



KOJIS
GLOBAL SERVICES NIG. LTD.

Document Title: Quality Assurance & Quality Control Plan

Document No: KGSNL-QAQC-QCP-006

Revision No: 0

Quality Assurance & Quality Control Plan

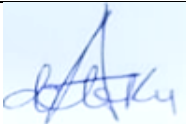
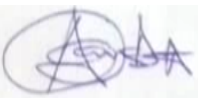

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PURPOSE

The purpose of this plan is to highlight Kojis Global Services Quality Policies directed at rendering high quality services to the utmost satisfaction of our noble clients.

WORKS CARRIED OUT BY OUR COMPANY

Our company specialized in consulting and contracting of mechanical/elect & elect/telecoms & instrument / civil works and also in the supply of parts in the aforementioned fields. Details of the works carried out include the following:

1. Industrial installation e.g. MCC, PMCC, DCP Panels, L. V, M. V, H. V, Power Transformers; Voltage/Current Surge Suppressor Devices; Automatic Power Mains failure Change-Over Switch PANEL
2. Maintenance of Electrical/Mechanical Systems/Instrument, Telecom Equipment. Etc.
3. Rural Electrification/Maintenance. General Industrial Cable sizing & laying works.
- 4i. Construction of Electrical Control/Power Panels
- 4ii. Construction of Auto – water treatment process control electrically on large scale.
- 5i. Designing of Electrical Systems
- 5ii. Designing of Electronic controls Systems e.g. underground/Borehole water Quantity and level indicator machine.
6. Rewinding of Electric Motors, Alternators, Transformers, Coils, Inductance Transformers
- 7i. Servicing of Hydraulic Systems, Compressors, and Generator sets including Overhauling, etc
- 7ii. Installation & Maintenance of Electro – Mechanical Machines and equipment
- 8i. Pipe fitting, fabrication and Mechanical Installation
- 8ii. Platform/Skid Constructions and installations
- 9i. Supply of Electrical Materials including rewinding materials.

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- 9ii. Supply of mechanical materials/parts/equipments and installations
- 10. Supply of Electronics Parts, Oil Tools and Safety Equipment.
- 11. Construction and maintenance of cold Rooms.
- 12. Civil work plan, construction, erections and modifications.

QUALITY ASSURANCE MEETINGS

This Quality Assurance Policy and procedure have been put together with the Management and the entire employees of Our COMPANY to be abided by. Routine Quality meetings shall be held by last Friday of every MONTH. These meetings shall be strictly observed until this policy is further reviewed.


QUALITY ASSURANCE POLICY AND MANUAL

Our company maintains a high quality control/Assurance Policy for the services rendered to her clients. It is based on the principle of detailed planning; communication and meticulous inspection/supervision to make sure that her employees render the best-expected professional Engineering services and Technical support/supply to her clients.

OPERATING PROCEDURE

In this regard, all employees of this company owe it a duty to ensure that quality work is attained. Therefore our quality Assurance policy is focused as follows:

- i) A thorough study of the work to be done is carried out.
- ii) The work is planned and categorized to conform to expected quality & standards.
- iii) Some personnel are assigned for verification and inspection activities, independent of those involved in the direct work.
- iv) The work is categorized, executed, inspected and certified on a milestone basis.
- v) The work is performed in according with the approved professional standard and general specifications in line and conformity with the client's requirements.
- vi) The achieved quality meets the standard expected by the management representative and the client" inspectors through their test audit.

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QUALITY PROJECT PLAN

Once the design and the general picture of the process of work to be done is established a flow process chart or work schedule plan is defined, starting from site inspection and mobilization stage and stating the planned:


- a) Duration of work
- b) Earliest starting Date
- c) Completion Date
- d) Periodic Breaks
- e) And appropriate work process

The work process involved is classified into Man type, Material type and Equipment type.

Man Type: This is the process chart that records what the worker does.

Material Type: This is the process chart that records what happens to materials and where they are to be used.

Equipment Type: This is the process chart that records how and when equipment is used.

