EK 38. SAHA KALİTE KONTROL PLANI (FİELD QUALİTY PLAN) ÖRNEĞİ

FIELD QUALITY PLAN

CONTENTS

1.0 SCOPE

This Quality Plan is the principal quality document for the Project. It summarises the Quality System to be applied for the execution of the Project by the Contractor.
It defines a systematic approach with a quality point of view to all activities such as design, procurement, fabrication, construction and commissioning.
The objective of the Plan is, as far as reasonably possible, to make sure that the activities are performed in a safe, environmentally sound, cost effective, efficient and organised manner and the overall Project mission and objectives are realised and acceptable quality product is obtained.
The Plan targets to meet all quality requirements and technical performance criteria for the Project and all schedule and cost criteria by efficient utilisation of technological, human and material resources.
Based on this Plan, specific project procedures, quality control procedures, inspection and test plans, method statements will be developed and implemented to ensure that all quality aspects of the work are addressed.
Quality plan to be documented, communicated, understood by project personnel, implemented and audited. Compliance with ISO 9000 and Contract requirements are mandatory.

The Plan covers the below activities:

- Provision of temporary facilities to facilitate the permanent construction,
- Material fullfilment to specifications,
- Establishment of all roadworks, drainage and culverts,
- Civil construction works such as, foundations for pipe racks, equipment, buildings etc.,
- Installation of structural steelwork and pipe racks,
- Fabrication and installation of steel supports for piping, electrical and instrumentation,
- Fabrication and installation of process and utility pipework,
- Welding and NDT,
- Erection of static and rotary equipment,
- Fabrication and erection of tanks,
- All electrical work, installation and termination of cable tray, ladder rack, cables, lighting and other fittings or accessories including all terminations,
- All instrumentation work, process control systems, telecommunications, fire and gas detection etc.,
- Passive fire protection,
- Surface preparation and painting,
- Insulation works,
- Precommissioning, certification, vendor and commissioning support.

2.0 CONTRACTOR'S ORGANIZATION CHART

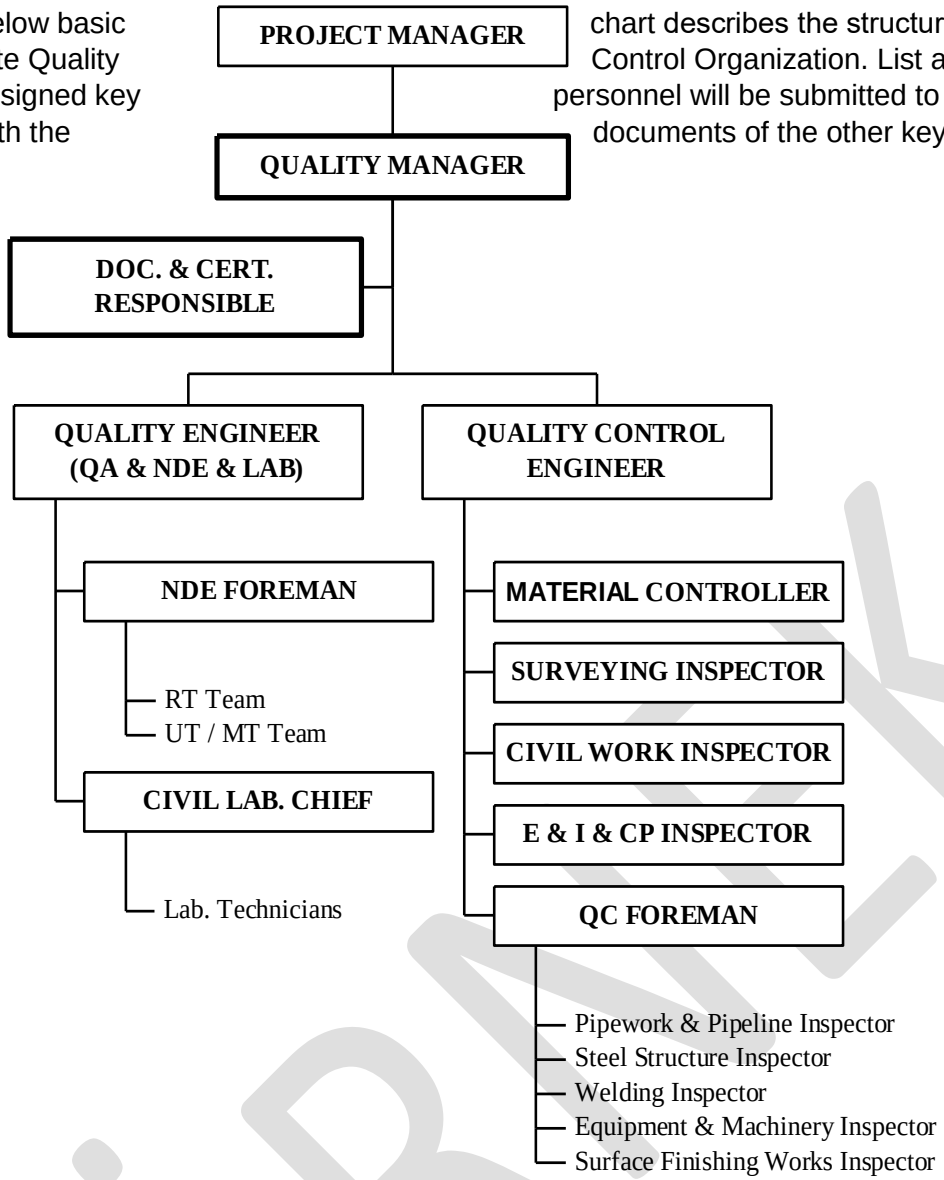
The Quality Control and Quality Assurance Department will act as a separate entity with full authority to control activities and to make sure that all activities are done as per related quality documents and requirements.

The Quality Control and Quality Assurance Department will work under the Project manager and always be fully supported by the top management of the Contractor.

The Quality Assurance and Quality Control Department will perform its function, on assuring that quality of workmanship and services performed, are consistent with the standards and the relevant drawings and specifications.

THE CONTRACTOR'S SITE QUALITY ORGANIZATION

Below basic chart describes the structure of the Contractor's Site Quality Control Organization. List and resumes of the assigned key personnel will be submitted to the Client, together with the documents of the other key personnel.



Quality Control Manager (QCM)

QCM is responsible to Project Manager for establishing project specific Quality System and closely monitoring its implementation. He will represent the Contractor in all quality related meetings/discussions.

He is responsible to organise the training of the project personnel to ensure that this Quality Plan is understood and applied in all levels of the Project Organisation.

He shall periodically audit the implementation of this Quality Plan and report to Project Manager together with his suggestions for corrective and preventive actions, if any.

He shall coordinate with Construction Manager (CM) and Technical Office Manager (TOM) for application of Inspection and Test Plans, to establish the priority of the QA & QC activities.
QCM is responsible to review all QA & QC requirements and/or instructions of the Client and to control and distribute the quality related documentation.
He reviews the Contract documents to ensure that:
Contract documents clearly define the scope of the work and include all applicable design documents and drawings, requirements for test and inspection, preservation and maintenance, special instructions for lifting, transportation and final delivery to the job site.
The technical requirements state the documents, certificates and records to be maintained and submitted for Client's review and approval.
The quality assurance requirements define the extent of quality system, to items or services being procured.
Contract documents contain specific instructions, where appropriate, to ensure that suppliers and subcontractors maintain control of special processes such as welding, non-destructive testing, heat treatment, cleaning, painting, pressure testing, instrumentation etc

QCM may delegate his responsibilities to one of the Quality Engineers.

Quality Engineer (QE)
QE is responsible to QCM for all aspects of quality related Site activities. He monitors and implement Inspection and Test Plans and Quality Program of the work disciplines, finds out the reason of non-conformities and suggests corrective and preventive actions.
He is responsible for preparing daily work schedule of QC team in coordination with the construction teams.
He is also responsible for production of all final QC documentation of the constructed items and updating of this database.

Quality Documentation Responsible
He is responsible for filing all Quality Documents and quality related communications, when necessary distributing them to QE and the Client's inspectors for their approval/review. He is also responsible for monitoring status of reports to ensure all the required documents are generated and retained by QC Department and can be retrieved at any time upon request.
He monitors the approval status of quality documents and report to QM periodically. One of his main job is to assure that last revisions of drawings and documents are stamped and distributed to the construction personnel and previous revisions are collected and destroyed.

NDT Foreman
He is responsible for the execution of all NDT activities at Site.
He will follow up the maintenance, repair, and calibration requirements of all NDT equipment and tools and timely report them to related person or organizations.
He is fully responsible for safely implementation of Radiation Protection Procedure and report the results to QE periodically.

Civil Laboratory Chief
He is responsible for execution of all civil tests such as concrete, soil and compaction tests required at Site. He will be in charge of taking samples, executing the required tests, performing all required calculations, preparing the related reports for each test and timely reporting to QE.
He is responsible for monitoring the performance of the laboratory technicians and their implementation of the applicable standards. He shall technically support the technicians and develop their skills and knowledge by on the job trainings as required. He will follow up the maintenance, repair, and calibration requirements of the laboratory equipment and tools.

Material Quality Controller
He is responsible to QE for receiving inspection of project materials and consumables received.
He will timely report to QE any discrepancy and/or non-conformity observed on the inspected

material and follow up the status of the reports. He shall cooperate with civil, mechanical, electrical, instrumentation and coating Inspectors, for receiving inspection of the related materials and consumables.

Civil Work Inspector
He is responsible to QCE for daily monitoring and reporting of all civil activities. He executes and reports all civil related examinations, inspection and tests shown in Inspection and Test Plan. He is responsible for timely reporting to QCE the status of civil work and any non-conformity observed.

E & I Inspector
Electrical and instrument inspector is responsible to the QCE for daily monitoring and reporting of all electrical, instrumentation and cathodic protection works. He executes and reports all visual and dimensional inspections including incoming inspections, calibrations and tests shown in the related Inspection and Test Plans. He is responsible for timely reporting to QCE the status of electrical, instrumentation and cathodic protection works and any non-conformity observed.

Mechanical Inspector
Different mechanical groups have separate mechanical inspectors. These are:

- Pipework fabrication
- Pipework installation,
- Pipeline work,
- Steel Structure fabrication
- Steel Structure installation,
- Welding activities,
- Rotating equipment installation,
- Static equipment installation,
- Surface preparation and coating works
- Insulation works.

These inspectors are responsible to the QE for daily monitoring and timely reporting of all inspections and tests shown in the related Inspection and Test Plan for their discipline. They are responsible for preparing the detailed daily schedule of the above mentioned inspection and tests, considering the instructions and/or priorities given by QE and timely reporting to QE, the status of any non-conformity observed.
They are responsible for monitoring performance of all inspectors under their control, and their implementation of the related approved procedures. They shall give technical support and on the job training to all member of his section, as required. They are also responsible for maintenance, repair, and calibration requirements of the all equipment and tools, used in the related inspections and tests and timely reporting these requirements to QE.

3.0 DOCUMENT CONTROL

The Document Control Procedure shall cover as minimum; Document Numbering, Transmittal of documents from/to Client and Document Registers.
Prior to issue, all documents shall be reviewed and approved by authorised person, for adequacy.
The drawings/documents shall be distributed so as to be available at all locations where the activity is to be performed, prior to commencement of that activity.
Revisions to documents shall be reviewed and approved by the same departments that performed the original, unless specifically designated otherwise.
All reports, drawings and documents shall be sent under the cover of a transmittal note in accordance with agreed distribution lists. Contractor proposed transmittal note format and transmittal note coding shall be agreed by Client and shall include the following:

- A unique transmittal number, destination and originator of the form,

- Referenced documents enclosed,
- The title or description of the documents,
- The number of copies of each document enclosed,
- The response method requested.

Contractor shall submit prints of all final “red marked as-built” drawings to Client as per Contract conditions. If any revisions have been made and approved by Client during the course of the work, such revisions shall be clearly dated and marked and a short description of the revision will be given.
Contractor shall retain all files and records as per Contract conditions, after the work is completed. Contractor shall propose a system to Client, for long term storage of radiographs either by hard copy and/or by transfer to an electronic format (CD).

4.0 MATERIAL INSPECTION and TRACEABILITY

Free issue materials shall be inspected on receipt, for identification against the Client supplied documentation for damage and completeness. They shall be stored, transported and handled in accordance with the appropriate procedures from warehouse to final installation. Special care is taken at receiving inspection to ensure that all deficiencies and any defects are reported to Client for verification and final decision.
Material traceability requires that, main components and equipment used in construction works, have manufacturers’ test certificates.
Material traceability systems must meet Client’s project requirements and also any mandatory regulatory and/or statutory legal requirements.
Approved identification and traceability systems to be followed during all stages of fabrication and installation and formally recorded on all relevant quality records.

5.0 WORK PROCEDURES and METHOD STATEMENTS

Careful planning and control of fabrication, construction and testing operations, ensures that, these operations are done under controlled conditions, in the specified manner and sequence as per the applicable project requirements.
The acceptance criteria shall be identified within related documents.

Special Work Procedures and Method statements will be created for following activities but will not be limited to:

- Civil Works (Excavation, backfilling, formwork, rebar, concrete, etc.)
- Steel structure fabrication and erection works
- Piping (Prefabrication, handling, fit up, erection)
- Welding (Carbon steel, alloy steel, stainless steel, repair)
- Non DestructiveTesting (Visual, RT, UT, PT)
- Pre and Post Weld Heat Treatment
- Mechanical erection Works (Static and rotating equipments, furnaces, etc.)
- Heavy lifting
- Electrical and Instrumentation works
- Pressure Testing
- Application of Protective Coatings
- Insulation (Cold and hot)

Method Statements will clearly define the points which affects the quality.
Consideration and attention will be shown for the personnel selection. Personnel employed to perform or monitor above processes shall be able to demonstrate a sufficient level of competence, in that particular activity.

6.0 INSPECTION and TESTING

- All product received by Contractor shall be subject to receipt inspection and/or testing.
- Specific requirements for receipt inspection of any type of product will be defined in Inspection and Test Plans, Procedures, Work Instructions or other such documents.
- As a minimum, receipt inspection will consist of visual inspection of the product and verification of the delivery note and any accompanying certification against the original purchase order.
- Accepted product will be released for use. Product deemed unacceptable or non-conforming will be marked as such and placed in quarantine area. Non-conforming product will be handled in line with related procedures.
- Any document(s) developed to assist in-process inspection shall, as a minimum, identify, either individually or collectively, the type and frequency of inspection, responsible personnel, specification requirements, acceptance criteria and surveillance requirements (i.e. monitor, witness, hold points etc).
- During Works, inspection may be verified by the use of checklists, inspection reports or similar type of record sheets. Any such document produced to verify an inspection activity, should be signed by all related parties. Inspections shall be structured in such a way as to allow work, to continue until a pre-defined hold point.
- No hold point should be proceeded, until all required inspections and/or tests have been completed and accepted.
- Inspection, test and measuring equipment utilised for construction inspections and/or tests shall be in good condition, calibrated and be suitable for its intended use.
- Once a particular activity is complete, a final inspection and/or test will be performed. This will include verification that inspections and/or tests during the work have been performed, satisfactorily completed, properly recorded and acknowledged.
- Personnel responsibility for the verification of all inspections and/or tests shall be clearly defined in either the appropriate ITP or other contractual documents.
- No product shall be released until all those activities specified in the ITP or other contractual documents have been satisfactorily completed. This will include verification of all inspection and/or test certification.
- In certain circumstances, it may be necessary to release product where completion of all inspections and/or tests cannot be verified. In such circumstances, a system shall be developed that will ensure the product in question is readily identifiable and details recorded. Product release must be authorised by the appropriate manager.
- Non-conforming product identified by the inspection and/or test shall be clearly identified and handled in accordance with the Non-Conformance Procedure.
- It will be ensured that only materials that pass the required inspections and tests, is used or installed.
- The inspection and/or test status of all product shall be identified by use of markers, stamps, tags, labels, inspection reports or other suitable method, either singularly or collectively. The method of identification selected, shall be suitable for the particular product involved.
- The identification of inspection and/or test status shall be maintained throughout the production and installation activity. This will apply equally to conforming product and to non-conforming product.
- A system shall be established for the identification and maintenance of all appropriate records relating to the inspection and/or testing of each particular product.
- Records shall be established for all inspection and/or test activities from receipt inspection through to final acception. All records shall be kept in such a way that will allow them to be easily retrieved at any time.

7.0 MEASUREMENT and TEST EQUIPMENT

- Identify the measurements to be made and the accuracy required.
- Select the appropriate inspection, measuring, and test equipment.
- Calibrate and adjust all inspection, measuring and test equipment and devices. Check the availability of certified calibration offices nationally or internationally recognised. If not available, calibration method shall be formally agreed and documented. Clearly indicate the calibration status of the equipment and maintain calibration records.
- Ensure that the inspection, measuring and test equipment is capable of the accuracy and precision necessary.
- Keep the measuring and test equipment in such a protected way that the calibration and fitness for usage will not be affected.
- Only authorized and trained person can use the measuring and test equipment.

8.0 NONCONFORMANCE and CORRECTIVE ACTION

- After a nonconforming item is defined, it should stay in place until a decision for further action is made. This action might be to scrap, to use under concession from the Client and/or the Certifying Authority, to rework or to repair.
- Repaired or reworked items should be subjected to re-inspection.
- Nonconforming items shall be identified as such and (where practicable) be segregated at quarantine area.
- It is recommended that unique tags are used to identify a nonconformance item.
- Root cause of nonconformance to be investigated, analysed, trends to be identified and precautions to be taken to reduce future occurrences.
- Nonconformances shall be detailed on the Non Conformance Report (NCR) format, and shall also be recorded in the NCR Register.
- The precise nature of the nonconformance and remedial method shall, with full evidence, be indicated on the NCR form with any explanatory sketches attached.
- Quarantine areas shall be arranged or other approved methods will be defined for the segregation of nonconforming items.
- Such items shall be marked/tagged in order to ensure that their nonconformance status is immediately apparent.
- The Quality Control Engineer/Inspector shall ensure that no further work, shipment or mixing of nonconforming and approved items takes place, until such time as the NCR is resolved.

Remedial proposals and actions

- Proposal for remedial action shall be submitted to the appropriate authority for consideration. Any technical data or explanatory sketches shall be attached to the NCR.
- On receipt of approval from the appropriate authority, to conduct remedial activities in accordance with the proposal, such remedial action shall commence at the earliest practicable time.
- All remedial work shall be subject to inspection.
- In the event that the remedial action proves ineffective such that the item is still deemed to be nonconforming, then no further work shall take place without the approval of the appropriate authority.
- Investigate and identif the causes of repetitive nonconformances and document the subsequent corrective actions necessary to prevent recurrence.
- Analyze the work operations, quality records and end user complaints to detect and eliminate potential causes of nonconforming items.
- Permanent changes resulting from corrective actions shall be recorded in the form of revised work instructions, procedures and specifications etc. Such revisions shall be properly and fully documented and the revised documents formally distributed to the responsible personnel.

9.0 STORAGE, PRESERVATION and HANDLING

- Contractor must have a formal procedures and system in place, for the storage, preservation and handling of all supplied materials.
- All material and equipment shall be stored in such a manner to avoid damage, corrosion, general deterioration or losses of any kind.
- Storage areas, as minimum, shall be provided consisting of:
    - Covered warehousing or adequately drained open storage areas on a firm hard standing,
    - Appropriate temperature and humidity controlled areas for electrical, instrumentation, control and welding materials, as specified by vendors' recommendations,
    - Secure areas for valuable and pilferable items,
    - Remote and secure areas for flammable items, paints, etc.,
    - Secure sections for industrial gasses,
    - Designated areas for waste or scrap materials,
    - Quarantine areas for nonconforming or rejected supplied items.

- **Dangerous materials such as explosives and radioactive isotopes shall only be stored in purpose built, approved and specially secured/controlled storage facilities.**
- Preservation of materials and equipment shall be carried out from initial receipt, throughout storage and installation to commissioning and final handover.
- A record sheet or log book detailing the preservation requirements for each item of equipment, shall be used to record scheduled inspection and preservation activities.
- Periodic inspection of stored equipment shall be conducted to determine whether protection is adequate or requires some action.
- All exposed machined surfaces of materials such as valves, flanges, fittings, etc., shall be protected with rust preventative coatings as directed by the supplier.
- All personnel involved in the handling of materials and equipment is properly trained and competent, especially when handling woork involves lifting by cranes, forklift trucks or other mechanical handling devices.
- All lifting and handling equipment shall be fit for purpose, maintained in a safe condition and be fully certified.

10.0 QUALITY RECORDS

- All quality records shall be legible, easily identifiable and filed in a safely manner. They can be maintained in hard copies, micro film, CD, hard disc or similar.
- All quality records are normally maintained for a minimum of 5 years (unless specified otherwise). All records shall be kept in such a way that will allow them to be easily retrieved.
- Typical quality records maintained are:
    - Quality assurance manuals,
    - Quality control procedures,
    - Material test certificates,
    - Vendor documents,
    - Project inspection and test records,
    - Engineering queries,
    - Test packages,
    - As-built dossiers,
    - Project radiographs,
    - Internal and external audit reports,
    - International codes, specifications and standards,

- Company standards and specifications,
- Calibration records,
- Engineering design documents and drawings.

11.0 QUALITY AUDITS

- The Quality Plan covers the internal and external audits.
- The assignment of auditors is based on their experience and training for activities to be audited. Internal audits shall be conducted by personnel who do not have direct responsibility or control of the areas to be audited.
- After the audit is held, a formal audit report will be created. This shall include persons contacted during the audit and shall include details of any audit findings. All audit reports shall be signed and dated by the auditors conducting the audit.
- Audit reports, audit checklists and any request for corrective action will be forwarded to the responsible manager of the audited department for action and QCM for review.
- The result of each audit shall be reviewed and implementation of any corrective actions found necessary, shall be formally verified.
- In preparation for any audit, an audit plan will be prepared to define minimum the following:

    - Organization or department to be audited,
    - The scope of the audit,
    - Audit requirements,
    - Personnel or disciplines interviewed,
    - Activities to be audited,
    - Applicable documents,
    - Audit checklist.

12.0 PERSONNEL TRAINING

- Personnel employed to perform or monitor special processes are generally required to have training with examination, to check and improve their skill and knowledge about the work, specifications or standards.
- Records of training and certification of personnel and operators shall be kept, to be informed about their training and experience.
- Refreshment training will be given to personnel, when it is noted that refreshment is required or something is changed in the method, conditions or equipment.

13.0 VENDOR SUPPORT

For some equipment, special material or special application; manufacturers, vendors or suppliers mayo r have to assist to operations or erection, technically or by providing adequate logistic back up. Logistic back can include, but may not be limited to the following:

- Commissioning and installation assistance,
- Specialist technical advice,
- Specialist servicing and maintenance personnel,
- Product manuals giving safe and reliable operating procedures,
- Spare parts supply,
- Manufacturers' recommended maintenance procedures,
- Application training as required.

14.0 CONSTRUCTION DOSSIER

When the work is completed and successfully handed over to Client, a document called Construction Dossier has to be produced by Contractor and submitted to the Client.
The dossier should contain the below:

1. The Dossier shall normally be presented in A4 and A3 hard copy binders.
2. The Dossier shall be presented in (X) complete sets (as per Contract requirements) and clearly identified as:
    - Set “O” with original documents (one set)
    - Set “C” with copies of documents (X sets)
3. The section numbering, sequence, titles and contents should be standardised. If any particular section is not required, the section concerned must still appear but should be stated as “Not Applicable”. There will be no renumbering of sections.
4. All construction information and data in the hard copy Dossier shall also be provided in electronic format.