



**IGE POWER COMPANY LIMITED**

**Health, Safety & Environment (HSE) Management Plan for Transmission Projects**

# **Health, Safety & Environment (HSE) Management Plan for Transmission Line Projects**

Revision 0

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## IGE POWER COMPANY LIMITED

### Health, Safety & Environment (HSE) Management Plan for Transmission Projects

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**IGE POWER COMPANY LIMITED**

**Health, Safety & Environment (HSE) Management Plan for Transmission Projects**

**1. Purpose**

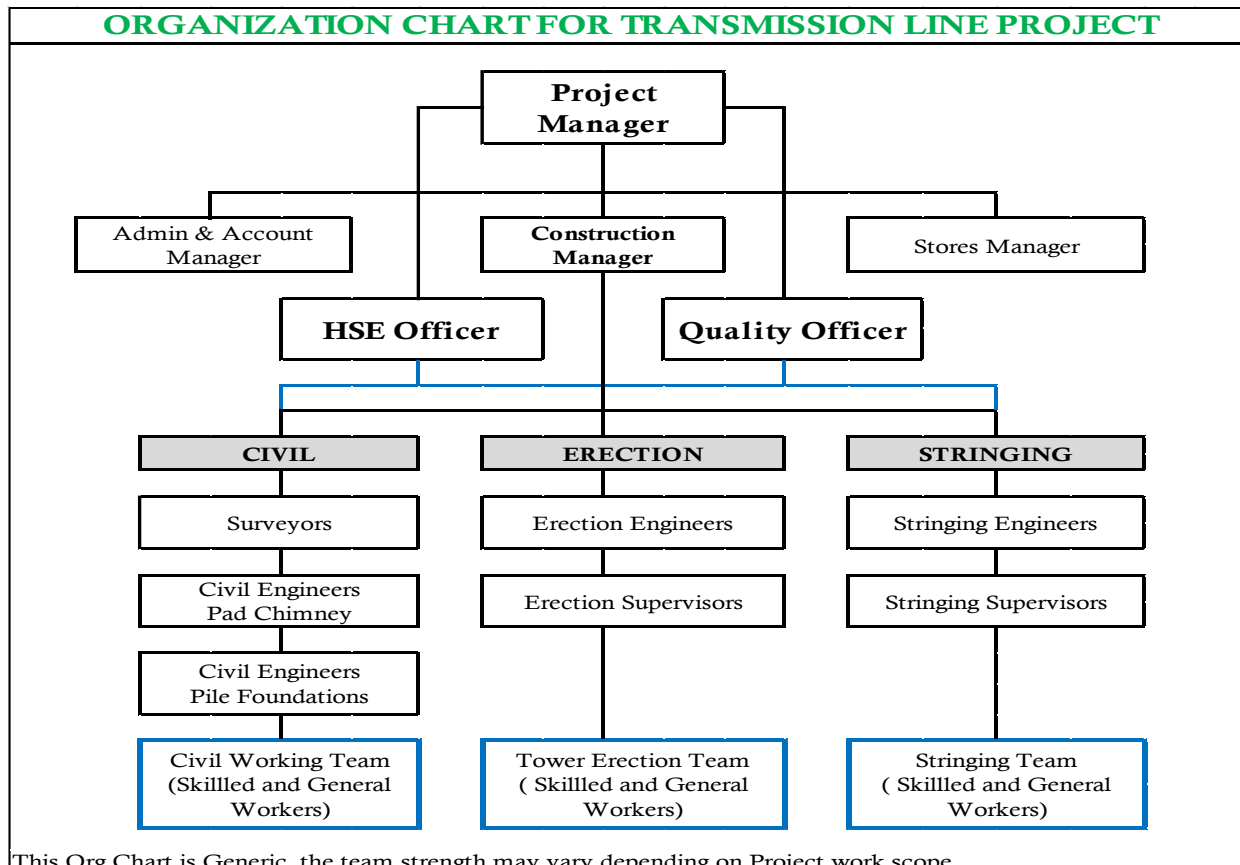
This plan is guide to promote among all staffs and workers the importance of safety & accident preventions. The rate of accident needs to be controlled and kept to a minimum to avoid LTI (Lost time injury) the wastage of manpower and resources, and also prevent physical and mental anguish for the construction period of the Project.

**2. HSE Policy**

- IGE Power Co Ltd is committed to achieve Health Safety & environment (HSE) excellence.
- Management as well as employees of all functions are responsible for this achievement.
- IGEP will strive to provide a safe and healthy working environment to avoid adverse impact or injury to people, resources, environment and the communities in which IGEP does the business.
- Management shall ensure participation by everyone with the safety consciousness in prevention of accidents.
- To systemize the safety procedures of the company, the following is set forth as fundamental Safety Policy.

**3. Safety Control Organization & Responsibilities**

**3.1 Organization Chart**





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#### 3.2 Responsibility

The Project Manager shall be accountable for the Project safety implementation, Monitor & Control, Trainings, Audits, Safety Committee Meetings, Maintaining records, Provision of PPE and safety gears, Corrective Actions, Emergency preparedness and responses and various other Project safety practices.

The safety Officer shall be responsible for above HSE Plan implementation however each section In-charges as well as IGE Staffs/ Engineers shall be equally responsible to ensure that the safety plan/process & instructions are well implemented and adopted by the working team in respective departments/ sections. Safety Officer shall generate Safety reports (weekly & monthly) and submit to the Project Manager and other key project stakeholders.

#### Subcontractor Responsibility –

To ensure all the engaged Staffs/ workers and agents are provided with PPE's and comply with, adhere and obey to the Safety Plan. To attend the Training, Meetings organized by the IGE Safety Project Manager/ Safety Officer or Engineers. To attend good housekeeping at Stores and working area.

#### 3.3 Job Safety Analysis (JSA)

Prior to start of work, detailed activity shall be listed and possible hazards be identified, Preventive measures to mitigate/ avoid shall be well planned as per below depicted JSA.