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PROCUREMENT OF MATERIAL/MOBILIZATION

The materials mobilized on site are categorized into Equipment, Tools, and items to be put into the work consumables. They are taken down to the site and inspected for suitability of the work at hand.

PROCUREMENT OF MATERIAL

We source our materials/parts from reputable and accredited sources both locally and through overseas associates. And we use only cables and electrical accessories approved by the recognized standard organizations.

MOBILIZATION AT SITE


- a) Based on the Work plan/schedule, materials are mobilized and arranged in proper custody at site before the starting of work.
- b) These materials and Equipment are inspected and certified okay before use.
- c) Definite and fixed stations are provided for all the tools to permit habit formation.
- d) Tools and materials are pre-positional to reduce time wasted in searching.

WORK EXECUTION

As a Mechanical and Electrical Company in the business of installation, construction, maintenance and repair works, based on the outlined work plan, we design (where necessary) or study the existing design of the work to be done for possible modification before actual work execution.

We put forward and answer questions on the design model such as:

- (a) Is it necessary to change the design?
- (b) Can a better or equivalent result be obtained by changing the design?
- (c) Would a change in design mean an increased market?
- (d) Can a standard part be converted to do the job?
- (e) How can a better quality service be achieved?

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MILESTONE WORK EXECUTION:

Our job is usually classified in milestone groupings and owes normally the obligation to notify our clients to assess and certify each milestone completed before embarking on the next stage of work.

COMPLETION OF CONSTRUCTION WORK

Before the work is certified as completed, it is subjected to management visitation, quality assurance report, clients' assessment report and the independent inspector's certification, based on which a final completion certificate is given.

COMMUNICATION TO PERSONNEL


Our personnel are always well informed on our quality assurance plan, once the plan is certified and approved; communication to staff involved in the work takes the following well-established pattern to attain high quality work.

Questions such as:

- a) The purpose?
- b) The place?
- c) The sequence?
- d) The persons?
- e) The means?

Is concisely answered and communicated to staff in line with:

- a) What should be done - The objective of the final result of the work as will be beneficial to the client, our company and the general society.
- b) Where it should be done - The site where the work is to be executed, the extent of area to be affected and the access routes to the site.
- c) When it is to be done - This is the well thought systematic chain of process involved in the execution of the work.
- d) Who is to do it - A collection of staff based on qualification, experience, and manpower development and inter – personal relationship to form a first class work team
- e) How and what it takes to be done - The materials/equipment required for performing

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the work ensuring high-grade materials and proper use of equipment.

QUALITY ASSURANCE MEETINGS:

On a routine basis the company organizes quality assurance meetings monthly & on Ad – hoc basis, whenever any contract is awarded or is in progress. These meetings form a vital communication medium for our staff as concerning the quality of work expected from them.

The Quality Assurance Supervisor Ensures:

- a) That the quality Assurance meetings are held.
- b) That all members of staff are informed on the resolutions agreed on.
- c) That the Management is at all times briefed on situations arising.
- d) Those records of quality Assurance Reports are kept.

INSPECTIONS AND SUPERVISION


QC/QA reports shall be adequately executed based on the outlined specification.

SUPERVISION:

All stages of work are supervised by a quality assurance supervisor who follows up the work to certify that it is carried out as per the company’s scheduled plan and makes sure that the stated precautions and steps are strictly observed and finally reports to management. He liaises with our client to make sure that any correction or adjustment is properly made to the work.

INSPECTION/TEST AUDIT:

Our work process is open for inspection and constructive recommendations and suggestions by our clients’ inspectors. Their findings are channeled to management through the site supervisor so as to attain the expected quality of job. These inspectors are independent of our company and every other person directly responsible for the work. Based on the supervisors’ report to management and the independent inspectors’ report, the management if need be, reviews the quality management system and communicates a feed back to the personnel involved in the work.

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TESTING AND COMMISSIONING

It is our practice to subject our work to testing and commissioning before a formal hand over to our noble client.

