

VRISHAL ENGINEERING PRIVATE LIMITED



PROJECT QUALITY PLAN

CLIENT: AARTI INDUSTRIES LTD, JHAGADIA, ZONE-4

PROJECT: CORAL-2

PO NO: 4580584722 Dt.26.02.2025 & 4580585038 Dt.01.03.2025

DOCUMENT NO: VEPL/AIL-J/CORAL-2/QAP-001

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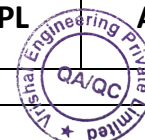


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1 SCOPE

The scope of this plan includes Structural - Piping fabrication & Erection & all Equipment Erection with specific activities of Construction Management up to Final Testing and Handover to Steady State.

The plan is applicable to all the functions/departments, involved directly or indirectly in influencing the quality of construction management activities including support services such as contracts, HR and Training.

2 PURPOSE

The purpose of the Plan is to define the Construction quality management system for ensuring and demonstrating that the service and plant provided under the control of Project management team conform to the specified requirements in the project specification.

The Construction Quality Plan is the principal quality document for VRISHAL ENGINEERING PRIVATE LIMITED Construction crew. The Plan is based on the Project requirements, and provides the quality practices and resources relevant to the Construction Quality Management.

The Construction Quality Plan (hereafter referred to as the Plan) describes the Construction organization and responsibilities and both the Quality Assurance and Quality Control Systems.

The Plan is a Construction Management document to demonstrate that VRISHAL ENGINEERING PRIVATE LIMITED Construction Management Group have specified the objectives and vision, established a system of procedures to accomplish them; assigned duties, delegated authority, and set up suitable testing, inspection, examination, and audit program to verify that required standards of performance have been achieved.

3 DISTRIBUTION & INTENDED AUDIENCE

AIL: AARTI INDUSTRIES LTD, JHAGADIA, ZONE-4

AIL-TPI

VEPL: VRISHAL ENGINEERING PRIVATE LIMITED



4 CONSTRUCTION QUALITY PLAN

Vrishal Engineering Private Limited exists to provide reliable, innovative and competitive Solution to help its customers succeed. We can only succeed in our mission by leading the projects we undertake within performance, time and cost. We consequently have a "Quality" mission and we believe that our customers are the authority in deciding whether we are living up to our core purpose.

5 ABBREVIATIONS

Abbreviations	Definitions
CA(R)	Corrective Action (Request)
CMS	Construction Material Store
DCC	Document Control Centre
DR	Discrepancy Report
EPCM	Engineering, Procurement, and Construction Management
FOR	Field Observation Report
HOTO	Hand Over Take Over
HSE	Health, Safety & Environment
ISO	International Organization for Standardization
KPI	Key Performance Indicator
MOM	Minutes of Meeting
NCR	Non Conformance Report
NDT	Non Destructive Testing
PA(R)	Preventive Action (Request)
PWHT	Post Weld Heat Treatment
QA	Quality Assurance
TPIA	Third Party Inspection Agency
W.O.	Work Order
WPS	Welding Procedure Specification
W.R.T.	With Respect To
N.A	Not Applicable

6 DEFINITIONS

Audit: Systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which quality control criteria are fulfilled.

Improvement: Scope of improvement in the working system including quality management system, which may improve the product quality.

Nonconformance: Deviations from the specified requirements.

Objective evidence: Data supporting the incident.

Observation: - Near to nonconformance which may lead to future nonconformity.

Quality Performance Indicator (QPI): Quality Level of Construction work in quantitative form based on the observations during planned /unplanned surveillance and planned audit.

Records: Documents, which get generated based on the quality results obtained while executing the job.

Surveillance: An Inspection methodology, where random observation of the controls of process activities viz. welding, PWHT, NDT, Painting etc. are carried out to ensure that controls are in place and proper methodology as per requirement is followed.

7 CONSTRUCTION MANAGEMENT ORGANIZATION & RESPONSIBILITY

Organization

The overall construction management shall be as per the organization chart (**Annexure-II**).