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Area / Nature of Work		Hazards		Preventive Measures					
S.No	Details	S.No	Details	S.No	Details				
<b>A Excavation</b>									
1	Tower Foundations	1	Fall of person in Pit from Height	1	Barricading the Excavated Pit				
2	Pile Cap			2	Display of Red Flags				
3	Pile Foundation			3	Display of Danger / Warning Boards				
4	Earthing			4	Wear PPE's				
5	Other Misc (if required )			2	Land Slide				
		3	Collapse of Excavator in Pit	1	Slope cutting @ 60 Degrees				
		4	Fall of Material in Pit	1	Park the Excavator 2Mtr away from the edge of Pit				
				1	Daily Tool Box Talk				
				2	Wear PPE's				
				3	Do not Stack any material near the edge of Pit				
				4	Daily House Keeping				
<b>B Concreting</b>									
1	Pad Chimney Tower Fdn	1	Dust Pollution & Allergy		Wear Dust Mask				
		2	Skin Infection		Wear Gum Boots & rubber Gloves				
		3	Injury while Concreting		Wear PPE's				
2	Pile Cap	4	Fall of person in Pit from Height	1	Barricading the Excavated Pit				
3	Pile Foundations			2	Display of Red Flags				
4	Other Misc (if required )			3	Display of Danger / Warning Boards				
				4	Wear PPE's				
		5	Fall of Person while Concrete Pouring at Height	1	Impart Height Work Training & Issue Height Pass				
				2	Make proper access & working Platform by using Scaffolding ( Metal Only )				
				3	Do not use wooden Ladder, Only metal / aluminium ladder to be used				
				4	Ladder attendant to be present while work				
				5	Wear Full Body Harness ( Above 3 M Height )				
				6	Hook the Harness hook above the Head				
				7	Wear PPE's				
<b>C Height Work</b>									
1	Tower Erection	1	Fall of Person from Height	1	Impart Height Work Training & Issue Height Pass				
				2	Make proper access & working Platform by using Scaffolding ( Metal Only )				
				3	Wear Full Body Harness ( Above 3 M Height )				
				4	Hook the Harness hook above the Head				
				5	Wear PPE's				
				6	Follow 3 Point Contact Method while climbing				
				7	Use of Vertical & Horizontal Life Line along with Fall Arrester ( For Tower / Gantry & Stringing Work )				
				8	Use of Vertical & Horizontal Life Line along with Fall Arrester ( For Tower / Gantry & Stringing Work )				
				9	Do not use Mobile Phone for listening music or watch video or phone calls while working at height				
2	Insulator Hoisting	2	Fall of Materials from Height	1	Tool Box Talks				
				2	Do not keep unwanted material on heighted platform				
				3	Use a Bag for carrying tools				
				4	Lower or Lift the Tools Bag using rope				
3	Conductor , OPGW and EW stringing	1	Fall of Person from Height	1	Impart Height Work Training & Issue Height Pass				
				2	Make proper access & working Platform by using Scaffolding ( Metal Only )				
				3	Wear Full Body Harness ( Above 3 M Height )				
				4	Hook the Harness hook above the Head				
				5	Wear PPE's				
				6	Follow 3 Point Contact Method while climbing				
				7	Use of Vertical & Horizontal Life Line along with Fall Arrester ( For Tower / Gantry & Stringing Work )				
				8	Use of Vertical & Horizontal Life Line along with Fall Arrester ( For Tower / Gantry & Stringing Work )				
				9	Do not use Mobile Phone for listening music or watch video or phone calls while working at height				
				1	Tool Box Talks				
				2	Do not keep unwanted material on heighted platform				
				3	Use a Bag for carrying tools				
				4	Lower or Lift the Tools Bag using rope				
				<b>D Material Handling ; Intallation of Indoor &amp; Outdoor Equipments</b>					
				1	Tower Structures	1	Injury or damage to Manpower / Material due to fall of lifted Equipment	1	Tool Box Talks before start of Work
2	Use of Double Sling in good & working condition with suitable lifting rating.								
3	While Lifting, do not stand under or near the lifted item.								
4	If use of Wooden planks, ensure the planks are even size and in good working condition								
5	Check and ensure that the Hydraulic jack is in good & working condition.								
6	Check the Crane is in Working Condition with Driver possessing valid Operators License								
7	Check the Lifting capacity of the Crane								
8	Follow instructions of Signal Man								
1	While shifting lifted load, the Equipment must have guide rope.								
2	Follow instructions of Signal Man								
1	Wear PPE's								
2	Use proper Tools in good condition								
1	Impart Height Work Training & Issue Height Pass								
2	Make proper access & working Platform by using Scaffolding ( Metal Only )								
3	Do not use wooden Ladder, Only metal / aluminium ladder to be used								
4	Ladder attendant to be present while work								
5	Wear Full Body Harness ( Above 3 M Height )								
6	Hook the Harness hook above the Head								
7	Wear PPE's								
8	Follow 3 Point Contact Method								
9	Use of Vertical & Horizontal Life Line along with Fall Arrester ( For Tower / Gantry & Stringing Work )								
2	Conductor , OPGW and EW Drums	2	Damage to other Civil Foundations or installed Equipments	1	Cranes Lifting Hook must have Locking Pin				
				2	Fix the Sling in allocated area / anchor hook				
				3	Sling must be fixed so that the Item is balanced properly				
3	Stringing Hardware	3	Injury to Workmen during Installation	1	Check the Sling is in Good Working Condition				
				2	Do not overload the Sling. Check the lifting capacity of the Sling				
				3	Use double Sling				
4	Insulators	4	Fall of Person from Height	1	Impart Height Work Training & Issue Height Pass				
				2	Make proper access & working Platform by using Scaffolding ( Metal Only )				
				3	Do not use wooden Ladder, Only metal / aluminium ladder to be used				
				4	Ladder attendant to be present while work				
				5	Wear Full Body Harness ( Above 3 M Height )				
				6	Hook the Harness hook above the Head				
5	Other Misc (if required )	5	Slippage of Sling while lifting	1	Wear PPE's				
				2	Follow 3 Point Contact Method				
				3	Use of Vertical & Horizontal Life Line along with Fall Arrester ( For Tower / Gantry & Stringing Work )				
6		6	Failure of Sling	1	Cranes Lifting Hook must have Locking Pin				
				2	Fix the Sling in allocated area / anchor hook				
				3	Sling must be fixed so that the Item is balanced properly				



