Diesel Generator Installation, Testing, & Commissioning (ITC)

Method Statement

[Company]
[Company Address]
[Company E-mail]
[Company Phone]

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Project Credentials	
Project Name	
Project Ref #	
Site Name	
Location	

Client Credentials			
Client Name			
Address			
Contact #			
Concerned Person		**Designation**	

Contractor Details			
Contractor Name			
Contractor Ref #			
Address			
Contact #			
Concerned Person		**Designation**	

Other Details	
Onsite First Aider	
First Aid Kits Location	
Fire Extinguishers	
Site Supervisor Name	
Project Engineer Name	
Project Safety Officer	
Emergency Contact #	
Hospital Contact #	
Rescue Service #	
Police Station #	

1. Purpose

The purpose of the document is to provide details and guidelines on installation, testing, and commissioning of the Diesel Generator (KV) at the client's location as per the project requirements and ensure it complies with the project specifications.

2. Scope

The scope of the safe work method statement is applicable to everyone involved in the work activity, including contractors and sub-contractors.

3. Terminologies

S/#	Term	Description
1	CEO	Chief Executive Officer
2	MD	Managing Director
3	HSE	Health and Safety
4	HIRA	Hazard Identification & Risk Assessment
5	ITC	Installation, Testing, and Commissioning
6	PPEs	Personal Protective Equipment
7	QA	Quality Assurance
8	QC	Quality Control
9	MS	Method Statement
10	MEP	Mechanical, Electrical, and Plumbing
11	MIR	Material Inspection Request
12	ITP	Inspection and Test Planning
13	TBT	Tool Box Talk
14	HSG	Health and Safety Guide
15	TSHIRA	Task Specific Hazard Identification and Risk Assessment
16	KV	Kilo Volts
17	Hz	Hertz

4. Roles and Responsibilities

4.1. CEO/MD

- Provide resources to perform the activity and comply with the requirements.
- Provide guidelines and direct the team to perform planning.
- Review the planning and documentation and approve.
- Provide resources to train the workers to perform the job.
- Provide resources to conduct the risk assessment, prepare installation and testing plans (ITP).
- Provide resources to conduct the incident investigation and detect & identify the root causes.

4.2. Project Engineer

- Prepare the project documentation and plan the execution in phases.
- Prepare the method statement and implement it.
- Review the documentation from the civil and electrical departments and provide guidelines.
- Assist in the identifying the hazards, risks, and suggesting controls.
- Check if the project is being performed as per requirements.
- Review the changes in the project and implement them.

- Ensure all of the incidents are investigated and their root causes are recorded.

4.3. Safety Officer

- Provision of the guidelines and information to plan and execute the work activities.
- Identification and controls of hazards and corresponding risks.
- Inspection and testing of the work equipment and tools to ensure they are safe for use.
- Monitoring of the workplace, work activities and ensure workers are aware of their responsibilities.
- Develop and implement work procedures and methodologies.
- Incident investigations and reporting to the higher management.
- Emergency response planning and implementation.
- Training and development of the workforce to ensure they are competent enough to perform the job.
- Other tasks assigned by the top management.

4.4. Site Supervisor & Foreman

- Manage the workplace and work activities.
- Ensure workplace is safe for use and free of hazards.
- Ensure the implementation of the work methods and organizational policies.
- Report any kind of incident, accident, hazard to the higher management and safety department.
- Participate in toolbox talks, emergency drills, meetings, and trainings.
- Participate in Incident investigations on regular basis.

4.5. Project Engineer

- Planning of work and guidelines to perform the job.
- Assistance in Risk Assessment, Hazard Identification, Controls suggestion, as well as accident investigation.
- Deciding & implement training plans of the workforce so that they are trained & competent to do job.
- Monitoring of work activities to ensure they are performed as per plan and agreed standards.
- Other tasks allocated by the management.

4.6. Supervisor

- Perform the job activity and direct the workers.
- Monitor the job activities and prepare the day-to-day job reports.
- Conduct site inspections and surveys to ensure the workplace is free of hazards and risks.
- Conduct the toolbox talks, training session in collaboration with HSE person.
- Report all incidents to the higher management for investigation and assist the investigation team.
- Other responsibilities allocated by the management.

4.7. QA/QC

- Ensure the equipment is as per approved standard.
- Ensure if the work is being performed as per agreed quality standards.
- Ensure the workers are aware of the quality standards and working accordingly.
- Check and inspect the project quality is as per the agreed standards.

4.8. Site Supervisor

- Ensure the worksite is free of hazards.
- Ensure the workers are trained and toolbox talk is provided.
- Ensure the workers are working as per method statement.

- Ensure the material being used is as per agreed quality and quantity.
- Ensure the all incidents are investigated, provide assistance investigation & maintain record.

5. Execution Commitment

- Method Statement for Diesel Generator (KV) installation, testing, and commissioning is applicable to all of the workforce including contractors and sub-contractors.
- Change in the method statement, project, equipment or workforce shall be subject to review and approval from the top management.
- Copies of the method statement, drawings, survey, and material submittal will be available onsite.
- Supervision will be performed throughout the project execution.
- Inspection, Testing, and Commissioning will be performed, in the presence of the client.
- Any kind of hazard, and or unsafe condition/activity will be reported to the higher management.
- Due to any unsafe condition, activity where harm can be experienced, stop the job.
- Use of trained and experienced workforce is mandatory.

6. Health and Safety Hazards

Before the start of the job, project team comprising of project manager, engineers, safety officer, and site supervisor will conduct Task Specific Hazard Identification and Risk Assessment (TSHIRA) to identify the potential hazards and corresponding risks to ensure they are controlled and mitigated to the minimum level.

As the work activity has multiple processes involved to be performed, following safety actions will be taken;

- The site is safe for work execution, and the workplace is free of potential hazards.
- The equipment and tools are certified, inspected, and well-maintained before start of the job.
- The generator will be lifted after the preparation and implementation of "**Lifting Plan**".
- The generator will be lifted using the inspected and maintained crane.
- The generator will be lifted using the relevant and inspected lifting accessories.
- The generator will be lifted using the appropriate lifting points.
- If lifting points are not available on the load, consult with the lifting supervisor.
- The firefighting and first aid arrangement shall be made onsite.
- Trained first aider and firefighters will be available onsite.
- Trained workers will be employed for the project execution.
- Workers will be provided with the PPEs and proper tools.

7. Site Safety Checks

- Inspect the safe access and egress points for workers and vehicles
- Ensure the workers have segregated access/egress passage from vehicles.
- Identify and inspect the location for crane deployment, for picking up the load and depositing safely.
- Ensure there is no flammable material stored nearby the crane and other heat producing equipment.
- Double check to ensure the workers are trained and informed about the lifting activity.
- Check for the nearby objects and structure near the crane deployment location and ensure a safe distance is maintained at all.
- Ensure there is enough space for independent movement of rear end of the crane.
- Ensure the pedestrians and other passageways are outside the crane operating radius.
- Ensure the other traffic movement nearby is controlled through adequate management.
- Ensure the crane is not placed right above the underground services.

- Ensure the crane is not placed over or near the recently filled trenches.
- Ensure the worksite is provided with appropriate lighting arrangements.
- Ensure the workplace is provided with good housekeeping arrangements.

8. Material Transportation, Inspection and Storage

- The diesel specifications are;

i. Manufacturer Name:
ii. Model Number:
iii. Voltage: [KV] [Hz]
iv. Type:

- The generator will be transported using a trailer with flatbed and placed properly.
- Road transportation authority shall be notified and road permit should be obtained for transporting high object over trailer.
- Generator should be secured using the appropriate accessories e.g., belts, and ratchets.
- The vehicle carrying the generator will enter the site from the designated entry point.
- The vehicle carrying the generator will park on the designated location.
- The site supervisor will review the documents and tally the equipment list with supplied quantity.
- Ensure the supplied equipment and accessories are of approved standard, not damaged, & fully covered.
- If anything is missing or not supplied, higher authorities will be notified to contact the supplier.
- Before acceptance, submit **Material Inspection Request (MIR)** by the contractor/consultant and ensure they inspect it carefully and thoroughly.
- Once the vehicle is clear and parked at safe location, off-load the generator or let it remain on trailer and cover with water proof sheet.

9. The Load (Diesel Generator) Safety

- The correct weight of the load must be obtained before lifting for offloading & placement.
- Check with the relevant load chart to ensure safe load lifting operation at all lifting radius.
- The load should be secured before lifting.
- Lifting accessories should be used for appropriate lifting points.
- Use taglines to keep the load safe and prevent independent movement.
- Use banksman/helper to guide the crane operator when working outside the direct line of sight.

10. Civil Work & Foundation Preparation

- The foundation shall be prepared before the installation of the generator.
- Civil department with civil engineers will conduct the site survey, prepare the survey report and present it to management and propose foundation design.
- The foundation drawings will be presented, and one approved, preparations will be done.
- Ensure the foundation is provided with the foundation bolts as per the approved drawings.
- Make sure the concrete foundation is prepared as per the approved standard, and correct ratio of the concrete is used.
- All of the accessories that are to be underground, should be placed accurately as per drawings.
- Once the foundation has been prepared, it should be given time to dry up and cover with the tarpaulin.
- Cover the site with the barriers and warning signs to alert others.
- Ensure all of the safety precautions are in place.