Responsibilities for Quality

Shop / Site In charge will be responsible for the establishment, implementation and maintenance of the construction quality system. The responsibility and necessary accountability will be delegated as appropriate to the following:

- Site In charge
- All Discipline Engineers / Supervisors

8 QUALITY ASSURANCE SYSTEM

The construction quality assurance system is applied to all activities under the scope of construction management services including monitoring, inspection and testing.

The construction quality assurance system is implemented through following documents:



- This quality plan, which defines the objectives and demonstrates how the system is applied to meet intent of Quality Manual.
- Construction Procedures including the quality control procedures which specify the activities and responsibilities and provide the direction to meet the required quality standards. These procedures are required to be tailor made w.r.t. specific job.
- Work Instructions/Method Statements which define the detailed methods for the performance of the specific activities and for the preparation of project deliverables, and the associated quality controls described in this Plan.
- Inspection and test plans/checklist which define the different stages of inspection/checking and the degree of involvement of different persons/functions and the reporting formats where the record of checking will be documented.

The Quality Assurance System is developed and maintained by QA/QC Head who reports directly to the Head Operation has the authority and responsibility for ensuring that the quality requirements of Construction activities are implemented and maintained. QA/QC Head is independent of all other construction managers and not accountable for the construction progress. QA/QC Head is therefore free to audit and examine all areas of the construction management, to highlight all non-compliances identified and to ensure that agreed corrective actions are taken.

9 CONSTRUCTION QUALITY OBJECTIVES

Quality Objectives have been derived from “Project Quality Concept” to translate the Quality Vision into working system. Every Departments will focus their activities to monitor and achieve the Construction Quality Objectives.

To plan and produce all products as per customer specifications & standards.

To exceed norms related to health, safety and environment.

To develop required competence among our employees and to develop team spirit.

To reduce internal rework by formulating systems and constant adherence to them.

VEPL & AIL Quality Objectives as per Attached **Annexure-I**



10 QUALITY CONTROL SYSTEM

All company personnel are responsible for the quality control of their own construction activities as per approved job specific quality plan. Personnel are responsible for construction and contract management as per following details.

➤ **Input Control:**

- **Document and Record Control:-**

Responsibility: - Planning Engineer

Only Issued for Construction (IFC) status documents are to be used for Construction management activities.

Documents received as input to Construction activities are routed through planning department. All documents will be transmitted to all technical department/site engineers, through transmittal note.

All final certification work will be verified with respect to the latest IFC document. Any old revision of the documents will be marked suitably to indicate the status and to prevent its unintended use.

Sub-agencies are responsible for the document control and record control for their scope of services.

Responsibility: - Quality Engineer

Quality Engineer shall be maintain all the approved procedures, Work Instructions, Methodology, ITPs and WPS.

VEPL has prepared documents as considered necessary to ensure effective planning, operations and controls of its processes.

The records needed to show effective implementation of the QMS and its control has been prepared. These records are controlled as per procedure for Control of Records.

- **Control of Materials:-**

Responsibility: - Material Coordinator

Material controllers are responsible for the control of received materials and equipment from client, if any defect observed in free issued material; it will be intimated to client for the repair/replacement.

All consumable which forms the part of the final product of construction work will be procured only from approved Vendor.



Material controller is responsible for storage of material and ensures proper identification and traceability of materials while material received and also during construction and fabrication stage. Receipt storage preservation and issue of project materials and documentation.

- **Resource Management:-**

Responsibility: - Site In charge

All resource e.g. equipment, facilities, finance, information, materials, computer software, personnel, services and space will be planned and organized.

- **Training of Supervision Personnel:-**

Responsibility: - Site In charge

The necessary competence in terms of qualification, training, knowledge, skills and experience should be defined for personnel working on the Construction Work.

All persons recruited for supervision work will be competent to perform the function. Competency of the personnel will be identified based on competency requirement of the job.