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Area / Nature of Work		Hazards		Preventive Measures	
S.No	Details	S.No	Details	S.No	Details
<b>E Electrical Work</b>					
1	Operating Machines/ Diesel generators, operating of tools , Installation of various Equipments.	1	Electrical Shock ( injury or Fatal )	1	Check Power Distribution is done by using ELCB
				2	Use Industrial Power Sockets for Power distribution
				3	Use armoured cable in case power cable is laid on ground
				4	Avoid Cable Joints, In case joints are required, it must done using proper insulated & waterproof joint kits
				5	Use insulated hand tools for electrical work
				6	Do not insert naked wires in plug sockets
		2	Electrical Short Circuits resulting fire	7	Use LOTO for working on Live Circuits
				8	Wear PPE's ( 11 KV Hand Gloves )
				9	Use standard electrical appliances ( ISI mark )
				1	Use standard electrical appliances ( ISI mark )
				2	Do not work on Live circuit
3	Damage to Electrical Tools & appliances, property	3	Check all connections are insulated / Waterproof		
		4	Fire Extinguishers must be installed at all working locations		
		1	Use standard electrical appliances ( ISI mark )		
		2	All Electrical tools must have Fuse / Tripping device		
<b>F Hot Work ( Gas Cutting &amp; Welding )</b>					
1	Welding	1	Burns	1	Wear PPE's like Helmets, Leather Gloves, Goggles, Face Sheild, Welding Helmets, Shoes etc
2	Gas Cutting			2	Use spark kit for lighting the Torch. Do not use Match Box
		2	Explosion	1	Use Flash Back arrester for oxygen & acetylene cylinder
				2	LPG Cylinders not be used
				3	Check pressure in the Cylinder
		3	Injury to Eyes	4	Only experienced person to operate the gas cutting set
				1	Use goggles, face shield, Welding helmets and other PPE's while work.
		4	Fire	1	Maintain good House Keeping
				2	Do not Smoke at work place
				3	Provide Fire Extinguishers & Fire Buckets at Work Place
				4	Use specific & proper welding or cutting machineries for the purpose of Hot work
				5	Take Hot work permit

### 3.4 HIRARC ( Hazard Identification, Risk Assessment and Risk Control ) Template

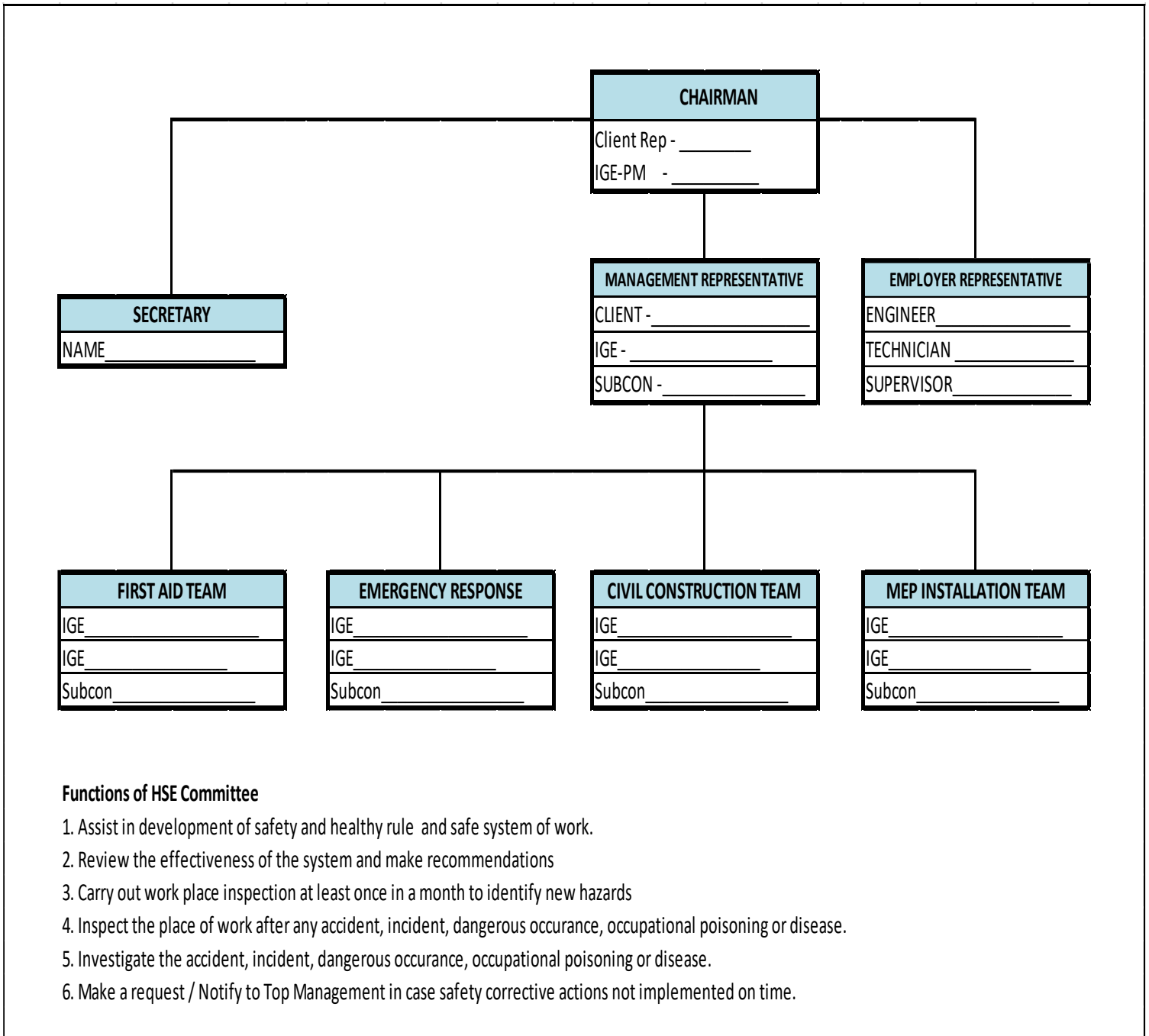
Project Reference : \_\_\_\_\_

S.No	Hazard Identification ( HI )			Risk Analysis (RA)			Risk Control RC)	Legal requirement
	Activity Details	Hazard	Effect	Existing Control	Likelihood (L)	Severity (S)	Risk Rating LXS=R	



4. HSE Implementation

4.1 HSE Committee







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#### 4.2 Education & Induction

- a) **Induction Training**- shall be imparted to all the Staffs, Workers & Visitors ( IGE/ Subcontractors/Agents) to explain the Rules and regulations & Site conditions and issuance of Identity cards/ Visitor passes.
- b) **Specific Employees education and certifications** –To give more detailed induction to certain new staffs/ workers whose jobs are considered generally more hazardous such as working on or nearby live electric lines or equipment's, working at height like Tower installation, stringing or Civil or Installation works on elevated platforms/scaffolds.
- c) **Regular Education**- Daily Tool box meetings in groups to discuss about various hazards and countermeasures and to convey safety message. Pre-start meetings- Explanation of works for the day and familiarization of dangerous area and confirmation of safety before work such as wearing of PPE.

