

HSE PLAN-MONSOON

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1 OBJECTIVE

TO ENSURE A SAFE & HEALTHY WORKING ENVIRONMENT AT PROJECT SITES DURING MONSOON PERIOD-JULY15 TO SEPTEMBER-30

2 AREAS OF WORK DURING MONSOON

THE FOLLOWING WORK ELEMENTS ARE PLANNED DURING THIS PERIOD

1. CIVIL WORK-SWITCHYARD
2. CIVIL WORK-CONTROL BUILDING
3. STRUCTURAL & EQUIPMENT INSTALLATION WORK-SWITCHYARD
4. ALUMINIUM BUS WELDING & INSTALLATION-SWITCHYARD
5. EQUIPMENT TESTING WORK-SWITCHYARD
6. CABLE TRAY INSTALLATION -SWITCHGEAR & CONTROL ROOM
7. CABLE LAYING
8. CIVIL WORK-TRANSMISSION LINE TOWERS
9. TRANSMISSION LINE-TOWER INSTALLATION
10. CONDUCTOR STRINGING
11. INSTALLATION OF PLANT ELECTRICALS

3 LEADERSHIP AND COMMITMENT

SIEMENS Site Management shall provide demonstrable management leadership and commitment through active participation in HSE activities.

Necessary resources to develop, operate and maintain SIEMENS'S HSE Management System and to attain HSE Policy and legal requirements

We are committed to manage all our activities risks to 'As Low As Reasonably Practicable (ALARP).

4 RESPONSIBILITIES

HSE management is a line responsibility requiring active participation of all levels of management and supervision.

Individual HSE roles and responsibilities, along with task and target shall be distributed to the individuals for action, as described below.

4.1 Site Manager

NO.	TASK	TARGET	VERIFICATION DOCUMENT
1.	Provide the resources for effective implementation of Siemens HSE policy	All time	Site Store records
2.	Ensure that additional monsoon specific safety equipments are available for working during monsoon season	WEEKLY	Site stock lists

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4.2 HSE Engineer/Officer

NO.	TASK	TARGET	VERIFICATION DOCUMENT
1	Information on Safe working Methods during Monsoon will be imparted to all	All Time	Training register
2	Inspection of all Electrical DB's and Equipments for water ingress and resultant damage	Weekly and Additionally after a down pour	Checklists
3	To Take Preventive measures for water logging in working areas by providing dewatering pumps	All Time	Safety Observation Records
4	Maintaining hygiene & housekeeping in work areas	All Time	Safety Observation Records
6	Controlling Equipment /Vehicle movement to avoid Damage and Delays	All Time	Safety Observation Records

4.3 Area In-charges/Site Engineers

NO.	TASK	TARGET	VERIFICATION DOCUMENT
1.	Ensure unsafe condition & act are systematically tracked down & corrected during monsoon season	All Time	Safety Observation Records
2	Ensure the PPE's issued is adequate and are used by all site employees & safe system of work are implemented during monsoon	All Time	Safety Observation Records
3	Reporting of all accident , incident at project site to Site In charge ,divisional safety head , Siemens corporate occupational safety & environment departments & project site administration	Immediate	Site Report

5 RISK ASSESSMENT (RA)

Siemens Site HSE department shall factor the risk due to monsoon in each JSA and necessary modification will be done in the methodology, guidelines also shall be implemented at site.

6 ADDITIONAL PRECAUTIONS FOR MONSOON

ADDITIONAL PRECAUTIONS SHOULD BE IN PLACE TO PREVENT UNSAFE CONDITIONS IN BELOW LISTED WORKS DURING MONSOON-UNSAFE CONDITIONS AND MITIGATION PLAN.