Shop / Site In charge is responsible for organizing structured training against the identified need to improve the competency of the personnel.

Shop / Site In charge will establish a direct communication with other department for identification and organization of training and certification.

Training Calendar shall be established based on Site requirements.

➤ **Process Control**

- **Job Supervision and Process Control:-**

Responsibility: - Site In charge

Before the start of work, lesson learnt, and any other specific requirements will be communicated through start-up meeting by the concerned discipline leads, If any.

Quality Lead Engineer of the respective area will ensure that specific and continuous training is conducted on lesson learnt, in addition to the specific training based on the audit/surveillance observations and deviations.

All the resources that have been planned will be organized.



All Concerned engineers will get the job executed from identified contractors with identified resources as per the agreed quality management system. The competency and/or qualification of the personnel engaged for the job will be verified before the start of work.

All Concerned engineer will observe the actual execution of work in comparison to the planned quality requirements and bring out the difference (if any), carry out root cause analysis and initiate action to remove the cause identified.

- **Inspection and Testing:-**

Responsibility: - QA/QC Engineers

Job specific ITP will be prepared and will obtain the approval from Client. All concerned engineers will carry-out inspection as per job specific inspection and test plan (ITP) during various phases of execution and ensure rectification of the deficiency before the work is allowed to be passed on for next operation. All standard quality procedures, ITPS and reporting formats will be available at work spot.

For the purpose of Construction Supervision, implementation of Inspection & Test plans, preparation /compilation of Records, activity wise responsibilities will be communicated with all concerned engineers.

Area QA / QC Engineers is also responsible for carrying out surveillance of all work and publish nonconformance when detected during job execution. Shop / Site In charge and his team will be responsible for implementation of corrective action.

Incident reporting:-wherever rework is involved due to nonconforming product/process, concerned discipline engineers will be responsible to record the rework to facilitate proper analysis and necessary corrective action to avoid such problems in future. It is mandatory to report all such incidents to the overall interest of the project to initiate necessary corrective and preventive action well in time.

- **Identification and Traceability:-**

Identification and traceability will be maintained as per specification requirements for the Inward material, during fabrication and after painting as detailed in the inspection and test plans.

- **Control of Monitoring & Measuring instruments:-**

All discipline engineer will ensure that all instruments used for monitoring and measuring the processes /final product are calibrated and log maintained.



- **Handling, Storage and Preservation:-**

Material coordinator is responsible for development and implementation of specific Handling, Storage and Preservation of all materials and equipment.

Quality coordinator will carry out periodic surveillance to ensure that the procedure for materials storage and preservation at site store is implemented and followed.

- **Control of Field Noncompliance:-**

Responsibility: - QA/QC Engineers

All nonconformance detected during job execution will be controlled and documented.

- **Corrective and Preventive Actions:-**

Responsibility: - QA/QC Engineers

All corrective and preventive actions taken against NCR and Audit/surveillance findings or feedback will be controlled and documented.

- **Quality Audit/Surveillance:-**

Responsibility: - QA/QC Engineers

Six monthly scheduled quality audits will be conducted based on area wise, as per audit schedule. Construction Quality achievement status will be reported along with other observations and noncompliance in the Audit Report. In addition to the Scheduled audit, planned and unplanned surveillance will be carried to verify the maintenance of the agreed quality system. Any noncompliance observed during the planned and unplanned surveillance will be reported with root cause analysis and responsibility.

Shop / Site In charge will identify discipline engineer for active participation in the Audit / Surveillance activity and subsequent liquidation of audit findings.

- **Quality Review Meeting:**

Responsibility: - QA/QC Engineers

For each area, Quality review meeting will be conducted at planned interval along with all company personnel to review the suitability of their quality management system and changes required. This review meeting will be conducted for each area with the involvement of shop / site in charge and supervisors.