#### 4.3 Notice of Accident

All accidents and dangerous occurrences must be reported by the supervisor to safety officer, Customers Project safety department, at the time of occurrence or at latest before the end of day's work.

A formal accident notice form must be submitted within 24 hours following the accident, to conduct necessary investigation.

In case of Minor injury, the victim must be treated by the first aider at the Project first aid center and later (if required) may be sent to hospital for further treatment. The first aid case shall be entered in the first aid register (Provided in appendix)

## 5 Health / First Aid

**5.1 On site First Aid Centre (at IGE Project Office)** – An onsite First Aid Centre will be provided at the main site office of IGE.

**5.2 First aid box**- with a first aider, foldable stretcher and an emergency vehicle shall be available at the site round the clock during the working hours. Nearest Hospital address and contact details shall be displayed in the offices / first aid center as well indicated in the emergency response plan.

Apart from the offices, the first aid box shall be made available and work locations such as Warehouse/stores, other important work areas, Subcontractors office or stores.

**5.3 Record Keeping**- First Aid Centre will keep a record of all persons who receive the first aid treatment. This record will include (Form is enclosed in the appendix) Name of person, company id, ID No, Treatment received, cause of accident/illness, location of accident, further treatment required if any, ambulance details, hospitalization date and time.

#### 5.4 Workers Qualifications-

- a) All the Staffs and workers must be physically fit for work having good health, good visual and hearing acuity.
- b) Staffs/ workers shall not use or be under the influence of alcohol, narcotics, intoxicants or similar substances.
- c) Operators of any Equipment or vehicle must be able to read and understand the sign, signal and operating instruction in use



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- d) All workers working with explosives shall be in good physical condition and be able to understand and give written and oral orders.
- e) Workers working at height like Tower Installation, Stringing, Civil works on elevated platforms must undergo training and obtain the height pass from the IGE safety department.

#### 6 Emergency Plan

##### 6.1 General –

- a) The emergency communication ( Emergency Response Plan) shall be established and posters shall be displayed at convenient access way, in all site offices, Stores, Security Guard room, Gates, Medical Centre, Location of work ,in order for speedy rescue of the accident victim & timely communication with nearby Hospitals/ Police/ Fire brigade. This plan shall include the Key Contact Names and Phone numbers such as Customer Representative, IGE Project Manager, First Aider, Safety Officer, Police, Hospital, Ambulance, Fire Brigade and others.
- b) In case of any emergency, the first observer shall report it to the safety officer or any other mentioned in the reporting line. The safety officer shall inform the same to the IGE Project Manager as well as Customer safety department and also arrange the rescue operation/ first aid/ shifting the victim to Hospital. The first observers name and details will be recorded for further investigation purpose.

##### 6.2 Fire Procedure

**Small fire** – Inform others in the surrounding area to call safety/ security officers. Find the nearest fire extinguisher (check the extinguisher Class) / water bucket and attempt to put the fire out, if it is safe and competent to do so. If unable to control the fire, inform the office to call nearest fire brigade. Make sure all personnel are clear of the fire area and no one is trapped.

**Major Fire**- Inform others in the area to evacuate immediately. Sound the alarm and inform the security officer to call the Fire brigade. The first finder should stay near the vicinity (if safe to do so) to further direct the emergency service personnel.

##### 6.3 Site Evacuation

In case of any emergency or in case Emergency Siren is blown, all the staffs and workers should immediately stop work and must assemble at the assembly point for further head counts (attendance) . In case of any missing members, evacuation team will start the search and evacuation operations.

##### 6.4 Emergency Communication / Alarms

The main type of emergency communication on the Project will be –

- a) **Telephone** – An emergency telephone number list (with Mobile phone number) will be developed and posted at all site offices, stores, warehouse, Security room, Gates
- b) **Alarm Siren**-A portable alarm siren shall be established for sounding alarms for site evacuation, fire alarm, explosion/ gas leakage, start work/ stop work times.
- c) **Voice**- The oldest and most reliable form of emergency communication is Voice. Someone sees a problem/ accident/ emergency- they must personally inform the nearest security guard, safety officer. If there is language barrier, take the person and show the problem.



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#### 6.5 First Aid Centre (For emergency Purpose)

The function of the first aid center in any emergency is to provide first aid service to any person injured; this will include coordinating the operation of ambulance, providing first aid treatment in the first instance on the site / first aid center and communicating with safety department.

#### 7 Work Place Environment

**7.1 General requirement** – The work place shall be always maintained clean, hygienic and ventilated, free from dust, pollution and poisonous gases. It shall be ensured that sufficient warning and advisory signage's are displayed all around the site and also that good housekeeping and clean work environment is maintained.

**7.2 Sanitation** – Drinking water for Site workers will be made available at site and will be sign posted "SAFE DRINKING WATER" in both local and English languages. Service water taps will be provided in working area with signboards "CAUTION- WATER UNFIT FOR DRINKING" in both local and English language.

Temporary toilet shall be provided/ constructed with very basic construction of toilet pit with removable waste bowls or septic tanks. Waste shall be transferred by suitable means to septic tank for primary treatment before discharge to drainage channel.

#### 7.3 House Keeping –

- a) All stairway, passageway, gangway and access way shall be kept free of materials, supplies and obstructions at all the times.
- b) The Project Office, outdoor and indoor stores, Cement warehouse shall be kept free from product debris like wooden pallets /crates, empty cement bags, papers, plastic packing sheets etc. All the debris shall be dumped at the designated Trash dumping yard in a Rubbish Bin having lid.
- c) Vermin (Rats, mice & insects )will be controlled primarily by the strict control of eating anywhere within the construction site, the use of bins with lids, frequent removal of rubbish to control/ eradicate any infestation that occur, using approved spray / poison etc.
- d) All storage and the construction site shall be kept free from the accumulation of combustible materials.

#### 7.4 Waste Disposal / Rubbish Collection & handling

- a) All waste material and rubbish will be collected at a designated area (will be determined based on site condition) Waste material will be treated as per the customers instructions.
- b) Garbage and rubbish to be collected in rubbish bins and to be disposed on a daily basis by dumping off to the nearby Bins where the municipality garbage trucks collect the garbage on day to day basis.
- c) The industrial waste like Cable sleeves, armour wire, PVC material, plastic packing sheets, timber waste , cardboards and others to be disposed / dumped at the designated locations in accordance with approved regulations and customers site environment policy.
- d) The dumping of waste oil/ toxic chemicals in site drainage system will be strictly prohibited.