(FOLLOWING LIST TO BE USED ADDITIONALLY AS CHECKLIST FOR ENSURING ALL THE PRECATIONS ARE TAKEN CARE AT SITE BY TAKING PRINTOUT & STORED AS EVIDENCE WITH SIGNATURE)

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ELECTRICAL

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Short circuit	Check for Water Ingress before switching On	Done
Flash over on starting of machines	Check for cable connections	Done
Breakage of lamp glass covers	Change the Cover	Not Applicable
Non functioning of needles of gauges due to rust	Testing for functioning	Not Applicable
Leakage of current to the outer surface of machineries	Proper earthing of Body to discharge leakage currents	Not Applicable
Malfunctioning of ELCB and earthing arrangements	Testing for functioning	Done
Jointing of wire leads for extension for supply cables	To be replaced with continuous cables. No joints allowed	Done
Using of power tools during rain.	Usage to be restricted to covered areas.	Not Applicable
Electrocution during welding in wet condition	Welding to be restricted to dry components	Not Applicable
Obstacles to reach electrical installations	Housekeeping and Making access obstacle free	Not Applicable
Electrical shed with holes	Repair and cover with sheets/tarpaulin	Not Applicable
Resurfacing of UG cable	Identifying for status and protecting from damage	Not Done
Displacement of cable markers	Identifying for status and protecting from damage	Not Applicable
Ingress of water into cable joints, electrical machineries and installations	Shutdown of all electrical machines and drying out	Not Applicable
Moisture free atmosphere inside electrical installations and machineries	Shutdown of all electrical machines and drying out	Not Applicable
Earth pit identification and inspections	Regular inspections	Not Applicable
Increasing of induction zone of high tension lines	Prevention of Soil fillings below transmission lines	Not Applicable

Note: This is a pure mechanical site. Electrical work is very little part, only some electrical tools are used at site is welding machines, grinding machines, Drilling machines etc.

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TRAFFIC MANAGEMENT & SITE VEHICLE MOVEMENT

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Slushy road condition	Periodic checking of Vehicles (Vehicles carrying loose earth to have a sealed rear flap)	DONE
Hindrances in vehicle movement-	Diversions	Done
Ingress of water in brake shoes	Cleaning and drying	Done
Increase in braking distance	Driver needs to be trained for Safe practices	Done
Skidding	Slow Driving, Avoid muddy roads	Done
Invisible puddles and ditches	Avoid un known routes-Placing of bright caution boards on known areas	Done
Poor visibility during shower and lesser level of illumination	Vipers should be maintained Healthy	Done
Fragile excavation edges (a threat for heavy vehicles and locomotives)	keep away from Excavation edges	Not Applicable

WATER LOGGING

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Invisible trench /ditches/drains/pits	Placing of bright Warning signs	Not Applicable
Overflowing drains or chocked drains	Removing and cleaning of Debris	Not Applicable
Breeding of vectors	Prevent Stagnation of water	Not Applicable
Obstacles to reach temporary sheds.	Housekeeping and Making access obstacle free	Done
Collapse of excavations wall and formation of unseen cave-ins	Sand Bags to protect Excavation pit walls	Not Applicable

WORK AT HEIGHT

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Unbalance due to high wind speed	No work to be undertaken when high speed winds are blowing	Not Applicable
Unbalance due to slippery surface	No height work immediately after a down pour	Not Applicable
Unbalance due to haste during retreat / evacuation.	Specific TBT for maintaining Calm during Emergency	Not Applicable
Delay of emergency aid to reach in time.	House Keeping and Make access obstacle free	Not Applicable
Scaffold collapse (bad ground, high wind, vehicle infringement)	More frequent checks on scaffold bases and bracings	Not Applicable
Roof works (improper roof sheet fixing and stacking)	Ensure no loose sheets are remaining	Not Applicable

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LIFTING APPLIANCES

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
High mast and booms conducting lightning arcs	High boom equipments to be stopped during lightning time	Not Applicable
Slippery brake shoes	Maintenance checks to be more frequent	Not Applicable
Rusting of unpainted parts	Periodic painting	Not Applicable
Un-insulated control levers	Metal levers to be properly insulated	Not Applicable
Soft ground condition	Avoid Running the machines on Soft soil	Not Applicable
High wind situation (affecting booms / mast /jibs / towers)	High boom equipments to be stopped during blowing of High speed wind	Not Applicable