The input of area quality meeting will be

- a) Audit/Surveillance Result of the technical function and working nature.
- b) Incident Reporting/observation status root cause analysis.
- c) Quality Objective achievement status.
- d) Status of action related to last review.
- e) Recommendation/Improvement suggestion and action.

The MOM of the quality review meeting will be published by the QA/QC Team with clear action points covering commitment against Improvement of the present status of achievement of Quality Vision.

- **Quality Monitoring:-**

Responsibility: - QA/QC Engineers

The following quantitative quality rating will be followed to reflect the quality level achievement status.

Refer Annexure-I

- **Control of Output**

Responsibility: - Discipline Engineers / Supervisors

During execution and after completion of work; inspection, testing and acceptance all stage wise inspection records will be compiled per procedure for project system handover dossier and will be handed over to client after mechanical completion.

- **Lesson Learnt & Quality Improvement**

Responsibility: - QA/QC Engineer.

All deficiencies recorded during the job execution will be compiled, analyzed and the requirement of modification of existing plan, procedures will be identified jointly by Shop / Site In charge and Quality Engineer.

Necessary training plan will be forwarded to share those learning to training department to include in their training plan.

Management review meeting shall be established once in a year & shall be documented information.



11. PRODUCT REALIZATION

➤ Planning

The product realization is planned in a manner consistent with the requirements of other processes of the QMS.

While planning product realization quality objectives, requirement of product, process, procedures, standards, and specifications are taken into considerations.

➤ Review of Requirements of the Product

The organization reviews the requirements of the product prior to its commitment to the customer.

The review consists of:

- a) Clarity in the product requirements
- b) Resolution of any difference between contract/order and quotation/product catalogue
- c) Organization's ability to meet the requirements

➤ Customer Communication

The organization ensures that effective communication is maintained with the customer.

➤ Inspection and Testing

Based on scope of work, client specification; inspection and testing requirements shall be carried out.

- Incoming Materials Inspection
- Piping Spools Inspection
- Structural items inspection
- Pre and Post Welding Inspection
- Painting Inspection

➤ Control of product and service provision

Product and Service provision shall be controlled through the implementation of standard procedures and/or job instructions, as appropriate to the process complexity/criticality and client specification requirements.

Monitoring and measurement of processes activities shall be undertaken at planned intervals using appropriate monitoring and measurement devices, to ensure the continued conformance of process capability.



➤ **Identification and Traceability**

Item identification shall be maintained during all phases of receipt, storage, and dispatch. Identification of incoming components will be confirmed against delivery dockets and heat numbers shall be checked against the material test certificates.

➤ **Preservation of Product**

The materials are stored in appropriate racks in stores designated for the purpose. The fabricated spool or structures and equipment at shop floor are properly covered to avoid settling of dust particles, machining burrs, welding spatters etc. when not under fabrication. The surrounding area is cordoned off for safety chain railing to avoid damage. The records of the incoming and outgoing material are maintained at Stores Department.

The materials are properly handled and moved with the help of overhead rail lifting hooks and Forklift vehicle available at shop floors. This utility avoids any damages caused during material movement within shop floor.

The materials, which are prone to rust, are coated with red oxide paint or any anti-corrosive material as specified by customer during storage and dispatch. Materials are suitably loaded during mobilization, to avoid damages to its surface or cause any accidents. Packing of the semi or finished product is done as per requirement to take adequate measure of safety.

➤ **Control of Monitoring and Measuring Devices**

Quality representative shall ensure that inspection and test equipment used are certified or calibrated through NABL lab.

12. MEASUREMENT, ANALYSIS AND IMPROVEMENT

➤ **Customer Satisfaction**

The Head Operation shall implement methods of collating data to establish levels of satisfaction/dissatisfaction, and identify the current and future needs of the client and any opportunities for improvement by communicating with the customer, customer complaints and correspondence.