**7.5 Noise-** In case where the noise level exceeds specified limits, PPE such as ear plugs or ear muffs shall be worn. Noise hazardous area will be marked with caution signs indicating both the presence of hazardous noise level and the necessity of ear protecting device.



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#### 7.6 Working Time / Overtime-

- a) The work timings, public holidays, weekly off days shall be strictly as per the governing Labour laws which is generally 8 hours per day from 9 am to 6 pm with 01 hour lunch break and 01 day off per week.
- b) Considering the project urgency, if overtime work is essential, necessary permissions shall be obtained from the customer before planning such overtime works. It will be ensured that the Workers and staffs are paid as per the governing labour rates for the overtime works.
- c) Special care will be taken to ensure all the safety requirements are followed like sufficient area lighting and illumination arrangements to work at night, standby generators/ battery operated torches, in case of power failure. Presence of first aider and emergency project vehicle/ ambulance. Overtime works shall be well planned and equipped with sufficient material, manpower, machinery resources.

#### 8. Personal Protective Equipment' s and Gears

Before entering the Work Location, the stated PPE's are mandatory to be worn by each and every staff, workers or visitors

(Safety Helmet, Safety Shoes, Reflective Jacket, Dust Mask) Apart from these mandatory PPE's, below specific PPE are to be worn while different kinds of work)

- a) Ear Muffs- In Noise polluted area
- b) Clear Goggles- Dust polluted area
- c) Welding goggles or Welding shield- For Welding (Hot) work
- d) Face shield- To protect face in case of flash while working of live electrical circuits.
- e) Leather hand gloves- Hot work
- f) Rubber Hand gloves with different insulation levels- For electrical live line works
- g) Full body harness with double lane yards & Fall back arresters- To work at height
- h) Other Gears- Vertical & Horizontal life lines, Barricading tapes, Signboards, Lock out / Tag outs, Respiratory protection, Stretcher, Emergency Siren)

#### 9. Equipment Inspection Tagging

- a) To ensure no accidents are caused by poor Quality/ faulty equipment's all vehicles, major equipment's such as excavators, dozer, dumper & lifting cranes, Electrical tools, gas tools, air tools, electrical power distribution equipment's, hydraulic tools, hoists, explosive tools, scaffolding, ladders will be inspected prior to going into service on the Project Site. Hand tools in poor condition are to be tagged "out of service" and removed out from the job site by safety department. This inspection will be carried out periodically as per the inspection plan.
- b) All the fit for use Equipment, Tools and machines to be provided with fitness Tag stating the date of previous inspection and next inspection due date, records of all such inspections to be maintained by the safety department.
- c) During Site inspection, in case any non-inspected or expired tag tools/ equipment or machined is found to be used by the working team, the matter to be recorded in the UA/UC register and the performing team to be issued a warning note by the Safety department.



**10. Electrical Safety Procedure**

**10.1 Electrical Distribution –**

Power supply shall be required for Project Office, Stores, Area illumination, welding, constructions, pumps, testing and commissioning and many other applications. For the same, 3 phase low voltage power supply shall be arranged either from the State power supply grid or Diesel generator, depending on the availability. The power output from the Transformer/ Generator will be fed to a standard Power distribution panel having all the protections related to earth fault and overcurrent, alarm and annunciations. The Transformer/ Generator and the Power distribution will be provided with solid earthing.

**10.2 Temporary Electrical Wiring-**

- Material required- Field distribution boards (weather proof) fitted with MCB protection and 5/3 pin receptacles, four core double insulated power cable of desired size, 5 pin or 3 pin Industrial power sockets (plug in type), earthing leads.
- Cable joints shall strictly be avoided, in case required, the cable joint shall be weather proof and shock proof. No cables, wires to be left exposed to atmosphere
- All power equipment's/ tools and machines must have a power switch off point and must be earthed. Live parts of wiring must be guarded
- Temporary wiring shall be guarded, buried or isolated by elevation to prevent accidental contact by workers or equipment's
- For overhead temporary lines, clearances shall be adequate for movement of vehicles and for the operation of construction equipment's.
- All warning signs, danger signs, advisory signs, instruction signs must be displayed at each power transmitting and receiving end.
- Display of shock treatment chart at prime locations like control room, switch gear room, Office and nearby the generator / transformer / distribution board.

**10.3 Electrical Personnel**

- For working on Live electrical equipment's or dealing with power distribution works, all such persons must submit for record: their qualification/ certificate / training courses undertaken etc to the safety department. Only approved Electricians from Contractors will be permitted to undertake any kind of works related to electrical wiring, termination, testing etc.
- All works related to live line, equipment's must be performed by approved electricians under supervision of IGE authorized engineer.

**11 Fire Prevention and Protection**

- No fire are permitted anywhere on the project site. This included burning of rubbish, fire for warmth, for heating pvc pipe for jointing, fire for heating bitumen or other similar product. Smoking shall be prohibited in all the areas where flammable, combustible or similar hazardous material are stored such as offices, warehouse, building, Transformer oil drum yard, diesel generator.
- All sources of ignition shall be prohibited in the areas where flammable liquid are stored, handled and processed. Suitable "No Smoking" sign shall be posted in such areas.



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- All office buildings, Stores, Control room, DG room, and Transformer yard, hot work area (welding and gas cutting) must be well equipped with suitable grade/class of Fire extinguisher. Records must be maintained about extinguishers expiry date/ refill date.
- Fore barrel or bucket shall be painted red marked "For Fire only". Barrel shall be kept filled all the time.
- Demonstration and training ( Mock drill and training) in firefighting shall be conducted at intervals to ensure that the project personnel are familiar with and are capable of operation of fire fighting equipment's

#### 12 Safe Work Practices

##### 12.1 Civil Construction

- a) The names of all the persons involved in the Construction process shall be marked in tool box talk & same shall be submitted to SSS.
- b) Unauthorized person shall not be allowed to enter the work area.
- c) Conduct Daily Tool Box Meetings for general awareness of the workers.
- d) Conduct regular or daily check of the equipment & machineries prior to use.
- e) Full time competent Site Supervisor must be available at all the time during the Work Progress.
- f) Emergency Vehicle shall be availed at site. Location of nearest Hospital with contact information to be displayed in the Emergency Risk response plan.
- g) Avoid vertical Pit excavation, provide slope cutting to avoid earth collapse
- h) Park the excavator 2 Mtrs away from the edge of the excavation Pit.
- i) Conduct frequent trainings and mock drills.
- j) Project/ Stores area to be provided with dedicated Assembly area, Rest zone, Toilets, First aid Centre, Safe drinking water facility.