STORAGE AND STACKING

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Grinding wheels catch moisture	Storage to be moisture free	Not Available
Power driven hand tools	Check in storage	Done
Drawings and documents	Proper filing and protection	Done
Lifting tools and tackles	Check for rusty components	Done
Tilting of heavy loads due to partial settlement of soil	Heavy equipment storage & movement on soft soil condition to be avoided. Ensure proper ground compacting before use.	Not Applicable
Intermediate Storage of equipments (especially on raised grounds)	To be avoided during rainy season.	Not Done
Preventing overflow of chemical vats	More frequent Disposal	Not Applicable
Preventing overflow of waste / spilled oil collection pits	Disposal in time	Not Applicable
Prevention during storing reactive (to moisture) materials (e.g. battery acids, lab reagents)	All Chemicals to be stored as per MSDS	Not Applicable
Cements go-downs	Proper protection and ventilation	Not Applicable

LIGHTNING

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Resting sheds near tall structures	Prevent movement of personal outdoors during lightning	Not Applicable
Taking shelter near or touching tall metallic structure or trees	Ensure structures near shelters are earthed for lightning protection	Not Applicable

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Toppling of trees	Avoid movement near trees when high speed winds are blowing	Not Applicable
Fire in reactive chemical storage sheds	Chemicals to protected from water ingress to avoid any undesirable chemical reaction	Not Applicable
Grounding of tall structures as per statutory guidelines	To be ensured	Not Applicable
To avoid lightning strikes	No loitering in the open area	Not Applicable

SERPENTS AND VENOMOUS INSECTS

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Un Known Hideouts	Storage spaces to be kept clean and well ventilated	Done
Corners	To be open and visible	Done
Risk of Insect bites	Make noise while accessing remote, dark and dry corners.	Done
Cement go-downs	Proper protection and ventilation	Not Applicable
Sprinkling of repellents	Periodical Sprinkling to contain insect menace	Not Applicable
Availability of anti venom aids	To be ensured as part of First aid kit	Not Applicable

HEALTH AND WATER BORNE DISEASES

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Low quality Drinking water due to contamination	Drinking water to be distinctly identified, Containers need to be cleaned and kept covered	Done
Spreading of epidemics	Vaccinations as per authorities	
Unhygienic Sanitation	Frequent maintenance of sewage lines, Toilets	
Water borne diseases	High level of Cleanliness to be maintained for working & lay down areas	Done
Avoidance of contaminated food product	Avoid food from open areas	Done
Protection of food items and ration from rodents and harmful micro-organisms	Ensure food items are kept protected	Done
Use of rain protection suits, gumboots, etc.	Make monsoon specific PPE requirements fulfilled	Not Done
Post monsoon medical checkups	Check with Doctor for any undesirable infections	
Epidemics	Control epidemics by restricting contacts and contributing to isolation programs	
General movement on the site (soft engulfing soil condition)	Restrict entry to soft spoil areas	Not Done
No bare footed activities	Look for submerged re bars, and other injurious elements in workplace	Done

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Development of poisonous weeds on the approach to temporary structures (rest shed and electrical booths).	Access to be cleared of weeds and other obstacles	
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EMERGENCY RESPONSE

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Flood situation	Look for water levels , evacuate people to higher and safer places	Done
Delay in arrival of rescue services	Keep Calm and wait for help, alternate sources of help need to be mobilized	Done
Difficulty in approaching incident spots	Move with expert group familiar with the area	Not Done
Power supply failure	Provision of battery operated emergency light.	Done
Difficulty in containing environmental emergencies (oil spillage, chemical spillage etc.)	Predefine escape routes avoiding contaminated areas	Not Applicable
Drowning	Life lines and warning signs in highly flooded routes	Not Applicable