FILLING AND DOCUMENTATION

For the purpose of interpretation, reference and future maintenance of our work, we undertake As-Built-Drawings and designs of our construction and Installation works for the keep of our clients.

TECHNICAL DETAILS ON QUALITY CONTROL PLAN

KOJIS GLOBAL SERVICE COMPANY shall make Formats/charts available on project site for technical inspection report/documentation. The chart shall include the following:

QUALITY CONTROL PLAN (QCP) ON ELECTRICAL EQUIPMENT INSTALLATION

The chart shall include such details as subheading: The client, the contractor, plant location, project name and subunit, Drawing number and Revisions with dates, Job number etc.

Field scope of activities shall include but not limited to the following, under the subheading in the chart.

DOCUMENTS CONTROL


- Check of availability of documents in latest revision and it shall be visual through document list.

REALIZATION ACTIVITIES

- Check of correct equipment marking and conservation before installation has to be assessed
- Check of fixing system and cable connections to be assessed visually and dimensionally.
- Check of earthing system connection to be assessed

FINAL CHECK

Final check inspection and final documentation including hazardous area certification (QCP AS-BUILT DWG) shall be assessed and recorded in the chart.

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COMPONENT OF AN ELECTRICAL EQUIPMENT:

Component of electrical equipment shall have a control sheet and shall have the following but not limited to such in the chart.

- The chart shall include the supplier of the equipment, our noble client and KOJIS GLOBAL COMPANY (contractor). And the column of each item shall be adequately indicated and marked.
- The chart shall include description of the part or component, Drawing No/Part No.

ELECTRICAL EQUIPMENT POSITIONING REPORT:

The chart shall include but not limited to subheading: The client, the contractor (KOJIS GLOBAL COMPANY), plant location, project name/unit, equipment – identification, Area of plant and latest DWG.


The inspection checklist shall include but not limited to the following:

- Check of equipment marking.
- Check of correct positioning of equipment.
- Altimetrical
- Plan metric
- Leveling
- Fixing
- Earthing system connection.

Remarks/observations shall be made and assessed based upon conformity/non conformity checks.

QCP ON MECHANICAL EQUIPMENT INSTALLATION

All the protocols earlier emphasized shall be applicable to the scope on quality control plan towards mechanical Equipment installation, component installation and positioning of mechanical equipment.

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**QCP ON INSTRUMENTAL AND TELECOMMUNICATION EQUIPMENTS
INSTALLATION**

The charts drawn for use on electrical equipment installation shall be applicable equally to the installation of instrumental and Telecommunication equipments and their components.

QCP ON CABLE TRAYS AND CONDUIT INSTALLATION

The detailed chart on cable trays and conduit installations shall have the following but not limited to as subheading: the client, the contractor (KGS), plant location, project title and subunit/area, drawing No with Revisions and dates, Job No. etc.

Field scope of activities shall include but not limited to the following, under the subheading in the chart.

DOCUMENTS CONTROL

Check of availability of documents in latest revision and it shall be visual through document list.

REALIZATION ACTIVITIES:

- Check of cable trays and conduits supports.
- Check of cable trays and conduit positioning
- Check of cable trays and conduit identification
- Check of earthing system connections.

FINAL CHECK

Final check inspection and final documentation (QUP AS-BUIT DWG) shall be assessed and recorded in the chart.

CABLE TRAY AND CONDUIT COMPONENT

Cable tray and conduit component shall have a control sheet and shall have the following but not limited to such in the chart.

- The chart shall include the supplier of the materials, our client and our company (contractor) Identities.
- The chart shall include description of the part/component, Drawing No/Part No.

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QCP ON CABLE TRAYS AND CONDUITS REPORT

The chart shall include but not limited to the following subheadings: The client, the contractor (K G S) Identities, plant location, project name/ area/Unit / latest drawing / project No etc.

The inspection checklist shall include but not limited to the following in the chart;

- Check of cable trays / conduits supports.
- Check of cable trays and conduit positioning
- Check of cable trays / conduit identification.
- Check of earthing system connection.

Remarks/ observation shall be made and assessed based upon conformity / non-conformity checks.

QCP ON ELECTRICAL, INSTRUMENT / TELECOMMUNICATION CABLES

INSTALLATION

The detailed chart on electrical, instrument / telecommunication cables installation shall have the following but not limited to as sub headings:


- the Client/ the contractor (kas) plant location / project – title / area / unit
- Drawing no with revisions and dates, job no etc.
- Field scope of activities shall include but not limited to the following under the sub headings in the chart:

Documents control

Check of availability of documents in latest revision and it shall be visual through document list.

Realization activities

- Check laying of cable in trays and conduits
- Check of cable identification
- Check of fixing and connection to the equipments

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Final check

- Continuity checks
- Final check inspection and final document
- QCP As-built (D W G) shall be assessed and recorded in the chart.

COMPONENT OF AN ELECTRICAL / INSTRUMENT / TELECOMMUNICATION

CABLES INSTALLATION

Component of electrical/instrument/telecommunication cables installation shall have a control sheet and shall have the following but not limited to such in the chart.

- The chart shall include the supplier of the equipment, our noble client and KOJIS GLOBAL COMPANY (contractor). And the column of each item shall be adequately indicated and marked.
- The chart shall include description of the part or component, Drawing No/Part No.

QCP ON CABLE TEST REPORT


The chart shall include but not limited to the following subheading: the Client, the contractor (KAS) identities, plant location / project title /area /Unit latest drawing / project no / cable type/ voltage rating, Weather condition / ambient temperature etc.

The inspection checklist shall include but not limited to the following in the chart;

- Check on cable sizing
- Identification checks for proper routing and correct termination.
- Continuity check.
- Insulation tests/ checks before back fill/ after- back fill and before energize etc.
- Insulation checks/ schedule shall be for phase to phase and ground / then all phase to ground and the values in Giga /mega ohms to be assessed.

Final remarks / observations shall be made and assessed based upon conformity /non-conformity checks.

All the QC / QA analysis emphasized above shall be applicable to the following amongst others:

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- CONSTRUCTION / INSTALLATION AND COMMISSIONING OF LOW VOLTAGE POWER PANELS.
- CONSTRUCTION / INSTALLATION AND COMMISSIONING OF HIGH VOLTAGE POWER PANELS
- CONSTRUCTION / INSTALLATION AND COMMISSIONING OF ELECTRO-MECHANICAL CONTROL / POWER PANELS (MCC & PMCC)
- CONSTRUCTION AND INSTALLATION OF CABLE TRAY SYSTEM IN PLANTS.
- INSTALLATION OF EARTHING SYSTEM = INSTRUMENT & PROTECTION EARTHING SYSTEM.
- INSTALLATION AND COMMISSIONING OF POWER GENERATION PLANTS.
- INSTALLATION AND COMMISSIONING OF ALL CONTROL CABLES OF ALL CATEGORIES AND CLASS.
- INSTALLATION OF ALL CATEGORIES OF EXPLOSION PROOF FITTINGS.

DETAILS OF PRECOMMISSIONING / COMMISSIONING AND FIRST START UP PROCEDURES

Kojis Global Services Company with her well qualified and professional Engineering Team always make sure that her numerous noble clients have been satisfied by eliminating doubts and promotes CONFIDENCE by way of executing proper test schedule on installed equipment/machineries/accessories etc., before putting them into work. Among many other equipments/machineries/accessories checked, tested, Commissioned by our humble company includes but not limited to the following.

ELECTRICAL CABLES

The chart for the scope of activities of precommissioning / commissioning and start up procedure shall include but not limited to the following subheadings: our noble client's identify, the Contractor (KOJIS GLOBAL SERVICES LTD), the plant location and Area/unit, drawing code for the job with latest revision and Dates, Job No. and title of the activity etc.