##### 12.2 Installation of Equipment's

- a) Carry out the inspection of Crane/lifting equipment to check its level of fitness and functionality.
- b) It shall be ensured that Crane capacity, type and working condition is suitable for Equipment installation. Cross check the weight specified in the name plate of the Equipment.
- c) Capacity of Lifting slings D shackles etc. must be of suitable rating.
- d) Double slings shall be used for lifting and shifting the main tank.
- e) Do not stand under the suspended/ lifted loads
- f) Park the crane on a flat and stable ground surface
- g) The crane operator must be well trained and possess valid operator's license.
- h) Aluminum ladder shall be provided for working at height. Timber ladder shall not be used.
- i) Do not jerk or tilt the Equipment, always keep it upright.

##### 12.3 Hot work

- a) Welding and Gas cutting work should be done under strict supervision of Safety steward or safety officer.
- b) Before start of work, take necessary permission (Work permit) and also arrange fire extinguishers, water buckets, fire blankets etc at the location of work
- c) The Oxy-Acetylene cylinders must be stacked vertically on top of movable trolley and must not be kept horizontally on the ground
- d) Flash back arrester must be provided at both the ends (Torch end and Regulator end)



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- e) Check the condition of the Oxy-acetylene hose pipe and ensure that the same is in good working condition without any cracks, leakages.
- f) Do not work nearby live cable trench or cable cellar room, panel room etc. Always obtain work permit before working in critical zones.
- g) Inspect the condition of welding machine, leads, welding holder, Welding screen & helmets
- h) Do not use domestic LPG cylinder for gas cutting purpose, always use acetylene cylinder.
- i) Check the power distribution and connection for the welding machine.

#### 12.4 Height Work (Tower Installation & Stringing)

- a) All the height workers must undergo training by the Safety department and obtain height pass before starting works.
- b) While climbing at height (on tower gantry) it is to be ensured that the vertical life line and fall back arrester to be used by all the workers.
- c) All workers must fasten their full body harness clamps with the tower structure while working at height.
- d) For using mobile crane in live Switchyard, lifting permit shall be obtained.
- e) Check the condition of all lifting equipment's such as PP ropes, pulleys, Jin poles, Power winches etc.
- f) Do not stand under suspended loads
- g) Do not work at height in bad weather ( heavy rains, wind & thunder)
- h) While climbing up or down the tower structures always use 3 point contact method.
- i) For lifting and lowering materials at height, always pull upward/ drop down the material bag by a rope. Never drop any materials like tools , bolts & nuts from height
- j) Barricade the work area so that no unauthorized person enters the zone.

### 13. Safety Control Systems

#### 13.1 Safety Inspections

- **Safety stewards-** Will be required to spend the majority of their time on safety patrol. Enforcing the rules and regulations of the Project safety plan. Reporting to the safety Officer on the UA/ UC, Daily tool box meetings, ensuring all the staffs and worker are wearing the PPE's, ID card etc. Updating the daily safety records.
- **Project Manager-** The project manager will carry out the safety inspection fortnightly along with the team (Engineers, safety officer, stewards and subcontractors safety representatives) to check and suggest new area of developments, UC which needs to be attended on top priorities.
- **Safety Officer** – Needs to inspect the Project site every week along with the Engineers to review the open UC and corrective actions taken to close the UC by the working team and subcontractors. Prepare the weekly report and submit the same to Project manager and also communicate with executing agency on the current status and actions required to close the open UC

#### 13.2 Accident Analysis & Reporting

- In case of any accident (Major / Minor), Incident, near miss, such cases must be recorded in accident/ Incident report for carrying out root cause analysis and coming up with response plan/ corrective actions to ensure that such cases do not reoccur in future.
- In case of Major Accident leading to Major injury, hospitalization or fatality, the case must be reported to the top management of IGE as well as Customer safety department within 24 hours



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- All minor first aid cases must also be recorded at the Project First aid center.

#### 14 Motivation & Incentive Schemes

- At the end of each month, Safety Motivational Program to be organized by the safety department, to be attended by all the workers of the project, wherein the best 3 safety performance workers shall be nominated by the engineers, who shall be rewarded for their positive attitude and good safety practices. The award prize shall be of nominal amount but the program shall act as highly motivational personal factor for the Project environment.

#### 15 General Rule and regulation for all personnel

- a) Slogan “Safety starts with me and I am responsible for myself and my colleagues safety”
- b) If it is not safe “STOP the work” and inform to your supervisor.
- c) Always use the correct safety PPE and equipment
- d) Before entering the Work premises ensure that four basic PPE are worn, 1 Helmet, 2. Shoes, 3. Reflective vest and 4. Dust mask
- e) Keep surrounding clean.
- f) Do not eat food anywhere. Eat the food at the rest area or allocated dining area.
- g) Throw/ dump all rubbish or garbage in the dust bin
- h) No smoking & No alcohol at Project Construction Site.
- i) Always use toilet
- j) No Horseplay
- k) In case of any Siren, Immediately rush and assemble at the assembly point.
- l) If load is too heavy, take help of others to lift it.
- m) Never stand under suspended loads
- n) Work in well illuminated area
- o) Always attend Trainings, Tool box meetings
- p) All must understand and know the Emergency response plan.
- q) Always report UA and UC to the safety Officer.

#### 16. Penalty of Safety Violation

- a) **Removal from Project Site-** For more than 3 times, personnel that engage in such activities like drinking alcohol at site, stealing, vandalism, repeated failure to abide safety instruction, threatening behavior towards any worker, staff, security will result in their removal from site, confiscation of ID card and if deemed necessary- escorted to the local police station.
- b) **Minor offences** –For personnel committing minor offences, in most circumstances they will receive a verbal warning to rectify the situation immediately, however if refused to take actions or ignore the safety officers request their ID card No will be recorded, along with their offence and a penalty will be imposed on the workers. A minor offence is one where a worker is in violation of the rules, but nor causing himself or other immediate danger.
- c) **Major Offence-** A major offence being a violation of safety rules which places the workers or other personnel within immediate danger. In such a case a Stop Work order will be issued by the Safety officer and the workers would be asked to comply with the unsafe act or condition. Failure to which, severe action of removal from site along with moderate penalty will be imposed on the workers.