11. Diesel Generator Installation Procedure

- Once foundation is ready, the crane installation process can be launched.
- Check if the all-civil work has been completed, the foundation is ready to be used.
- Ensure the work is being done in safe and favorable conditions, the area if free of hazards.
- The work permits applicable e.g., lifting work permit and lifting plan should be acquired.
- Before the generator transfer, paint its base/plinth with cohesive paste.
- If the load is placed on ground, lift it properly using lifting accessories attached at correct points.
- If the load is still on trailer, bring the trailer near the installation location and park in an appropriate location where both trailer and crane don't affect each other during off-loading.
- Ensure the generator orientation/direction with regards to foundation bolts, cables, diesel tank, exhaust system and ventilation system is correct as per the drawings.
- Use taglines to control the movement of the generator during lifting and placement.
- Lower the generator to the concrete base slowly and accurately.
- Once done, place the bolts on the foundation bolts, and use wrench to tight it and secure generator.
- Once satisfied, the orientation is correct, and generator is placed properly, remove the lifting accessories and move the crane away from the site.
- Inspect and install the diesel tank, control panels, lights for control.
- Place the incoming and outgoing cables on the generator, and ensure the cables are supported and secured as per the drawings.
- When using the cable lugs, cable tray, cable glands, ensure they are of approved standard and provided by a certified and approved manufacturer.
- When termination work is done, clean the generator cable from all kind of foreign objects & material.
- Check and confirm all of the connection electrical and mechanical are properly made. Any fuel leakage is corrected immediately.
- Use torque wrench to ensure all bolts are tightened to the required torque.
- Mark the cables, & terminals to ensure they are connected accordingly, wrong connection is prevented.
- Cover the cable box, and other open controls and ensure they are locked and secured properly.
- Earth the generator as per the drawing, and ensure it is done by competent person properly.
- Ensure the workmanship is impeccable as per standards and quality expected by the client.

12. Inspection, Testing & Commissioning

Once installation is done, the project manager, electrical engineer, civil engineer, supervisor, foreman, safety officer will make preparations for the Inspection and Testing of the installed generator for the commissioning purpose.

- A **Request for the Inspection and Approval (RFIA)** will be launched for the commission purposes. The request will contain the following information listed below;
  i. Scope of inspection
  ii. Test methodology
  iii. Test report
  iv. Drawings and guidelines document
- The client and contractor both will jointly inspect the equipment systematically, and workmanship.
- Inspection and Testing team will use the already prepared documents to inspect the installed generator, these documents include, **Inspection Checklist**, and **Testing Plans**.

- Engineers will complete their inspection procedure and raise a **Request for Inspection and Approval (RFIA)** along with the inspection checklist to the Quality Department for internal inspection.
- Quality Department will inspect the whole system and documentation and process the documentation to get the work inspected by the consultant for approval.
- Once inspection process is over, & consultant is satisfied, the testing & commissioning phase will start.
- The team of client, contractor, and manufacturer will perform the test run for commissioning process.
- Test report will be prepared and submitted to the consultant for approval.
- If the consultant is satisfied, and test results are as per requirements, consultant will approve it.

13. Manpower

S/#	Manpower	Qty.
1	Project Manager	
2	Project Engineer	
3	Electrical Engineer	
4	Assistant Electrical Engineer	
5	Civil Engineer	
6	Assistant Civil Engineer	
7	Site Engineer	
8	Site Supervisor	
9	Safety Officer	
10	QA/QC Engineer	
11	Foreman	
12	Worker	
13	Crane Operator	
14	Rigger	
15	Banksman	

14. Work Permit System (WPS)

S/#	Permit Detail	Permit Duration		Issued By	Status
		Issue Date	End Date		
1	Permit 1				
2	Permit 2				
3	Permit 3				
4	Permit 4				

5	Permit 5				

15. Training Requirements

S/#	Training Requirements	Training Date & Location	Trainer	Status
1	Training Topic 1			
2	Training Topic 2			
3	Training Topic 3			
4	Training Topic 4			
5	Training Topic 5			

16. Tools & Equipment

S.#	Equipment & Tools	Qty.
Equipment		
1	Mobile Crane	
2	Forklift *(if applicable)*	
3	Insulation Tester	
4	Mechanical Torque Wrench	
5	Insulation Test Meter – Megohmmeter	
6	Earth Ground Tester	
7	High Voltage Tester	
Tools		
1	Electrical hand tools	
2	Crimp Tool – Cable Peeler and Connectors	
3	Spanner	
4	Drill Machine	
5	Screw Drivers	
6	Wrench	
Tools		
7	Plier	
8	Crowbar	
9	Hammer	
9	Torque Wrench	

S.#	Equipment & Tools	Qty.
10	Open Wrench	

17. PPE Requirements

S/#	PPEs	Qty.
1	Masks/ Respirators	
2	Gloves	
3	Helmets	
4	Coveralls	
5	Safety shoes	
6	Goggles/ Face Shields	
7	Ear Muffs/ Ear Plugs	
	Total Quantity	

18. Safety Guidelines

Following safety actions must be taken during the work execution for the safety and security of the everyone;

- Emergency response plan should be implemented.
- Certified and experienced workforce should be hired for job.
- All equipment should be calibrated, tested, and relevant.
- Safety signs, should be posted.
- Workers should be provided with the PPEs.
- Emergency equipment should be available in ready condition all the time.

19. Relevant Documentation

1. Project Management & Quality Plan
2. HSE Plan
3. Civil Survey Report - Approved
4. Civil Foundation Report - Approved
5. Electrical Drawings – Approved
6. Equipment Inspection Checklist
7. Task Specific Hazard Identification & Risk Assessment
8. Electrical Cable Wiring & Installation Method Statement – Approved
9. Material Submittal Report
10. Equipment manufacturer Installation, Testing, and Commissioning Guide (ITC)