MANUAL MATERIAL HANDLING

UNSAFE CONDITIONS	MITIGATION	DONE / NOT DONE
Slippage of materials from hand grips	Clean and dry the Wet equipments	Done
Handling chemicals reactive to water and moisture	Follow MSDS strictly	Not Applicable
Handling hygroscopic chemicals	Follow MSDS strictly	Not Applicable
Pathway for shifting materials (soft soil conditions)	Make walk able areas by backfilling with Murom and soft rock particles	Not Done
Slip, trip and fall due to unbalance	Hand rails, guide ropes	Not Applicable
Slipping of hand tools (spanners)	Fasten the hand tools with Body with suitable wires/chains	Not Applicable
Wet hand gloves	Change to dry cotton gloves	Not Applicable

OTHER IMPORTANT ASPECTS WHERE CONTINUOUS MONITORING & PRECAUTION IS NECESSARY

RESTING SHED AND TEMPORARY STRICTURES		
		Action Taken Y/N
1	Nearness to the work area	Y
2	Prevent ingress of water	N
3	Wind ties on the roof	N
4	Obstacle free approach	Y
5	Having doors (wide open entry points are prohibited)	Y
6	Having first aid facility	Y
7	Properly illuminated	Y
8	Visible to oncoming vehicles and constructions	Y

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9	Not in contact with electrical installation	Y
10	Prevention of bonfires inside resting shed	Y

STORM / HIGH WIND		
		Action Taken Y/N
1	Wind ties	NA
2	Stacking of flying objects	NA
3	Stoppage of lifting appliances	NA
4	Refraining from driving during storm	Y
5	No loitering in the open area	Y
6	Stoppage of elevated works	Y
7	Uprooting of trees	
8	Dust and specks impairing vision and harming the eyes	Y

OTHERS		
		Action Taken Y/N
1	Cowl on the exhaust stacks	
2	Arresting of parked vehicles, tripods, derricks, etc	Y
3	Arresting of tall structures against high wind	Y
4	Caps fitted tightly on containers containing oils, chemicals etc.	NA
5	Securing upright compressed gas cylinders against topple.	NA
6	Use of mobile phones on open areas	Y
7	Protecting glass windows	Y
8	Keen ear towards weather forecasts	
9	Planning parallel indoor works	Y
10	Revising of travel plans	Y
11	Driving at less than stipulated speed	Y
12	Avoiding driving through water logged areas	Y
13	Arranging excess food stock	
14	Dewatering and arrangement to dispose of excess water	Y
15	Restriction to work and unplug electronic devices like TVs, computer internet lines, etc.	Y
16	Stay away from drowned power lines.	Y
17	Inspections before resumption of work after a shower.	Y

7 WORK PERMIT SYSTEMS

WORK PERMIT SHOULD BE TAKEN BEFORE STARTING OF EACH ACTIVITY

8 ACCIDENT / INCIDENT REPORTING AND INVESTIGATION

All incident / accident / near miss cases are subject to report to owner in written within the specified time frame and all such cases shall be investigated by a team headed by the safety officer. The outcomes (Causatives and corrective actions) shall be documented as submitted to MANAGEMENT with a commitment to compliance with the proposed time.

9 EMERGENCY RESPONSE PLAN

Emergency safety plan will factor conditions during monsoon season

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The Following Emergency contact Nos. shall be displayed

- | | | | |
|----|-------------------|----|---------------------|
| a. | Safety Department | b. | Security Department |
| c. | Nearest Hospital | d. | Contractor No. |

10 TRAINING

Above mentioned unsafe conditions related to rainy season will be explained to each & every persons (including sub contractor personnel) working at site and to be ensured that the instructions are understood by taking feedback.

Name of site:

Site Manger:

Equipment Details:

Name of Contractor:

Manpower at site: