

SAUDI ARABIAN OIL COMPANY (Saudi Aramco) GENERAL INSTRUCTION MANUAL ISSUING ORG. ENGINEERING & OPERATIONS SERVICES SUBJECT: QUALITY MANAGEMENT ROLES & RESPONSIBILITIES	G. I. NUMBER Approved	
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CONTENT:

This General Instruction prescribes the roles, responsibilities and interface between the Inspection Department (ID) and Project Management (PM) for project quality planning and management for all projects.

This General Instruction contains the following information:

1. Purpose
2. Applicability
3. References
4. Definitions
5. Planning & Execution of Project Quality
6. Responsibilities
7. Project Status Reporting
8. Approval Authority

Attachment 1: Matrix for Preparing Project Quality Plans

1.0 Purpose

This General Instruction shall be used by personnel from the Inspection Department and Project Management to ensure quality during all phases of Projects. It also defines the roles and responsibilities of the individuals involved in planning, coordination and execution of quality activities of a project.

This GI supports the Engineering and Operations Services (E&OS) commitment to provide facilities that are designed, procured and built in accordance with Mandatory Saudi Aramco Engineering Requirements (MSAERs), Project Specifications and Contract requirements. The guiding principles of this GI are that Project Management is responsible for project quality, and that Inspection Department personnel fulfill a key support role as a member of the project team for all projects in the Capital Program.

2.0 Applicability

This General Instruction is applicable to all projects managed by Project Management. Specific quality management roles for all sizes and types will be addressed through the Project Quality Plan (see sec. 6)

3.0 References

References shall be the latest issued revision or edition.

Saudi Aramco Standard Contracts (LSTK, LSPB & Construction Repair)

Schedule Q “Quality Assurance and Control, Inspection and Testing”

Saudi Aramco Engineering Procedures

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Saudi Aramco Inspection Procedures

7.0 00-SAIP-13 "Project Assessments"

4.0 Definitions

Project Quality Manager (PQM): The senior Inspection Representative responsible for coordinating all inspection requirements on behalf of the Inspection Department with PM throughout all project phases (Project Proposal through Mechanical Completion.)

Project Management Representative: Individual designated by Project Management to interface with the associated Inspection Representative or PQM.

Inspection Representative: A Vendor or Project Inspection Representative who reports to the PQM as determined by the quality plan.

VID Coordinator: A VID person who is located IK and reports to the PQM for projects when two or more Vendor Inspection Representatives are assigned to the project during the design and procurement activities.

Functional Reporting: For the purpose of this document, functional reporting relates to reporting quality issues to PM. When the Inspection Representative or PQM functionally reports to the Project Management Representative by reporting all quality issues, concerns and violations.

NCR: Non-Conformance Report

PQI (Project Quality Index): Monthly measure of contractor's compliance to project quality requirements and approved quality plan.

PM: Project Management

ID: Inspection Department

PID: Project Inspection Division

VID: Vendor Inspection Division

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5.0 Planning and Execution of Project Quality

5.1 Saudi Aramco Project Quality Plan

- 5.1.1 During Project Proposal, Project Management will prepare a Project Quality Plan jointly with the PQM. This plan shall outline the project organization relating to quality and the relationships between inspection and the project management team during the various project phases. It shall also ensure that all quality requirements are contained in the Contract and cover any exceptional quality requirements. When construction contracts are prepared during detailed design, preparation of the Project Quality plan sections pertinent to contracts may be completed during detailed design.
- 5.1.2 The Project Quality Plan shall be signed by both the most senior Project Management Representative assigned to the project and the PQM. The Project Quality Plan may be revised and updated as the project evolves, and shall be re-approved for any major changes.
- 5.1.3 The Project Quality Plan shall generally contain, but not be limited to, the following (Refer to Attachment 1 for specific responsibilities for quality plan preparation):
- 5.1.3.1 Determine the required manning level and mobilization plan for Saudi Aramco quality personnel during the various phases of the project.
 - 5.1.3.2 Define the project specific roles and responsibilities for quality personnel during all project phases.
 - 5.1.3.3 Determine the PQM's role in the technical review during the Project Proposal preparation and in the prequalification of the contractors, sub-contractors and vendors providing services and materials to the project, as well as review of contractor technical proposals.
 - 5.1.3.4 Develop Inspection Levels for equipment and material to be included in Sch. Q of the contract.
 - 5.1.3.5 Determine minimum contractor inspection manning levels to be included in Sch. Q of the contract.
 - 5.1.3.6 Include any special quality requirements to be incorporated in the Contract.
 - 5.1.3.7 Outline the quality measurements, such as weld rejection rate, ratio of contractor NCR's versus Saudi Aramco etc. to be used by the company and the contractor as applicable.
 - 5.1.3.8 Schedule quality assessments per paragraphs 6.2.6 and 6.2.7.

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5.1.3.9 Plan to promote and build awareness of the project quality system requirements within project team through periodic presentations as required.

5.1.3.10 Consider formation and use of a Quality Steering Committee consisting of members from Saudi Aramco, contractor(s) and major sub-contractor(s).

5.2 Project Execution –

This phase will generally include, but not be limited to, the following activities listed in each phase:

5.2.1 Project Proposal Phase

5.2.1.1 PM will notify ID of all Project Proposals starts to allow participation in the kickoff meeting as needed.

5.2.1.2 The Inspection Department Manager or his designee assigns a PQM for all projects. The ID Manager may delegate one PQM to serve multiple small projects.

* 5.2.1.3 The PQM will be located at the location most effective for the work involved.

5.2.1.4 The PQM will arrange for prequalification inspection visits to contractors or vendors as outlined in the Project Quality Plan.

5.2.1.5 If equipment is to be procured during the project proposal, the PQM will ensure that all procurement documents contain all appropriate inspection requirements and documentation.

5.2.2 Design and Procurement Phase

5.2.2.1 During this Phase, the Inspection Team will normally consist of the PQM and the Vendor Inspection Representative(s).

5.2.2.2 For projects with contractor procurement activities (LSTK or LSPB), the PQM will request an Inspection Representative from Vendor Inspection Division to cover the design and procurement inspection activities. If the VID representative is assigned full time to the project, he will report functionally to the most senior PM Representative and administratively to the PQM. (If the design office is OOK, the VID representative(s) will report both functionally and administratively to the PM until returning to IK.)

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- 5.2.2.3 Projects with more than one major contractor will require a Vendor Inspection Representative in each design office or as determined by the Project Quality Plan. To coordinate all the Design and Procurement inspection activities, the PQM will request a VID coordinator to be assigned to interface with the Vendor Inspection Representatives at the design offices.
- 5.2.2.4 On LSTK and LSPB contracts, the Inspection Representative(s) will review and approve the quality plans, quality procedures and Inspection and Test Plans (ITP's) prepared by the contractor in accordance with Schedule Q to determine if the contractor's commitment, organization, quality system, personnel and processes are adequate to achieve contractual and project requirements.
- 5.2.2.5 The PQM or his representative(s) will participate in the project design reviews as determined by the Quality Plan.
- 5.2.2.6 The Inspection Representative(s) will work with the Project Management Representative(s) to identify vendor inspection requirements, arrange for required vendor inspection coverage, ensure appropriate contractor QA/QC coverage, and conduct spot vendor inspections.
- 5.2.2.7 The Inspection Representative(s) will document any violation to the Contract requirements to the Project Management Representative, with a copy to the PQM. He will initiate NCR's as required and forward them to the Project Management Representative for issuance to the contractor.
- 5.2.2.8 The Inspection Representative(s) will keep the PM Representative informed of all relevant QA/QC activities including potential NCRs.

5.2.3 Construction and Pre-commissioning Phases

- 5.2.3.1 The VID coordinator and all the Vendor Inspection Representatives will move to the respective construction sites and continue their procurement phase inspection activities.
- 5.2.3.2 The inspection representative(s) will review and approve the Quality Plans, QA/QC Procedures and Inspection and Test Plans (ITP's) prepared by contractors in accordance with Schedule Q to determine if the contractors' commitment, organization, quality system, personnel and processes are adequate to achieve contractual and project requirements.
- 5.2.3.3 The Inspection Representative(s) will monitor the contractor's inspection effort and conduct sufficient on-site inspections in all disciplines to assure that the contractor is effectively implementing his approved

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quality plans, and report discrepancies to the Project Management Representative.

5.2.3.4 The Inspection Representative(s) will maintain inspection logs and initiate NCR's as needed for transmittal to the Contractor by PM.

5.2.3.5 During Pre-commissioning, the Inspection Representative(s) will provide sufficient inspection personnel to assist the Project Management Representative to ensure that all exception items are identified and effectively resolved.

5.2.3.6 The Inspection Representative(s) will keep the Project Management Representative informed of all relevant QA/QC activities including potential NCRs.

5.3 Conflict Resolution

5.3.1 The Inspection Representative and Project Engineer will make every effort to resolve conflicts through the Project Quality Manager and Project Management Representative, respectively. Technical disputes should be discussed with the appropriate Standard Committee Chairman.

5.3.2 Further conflicts will be referred to the respective Department Manager for resolution.

5.3.3 When the Inspection Representative has generated a valid NCR that was not issued by PM to the contractor within two (2) days from delivery of the NCR, the Project Quality Manager will issue a Work Sheet to the Project Management Representative. *(When disputed, the validity of an NCR shall be determined by the appropriate Standard Committee Chairman.)*

6.0 Responsibilities

6.1 The Project Management Department Manager shall:

6.1.1 Provide the leadership, management systems, and resources required to effectively design, procure, construct and mechanically complete the projects.

6.1.2 Set project quality objectives and provide means to achieve them.

6.1.3 Provide on site PM supervision to ensure that the Contractor adheres to all procedures and standards and that the built facilities meet the Mandatory Saudi Aramco Engineering Requirements (MSAERs), Project Specifications and Contract requirements.

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- 6.1.4 Provide guidance and support to the Project Manager as needed to assure project quality goals are met.
- 6.1.5 Review project QA/QC programs and performance to ensure effective implementation of corporate objectives.
- 6.1.6 Review project QA/QC results, and make appropriate policy adjustments to achieve the desired results.
- 6.1.7 Interface with Inspection Department Manager.
- 6.2 The Inspection Department Manager shall:
 - 6.2.1 Assure that an effective quality management system is in place, so that facilities are designed, procured and constructed according to Saudi Aramco specified requirements.
 - 6.2.2 Participate actively in the development of effective quality systems, and monitor and assess capital program execution to ensure the project meets specified quality requirements.
 - 6.2.3 Provide the resources required to effectively support and assess quality systems throughout all phases of projects: project proposal, design, procurement, construction and pre-commissioning. In addition, Inspection Department will provide inspection in sufficient quality, quantity and detail to ensure, through Project Management, that the Contractor effectively and efficiently enforces the Mandatory Saudi Aramco Engineering Requirements (MSAERs), Project Specifications and Contract requirements.
 - 6.2.4 Assign the Project Quality Manager.
 - 6.2.5 Ensure development and maintenance of quality performance indices to assess the status of projects.
 - 6.2.6 Initiate quality assessments per 00-SAIP-13 to ensure contractor compliance to specified quality requirements.
 - 6.2.7 Assign an individual or a team to conduct periodic assessments of overall project quality. The objective of these assessments is to evaluate the effectiveness of the Saudi Aramco Project Quality Plan and compliance with this General Instruction.
 - 6.2.8 Provide feedback to executive management on quality issues as necessary.
- 6.3 The Project Management Representative shall:
 - 6.3.1 Have responsibility for overall quality during all phases of the project.

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6.3.2 Ensure that a PM member acknowledges all logbook entries with initials and dates (Response time shall be 24 hours or as otherwise detailed in the SA Project Quality Plan). He will resolve deviations identified by Inspection Representatives with the contractor and address all open issues in regular PM/contractor meetings.

6.3.3 Ensure with the Inspection Representatives that the contractor(s), sub-contractors and vendors implement project quality requirements in accordance with the Contract.

6.3.4 Issue NCR's prepared by Inspection Representatives and/or Project Management Representatives to the contractor for timely resolution.

6.3.5 Track status of all Company issued Non-conformance Reports and obtains the Inspection Representative's concurrence prior to closeout of Non-conformance Reports.

6.3.6 Provide feedback on the performance of assigned Inspection personnel to the Inspection Department.

6.4 The Project Quality Manager shall:

6.4.1 Interface with Project Management Representative on all inspection matters from the date assigned through Mechanical Completion and ensure that the project quality requirements are met.

6.4.2 Coordinate all inspection activities related to the project throughout all the project phases.

6.4.3 Ensure preparation of NCRs for issuance by PM.

6.4.4 Issue worksheets to PM if valid NCRs are not issued to the contractor within two working days (See 5.3.3).

6.4.5 Initiate focused assessments of specific work elements to ensure that the project quality activities and processes are effective, e.g. welding and gasket verification.

6.4.6 Maintain PQI per established system jointly with PM.

6.4.7 Arrange the assignment of Inspection Representative and/or VID Coordinator from Vendor Inspection Division to cover the design and procurement inspection activities.

7.0 Project Status Reporting

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- 7.1 Both the Project Management Representative and the Inspection Representative(s) are committed to implement the Project Quality Plan. The Inspection Representative(s) shall provide Quality Status Reports as required by the Project Quality Plan to the Project Management Representative and PQM. These reports shall highlight deviations from the contract, MSAERs, Project Specifications or Contractors' Quality Plans. The PQM through the ID Manager will also report specific areas of concern to Proponent, PM and ES Executive Management in accordance with SAEP-1150.

8.0 Approval Authority:

Concurred By:

Vice President, Engineering Services

Vice President, Project Management

Approved By:

Senior Vice President, Engineering & Operations Services

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ATTACHMENT 1

Matrix for Preparing Saudi Aramco Project Quality Plan

Activity	Initiate	Review
1) Quality Policy Statement (Joint Statement)	Both	Both
2) Management Responsibility		
a) Project Organization Chart with interfaces showing		
i) PM Organization	PM	ID
ii) Inspection Organization	ID	PM
b) Inspection Department Manning Levels	ID	PM
c) Quality Responsibilities and Authority of key personnel for all phases of the project:		
i) Project Management positions	PM	ID
ii) Inspection positions	ID	PM
d) Reference Section (Company and Internal Procedures applicable to execution)		
i) Engineering	PM	ID
ii) Project Management	PM	ID
iii) Inspection	ID	PM
iv) Procurement/Materials	ID	PM
3) Project Proposal		
a) Minimum Inspection Levels for equipment and material (Sch. Q)	ID	PM
b) Special qualifications for inspectors inspecting special equipment (Sch. Q)	ID	PM
c) Minimum Contractor inspection manpower (Sch. Q)	ID	PM
d) Role of PQM in technical review of Proposal Package and contractor bids	ID	PM
e) Role of PQM in the technical qualification of contractors, sub-contractors and/or vendors (joint input)	ID	PM
f) Role of PQM in technical review of purchase documents (novated orders)	PM	ID
g) Key Performance indicators to track:		
i) Project Management	PM	ID
ii) Inspection		PM
h) Contractor and Project Quality Assessment Schedule	ID	PM
i) Quality Awareness training (Contractor and PMT)	ID	PM
	ID	
4) Design		
a) Procedure for review and approval of Contractor Quality Plan and Procedures	ID	PM
b) Procedure for review and acceptance of Contractor Quality Personnel	ID	PM
c) Design Review Requirements	PM	ID
d) Procedure for review and approval of Special Material Inspection Plans (SA-175)	ID	PM
e) Quality Assessment requirements	ID	PM

* CHANGE

** ADDITION

NEW INSTRUCTIONS ☐COMPLETE REVISION ☐

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Activity	Initiate	Review
5) Procurement (including Field Purchasing)		
a) Procedure for Review and approval of Contractor Quality Plan and Procedures	ID	PM
b) Procedure for review and approval of Procurement Plan	PM	ID
c) Procedure for review and approval of vendor inspectors	ID	PM
d) Requisition Review Requirements	ID	PM
e) Material Submittal Review Requirements	PM	ID
f) Vendor qualification Requirements	ID	PM
g) D/C Purchase order Review Requirements	ID	PM
h) Contractor Purchase order Review Requirements	ID	PM
i) Procedure for review of Vendor ITPs.	ID	PM
j) Determine level of surveillance and monitoring inspection	ID	PM
k) Procedure for review and approval of vendors' Special Process Procedures (as applicable per Schedule Q) including but not limited to:		
i) WPS/PQR & Repair procedures review requirements	PM	ID
ii) NDT procedures review requirements	ID	PM
iii) Heat Treatment Procedures review requirements	PM	ID
l) D/C and SAMS material tracking and receiving requirements	PM	ID
m) Vendor Inspection requirements	ID	PM
n) Quality Assessments requirements	ID	PM
6) Construction		
a) Procedure for review and approval of Contractor Quality Plan and Procedures	ID	PM
b) Procedure for review and approval of contractor quality personnel	ID	PM
c) Procedure for review and approval of personnel for special processes	ID	PM
d) Identify Hold, Witness and Review Points for ITPs	ID	PM
e) Determine level of surveillance and monitoring inspection	ID	PM
f) Procedure for verification of Positive Material Identification	ID	PM
g) Procedure for review and approval of Special Process Procedures (as applicable per schedule Q) including but not limited to:		
i) WPS/PQR & Repair procedures review requirements	PM	ID
ii) Pre-qualified Procedures (AWS) review requirements	ID	PM
iii) NDT procedures review requirements	ID	PM
iv) Heat Treatment Procedures review requirements	PM	ID
v) Coating procedures review requirements	ID	PM
vi) Concrete and Asphalt Mix Design review requirements	ID	PM
h) Requirements for RFI verification and issuance	ID	PM
i) Receiving Inspection D/C and/or contractor material requirements	ID	PM
j) Inspect Material Handling, Storage & Preservation requirements	ID	PM
k) Quality Assessments requirements	ID	PM
l) Inspection Record Books Requirements	PM	ID