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17 Appendix

**A- INDUCTION TRAINING**

Project Reference : \_\_\_\_\_

<b>Name</b>	:		<b>Department</b>	:	
<b>Father's Name</b>	:		<b>Company Name</b>	:	
<b>Age</b>	:		<b>Date of Joining</b>	:	
<b>Company Introduction</b>			<b>Trained by</b>	<b>Date</b>	<b>Remarks</b>
Into- Organization Chart					
Products/ Services / Work Places					
Company Policy Rules					
<b>About Job</b>			<b>Trained by</b>	<b>Date</b>	<b>Remarks</b>
Job Description					
Introduction to department / area / supervisors and staffs					
Do's and Don'ts					
<b>Environment, Health &amp; Safety</b>			<b>Trained by</b>	<b>Date</b>	<b>Remarks</b>
About the Corporate Policy of IGE and Employer					
Risk Assessments					
Emergency procedures / Safety Precautions					
Assembly area					
First Aid & Fire Safety					
Working Time					
Bare minimum PPE requirements					
Safety precautions for working at Height, Hot work, electrical works, Heavy weight lifting, material handling.					
No Alcohol, Drugs while work					
Restriction of Mobile phone while work (if applicable)					
Smoking and Non Smoking zone and applicable fines					
Applicable local laws related to Labour ( Minimum wages, working time and others )					
Emergency contact Numbers					
Nearest Hospital					
<b>Equal Opportunity</b>			<b>Trained by</b>	<b>Date</b>	<b>Remarks</b>
Equal Opportunity Policy					
Harrasment & Bullying					
Grievance & Disciplinary					
<b>Staff/ Worker / Employee Signature</b>			<b>Trainer Signature</b>		



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**B TOOL BOX DISCUSSION**

Project : _____	Address : _____
Employer : _____	Supervisor: _____
Date : _____, Time : _____, Shift : _____	
Number in Crew : _____	Number attending : _____

**Topic discussed during the TBT / Other safety issues / suggestions made by the Crew Members**

_____
_____
_____
_____
_____
_____
_____
_____

**Participant List / Record of Attendees**

S.No	Name	Signature	Company Name
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Managers Remarks :** \_\_\_\_\_

--	--

Manager _____	Supervisor _____
---------------	------------------



IGE POWER COMPANY LIMITED

Health, Safety & Environment (HSE) Management Plan for Transmission Projects

C. UA / UC REGISTER

Project Reference : \_\_\_\_\_

S.No	Date	Details of UA / UC / Hazard	Location Details	Name of Person / Agency involved	Corrective Actions	Planned Closing Date	Sign of Observer	Actions Taken to Close with Date	Final Status Closed / Open



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**D. SAFETY INSPECTION CHECKLIST**

Project Name : _____	Location Name: _____
Event Name : _____	Execution Company Name: _____
Supervisor Name : _____	Inspector Name & Number : _____
Supervisor Phone No : _____	Date of Inspection : _____

Item	Yes	No	N/A	Date fixed	Item	Yes	No	N/A	Date fixed
<b>Pre-Event Planning and Management</b>					<b>Material / Storage Handling</b>				
Safety Notification Checklist completed					Material properly stored / stacked				
Emergency numbers/ contacts posted & distributed to staff and volunteers					Dust protection adequate				
Event safety Plan prepared					Loads lifted correctly				
Safety briefing prepared					<b>Poster Boards or Displays</b>				
Housekeeping / sanitation					Secured from falling				
Road closure / traffic control plan prepared					Placed on a levelled surface				
Size and type of crowd analyzed					<b>Compressed Gas</b>				
Hand washing / Toilet facilities					Cylinders secured				
Clean eating / dining area.					Valve cap in place when not in use.				
<b>Fire Prevention</b>					MSDS posted at use location				
Fire extinguishers available					<b>Ladders</b>				
Correct extinguisher for the type of fire anticipated ( Paper, Chemical, Electrical etc)					Ladders in good condition Note- Use only Aluminium ladder/ steel ladder... Wooden ladder is prohibited.				
No smoking posted and enforced.					Side rails extend 36" above landing				
<b>Stages/ Speakers/ Platforms</b>					Proper for job & secure				
Level					Inspected prior to use				
Free of trip hazard					<b>Scaffolding</b>				
<b>Tents</b>					Equipment in good condition				
Support post erected safely					Scaffold is tied to structure				
Posts tied down and secured by water barrels. Note- ground stakes are not permitted.					Guardrails, top, mid & toe boards in place				
Pole support lines do not present a hazard					Connctions , sound & secure				
<b>Hand &amp; Power tools</b>					Planking cleats in place				
Hand tool in good working condition					Workers protected from falling objects				
Cords in good condition					<b>Welding</b>				
All mechanical safeguards in place.					Screen & shield in place				
Proper tools utilized for each jobs					Electrical equipment grounded				
Tools grounded or double insulated.					Compressed gas cylinders secured & upright				
<b>Heavy Equipment</b>					Proper PPE are utilized				
Certified/ Trained operator					Fire extinguisher immediately available				
Brakes, lights, signals & alarm operable					Welding cables in good condition				
Wheels chocked when necessary					<b>PPE- Personal Protective Equipments</b>				
Seat belt equipped and used					Hardhats worn				
Pre-use inspection performed					Gloves available & used				
<b>Barricades &amp; Fencing</b>					Steel toe footwear				
Site fenced					Eye protection utilized				
Roadways and side walks fenced					Ear protection utilized				
Floor opening planked or barricaded					Safety harness & lanyards utilized				
Access/ Traffic controlled.					Resirators & masks utilized.				

<b>SUPERVISOR ( Working Team )</b>					<b>INSPECTOR (Safety Team)</b>				
Signature :					Signature :				
Name:					Name:				
Date:					Date:				



**IGE POWER COMPANY LIMITED**

**Health, Safety & Environment (HSE) Management Plan for Transmission Projects**

**E. WORK PERMIT**

**WORK PERMIT FOR HOT/ HEIGHT / EXCAVATION / ELECTRICAL/ CONFINED SPACE WORKS**

Date Issued : \_\_\_ / \_\_\_ / \_\_\_ ; Time Issued \_\_\_\_\_  am  pm Date Expires \_\_\_ / \_\_\_ / \_\_\_ , Time Expires  am  pm

<b>Nature of Work Permit ( Click Appropriate )</b>	<input type="checkbox"/> Hot work	<input type="checkbox"/> Height Work	<input type="checkbox"/> Excavation	<input type="checkbox"/> Electrical	<input type="checkbox"/> Confined Space
--	-----------------------------------	--------------------------------------	-------------------------------------	-------------------------------------	---

