully.	Take rest in between. Avoid bad posture.	na	Yes
	2) Contact with cement dust/Irritation on hand/leg	na	na	na	Safety goggles, dust mask and hand gloves to be used. RUBBER-WET CEMENT & COTTON-DRY CEMENT	Yes
	3) Struck by against.	na	Work carefully.	Deploy trained workmen	na	Yes

17) Working with mixture machine.	1) Contact with moving equipments.	na	Gaurding of the rotating shaft of mixture machine. Loose clothes should not be wear near by.	Keep distance from the movable/swing area of the machine. Used only experience worker . Barrcade the working area of mixture machine.	na	Yes
18) Cutting bending and placing of TMT reinforcement & Shuttering works	1) Body/Hand injury	na	Gaurding of the cutting machine.	Deploy trained workmen	Use safety helmet, shoe, hand gloves.	Yes
	2) Cutting of hand					Yes
	3) Contact with fire sparks	na	na	na	Face shield attachd with safety helmet shall be used and apron shall also be used required.	Yes
	4) Power supply with authorized sources	na	Used RCCB distrution board with privision of earthing and weather protecion.	na		
	5) Exposure to dust	na	na	na	Use safety googles and nose mask.	Yes
	6) Irritation on hand/legs	na	na	na	Use rubber hand gloves and gum boot.	Yes
Review the job while execution	1. Identify while working	1. Take appropriate action.				
Emergency Safety Measures (Rescue/Fire Brigade etc.): Contact MCR or inform to emergency contact no.	Emergency Contacts-Main Control Room- 222, 233,244, Fire- 777, 222257, Ambulance- 248/337, Hospital-666					
Overall Job Risk Category- (High/Medium/Low) :	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