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The entire table/chart for activity records shall include but not limited to the following titles:

- Description of Equipment for the cable.
- Equipment No/ Serial No
- Equipment manufacturer/construction type.
- Uo/u rated voltage.
- Installation whether New or in operation since.
- Test equipment identity
- Vendor Drawing/specification & contractor's drawing and specification
- Reference documents
- Ambient Conditions like Temperature and Climate
- Mechanical Completion Inspection report whether positive/ negative


Tabulated chart for cable tests / Records shall include but not limited to the following:

- Cable Position
- Cable Code
- Cable Formation by section
- Total length of travel of the cable
- Number of Joints effected along the routing
- Type of cable installation
- Measurement of insulation resistance (Mega Ohms/ Giga Ohms per kilovolt)
- Test Result upon High – Pot test whether positive /negative.

CONNECTION CHECKS, INSULATION & CONTINUITY TESTS FOR CABLES

Basic tests/ checks to be carried out prior to precommissioning / commissioning & start up shall include but not limited to the following:

- Cable identification tags
- Continuity of Conductors
- Continuity of shield
- Continuity of Armour
- Insulation between one conductor and all other conductors.

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- Insulation between conductors and shield.
- Insulation between conductors and ground.
- Segregation (eg. EX – i, T/C, Low Voltage Signal)
- Fastening on trays.
- Field Instrument Connection.
- Junction Box Connections
- Cabinet Connections
- Wire lug and Identification of each connection
- Cable Construction type
- Sheath Colour
- From and to which Location / Unit of plant.

Reference documents shall have specification number with its revision

Test equipment shall have identity like model / series and manufacturer's identity.


Remarks / observations shall be based upon checks/ tests on conformity/ non-conformity results.

INSPECTION OF ACCUMMULATOR BATTERIES

The chart sub – heading shall be same with that of paragraph 1.0 above for Electric cables.

The entire chart/ table for activity records shall include but not limited to the following titles:

- Description of the Equipment for the battery
- Equipment No / Serial No.
- Tag NO , Manufacturer
- Type
- Installation whether New or In operation since
- Rated Voltage of the equipment (D C V)
- Location whether inside or outside
- Ambient Temperature
- Climate whether humid / Dry

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- Test equipment
- Vendor Drawing / Specification
- Contractor's Drawing / Specification
- Mechanical Completion Inspection reports whether positive / negative.

Tabulated chart for the Battery/Electrolyte checks/tests shall include but not limited to the following:

- Electrolyte level
- Connections
- High rate charge
- Electrolyte density
- Position of Intermediate Connections.
- Trickle charge.
- Measurement of Insulation to earth.
- Voltage at terminals.
- Voltage between positive pole and earth.
- Voltage between negative pole and earth.
- Voltmeter Internal resistance.
- Insertion of Formula for determining Insulation resistance
- Overall Performance result whether positive /negative
- Constant current Charging period/amount or quantity
- Reading Frequency between Start & End charge.
- Battery temperature (average) after charging.
- Battery voltage after charging.

Remarks/observation shall be based upon checks/tests on conformity/non-conformity results.

All the test analysis emphasized above shall be applicable to the following amongst others:

- CONSTRUCTION / INSTALLATION AND COMMISSIONING OF LOW VOLTAGE POWER PANELS.
- CONSTRUCTION / INSTALLATION AND COMMISSIONING OF HIGH

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VOLTAGE POWER PANELS

- CONSTRUCTION / INSTALLATION AND COMMISSIONING OF ELECTRO-MECHANICAL CONTROL / POWER PANELS (MCC & PMCC)
- CONSTRUCTION AND INSTALLATION OF CABLE TRAY SYSTEM IN PLANTS.
- INSTALLATION OF EARTHING SYSTEM = INSTRUMENT & PROTECTION EARTHING SYSTEM.
- INSTALLATION AND COMMISSIONING OF POWER GENERATION PLANTS.
- INSTALLATION AND COMMISSIONING OF ALL CONTROL CABLES OF ALL CATEGORIES AND CLASS.
- INSTALLATION OF ALL CATEGORIES OF EXPLOSION PROOF FITTINGS.