**Work Location & Description**

HOT WORK	√ Appropriate		HEIGHT WORK	√ Appropriate		EXCAVATION	√ Appropriate													
	OK	Not OK		OK	Not OK		OK	Not OK												
1. Welding Machine good and grounded			1. All workers trained and possess height pass			1. Check no underground Utility like HT Cable, Gas line, Water pipe line etc.														
2. Oxy-Acetylene Cylinders in good conditions, kept on mobile stand			2. Adequate Scaffold & Standing platform			2. Check Condition of Excavator and Driver's valid operator license.														
3. Flash back arrester at both ends			3. Towers- Vertical life line + Fully body harness with 2 lanyards + Fall back arrester for all workers			3. Provide slope cutting to avoid soil collapse														
4. Fire extinguisher provided / Sand bucket arranged.			4. All tools, ropes, pulleys in good condition			4. Park Excavator 1M away from edge of Pit														
5. Leather Hand gloves and Fire blankets			5. All required PPE's available			5. Dump excavated earth away from edge of the pit														
6. Combustible removed/ protected			6. No wooden ladders, Only metal or aluminium ladders			6. Barricate Pit after excavation														
7. Energy Isolation Plan						7. Tool box talk / meeting														
ELECTRICAL WORK	√ Appropriate		CONFINED SPACE	√ Appropriate		<p align="center"><b>Declaration by Reciever &amp; Issuer</b> - I have inspected the Job site and verified that all condition of the applicable permit are met.</p> <table border="1"> <tr> <td></td> <td align="center">Reciever</td> <td align="center">Issuer</td> </tr> <tr> <td></td> <td>Sign:</td> <td>Sign:</td> </tr> <tr> <td></td> <td>Name:</td> <td>Name:</td> </tr> <tr> <td></td> <td>Company:</td> <td>Company:</td> </tr> </table>				Reciever	Issuer		Sign:	Sign:		Name:	Name:		Company:	Company:
	Reciever	Issuer																		
	Sign:	Sign:																		
	Name:	Name:																		
	Company:	Company:																		
1. Lock out/ Tag out ( LOTO )			1. Energy Isolation Plan																	
2. Discharge the line by discharge rod			2. Forced ventilation required.																	
3. PPE's like HT/ LT hand gloves. Face shield, insulated shoes.			3. Low voltage equipment																	
4. Test for absence of Voltage.			4. Entry / Exit identified.																	
5. Determine all possible source of energy			5. Safety Attendant Log																	
6. Shock treatment chart displayed and workers are trained			6. Bottle Watch attendant.																	
7. Tool box talk / meeting done.																				



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F. STOP WORK ODER

Myanmar Labour Laws
A Stop work order violation shall constitute a Class 1 misdemeanor.
Daily fines may be levied.

Date: Target Date of Compliance Issued to: (Name of Supervisor & Company)
Project Name: Contract ref No:

WORK TO STOP

The following work to be stopped with immediate effect

CIVIL: Footing, Slab, Foundation, Framing, Road/Drain/Trench, Backfill/Excavation
ELECTRICAL: Welding, Temporary Power, Generator, Electrical Installations
MECHANICAL: Gas Cutting, Heavy/Light Crane, Tower/Equipment/Stringing Installation, Loading/Unloading, Height Works
PLUMBING: Gas Cutting, Heavy/Light Crane, Backfill/Excavation, Height Works, Underground Works, Loading/Unloading

Brief description of Safety Violation :

Work may resume after below metioned compliances :

Office Use only

Inspector Name Phone



### G. INCIDENT / ACCIDENT REGISTER

Project Reference : \_\_\_\_\_

S.No	Date	Time of Occurrence	Complete details of Incident / Accident	Name of person Involved / Injured	Remedial Action Taken	Action By	Date	Time	Matter informed to Client / HQ, Date Time and by Person Name



IGE POWER COMPANY LIMITED

Health, Safety & Environment (HSE) Management Plan for Transmission Projects

**H. HSE STATISTICS**

Project: \_\_\_\_\_

Client : \_\_\_\_\_

Main Contractor: \_\_\_\_\_

Contract ref No : \_\_\_\_\_

Sub Contractor: \_\_\_\_\_

FOR THE MONTH OF \_\_\_\_\_

S.No	Parameters	Unit	Upto Previous Month	Current Month	Total
1	Safe Mandays	Days			0
2	Safe Manhours	Hours			0
3	Unsafe Acts Recorded	Nos			0
4	Unsafe Acts Resolved	Nos			0
5	Unsafe Conditions Recorded	Nos			0
6	Unsafe Conditions Resolved	Nos			0
7	Near Miss Recorded	Nos			0
8	First Aid / Injury Recorded	Nos			0
9	Minor Incident recorded	Nos			0
10	Major Incident recorded	Nos			0
11	Mandays Lost	Mandays			0
12	No of Training imparted	Nos			0
13	Induction Training Imparted	Nos			0
14	Tool Box Talks	Nos			0
15	Monthly Safety Committee Meetings	Nos			0





## I. WEATHER REPORT

Project	:																
Site	:																
Client	:								Main Contractor	:							
Contract Ref No.	:								Sub-Contractor	:							

### FOR MONTH/ PERIOD \_\_\_\_\_

Date / Time	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
12:00 AM	■		■					■				■					■		■						■			■			
1:00 AM																															
2:00 AM			■									■																			
3:00 AM												■																			
4:00 AM	■							■									■		■						■						
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9:00 PM																															
10:00 PM																															
11:00 PM																															
RAIN GAUGE READING (mm)	80.0	0.0	35.0	5.0	0.0	0.0	0.0	100.0	15.0	0.0	0.0	23.0	0.0	0.0	13.0	0.0	15.0	0.0	36.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0	80.0	8.0	10.0	0.0
Rainy Hrs	4	5	4	2	0	0	0	5	4	4	5	4							4												

**Total Rain hours during the period**      **37**

LEGEND:  
 CLEAR  
 RAIN



## IGE POWER COMPANY LIMITED

### Health, Safety & Environment (HSE) Management Plan for Transmission Projects

	Prepared by	Reviewed & Approved by	Issued by	Doc. Control
Signature			<i>Bhaskar Kannan</i>	IGEP-QMS-IPTD-MGMP-HSE-001-R0-150319
Name	Mr. Sunit Sengupta	Mr. Zay Latt Win	Mr. Bhaskar Kannan	R0
Designation	Sr. Manager	COO	General Manager	Pages: 26
Date	04-Mar-2019	12-Mar-2019	15-Mar-2019	Effective date: 15-Mar-2019