➤ **Internal Quality Audit**

The QA/QC Head or the nominated representative shall develop an audit plan for project activities to determine whether the system and practices employed by VEPL are conforming with agreed and specified requirements and are suitable and effective. Frequency for Quality Audit specific for AIL project shall be once in a 3 month. Actions arising from audits shall be addressed by the Shop / Site In charge to address potential areas of concern.

➤ **Monitoring and measurement process**

Management practices and associated systems shall be subjected to ongoing review to identify actual/potential deviations from planned performance objectives and potential initiatives for process improvement.

➤ **Monitoring and measurement product**

Product characteristics shall be progressively monitoring and measured to verify conformance to planned/specified requirements.

➤ **Control of Non-Conforming Product**

In case a product does not conform to its requirements, the nonconforming product is identified and controlled to prevent its unintended use or delivery. Specific responsibility and authority for dealing with Non-conforming products are assigned. Records are maintained of the nature of nonconformities and any subsequent action taken.

➤ **Analysis of data**

The project manager shall analyze data collated during monitoring and measuring activities for inclusion and consideration during management reviews. Any inappropriate trends identified during the management reviews shall be investigated and opportunities for improvement implemented.

➤ **Corrective action**

If non-conformity is noticed a suitable corrective action is taken to eliminate the cause of the nonconformity in order to prevent its reoccurrence. It is ensured that the corrective action is appropriate to the effect of the non-conformities encountered.

➤ **Preventive action**

On the basis of analysis of data the organization determines possible preventive actions to eliminate the causes of potential nonconformities. The preventive action should be appropriate to the effect of the potential problem.

13. RESOURCE MANAGEMENT

➤ Human Resources

The Shop / Site In charge shall ensure that all personnel whose duties influence the safe execution of the work in accordance with the time, conformance or cost requirements are selected on the basis of prerequisite qualifications and competencies with due regard being given to skill levels, experience, awareness of quality and HSSE requirements, ability to follow procedures and instructions, team spirit.

➤ Competence, Awareness and Training

The project manager shall identify and implement the training requirements to ensure required levels of safety, quality and personnel expertise are developed and maintained.

➤ Infrastructure

The project manager shall coordinate the availability of the site facilities, plant and related support services required to meet the requirement of the contract program.

➤ Work Environment

To achieve conformity to the product requirement, the top management shall provide suitable and safe work environment such good lighting, bearable sound level, comfortable temperature, personal protection gears etc.

14. ANNEXURES

1. ANNEXURE-I: VEPL & AIL QUALITY OBJECTIVES
2. ANNEXURE-II: PROJECT ORGANOGRAM
3. ANNEXURE-III: QUALITY DOCUMENT CONTROL INDEX



ANNEXURE-I

VEPL & AIL - Quality Key Performance Indicators / Objectives

Sl. no	Quality Objective	Frequency of Measurement	Desired Benchmark
1	Weld Repair rate	Monthly	2% Max
2	2.1) Business Partners Quarterly internal Audit Conductance 2.2) Timely closure of Internal Audit observation	Quarterly	1) 95% Min 2) 95% Min
3	Effective Implementation of Quality Plan/ITP(FOR, NCR Issue & Closure). 3.1 Issue of FOR/NCR by Clients 3.2 Issue of NCR(Cumulative Nos issued)/Total Nos of six monthly periods considered for each BP in each project. 3.3 Timely closure of FOR/NCR	Monthly	1) FOR- 2 Max / Month 2) NCR - 1 Max /Six Month 3) 95% Min
4	Approval of QAP and ITP within one month of Kick off meeting	Monthly	100%
5	Quality Awareness training	Monthly	minimum 4 / Month
6	Open Punch Points at the time of loop handover for hydro testing	-	1% Max
7	RFI - (Request for Inspection) - Construction Rework due to unacceptable quality (Stage wise Inspection check correctness as per ITP) Calculation Part: Cumulative RFI with punch points requiring reinspection * 100 / Cumulative No. of RFI issued.	Monthly	5% Max

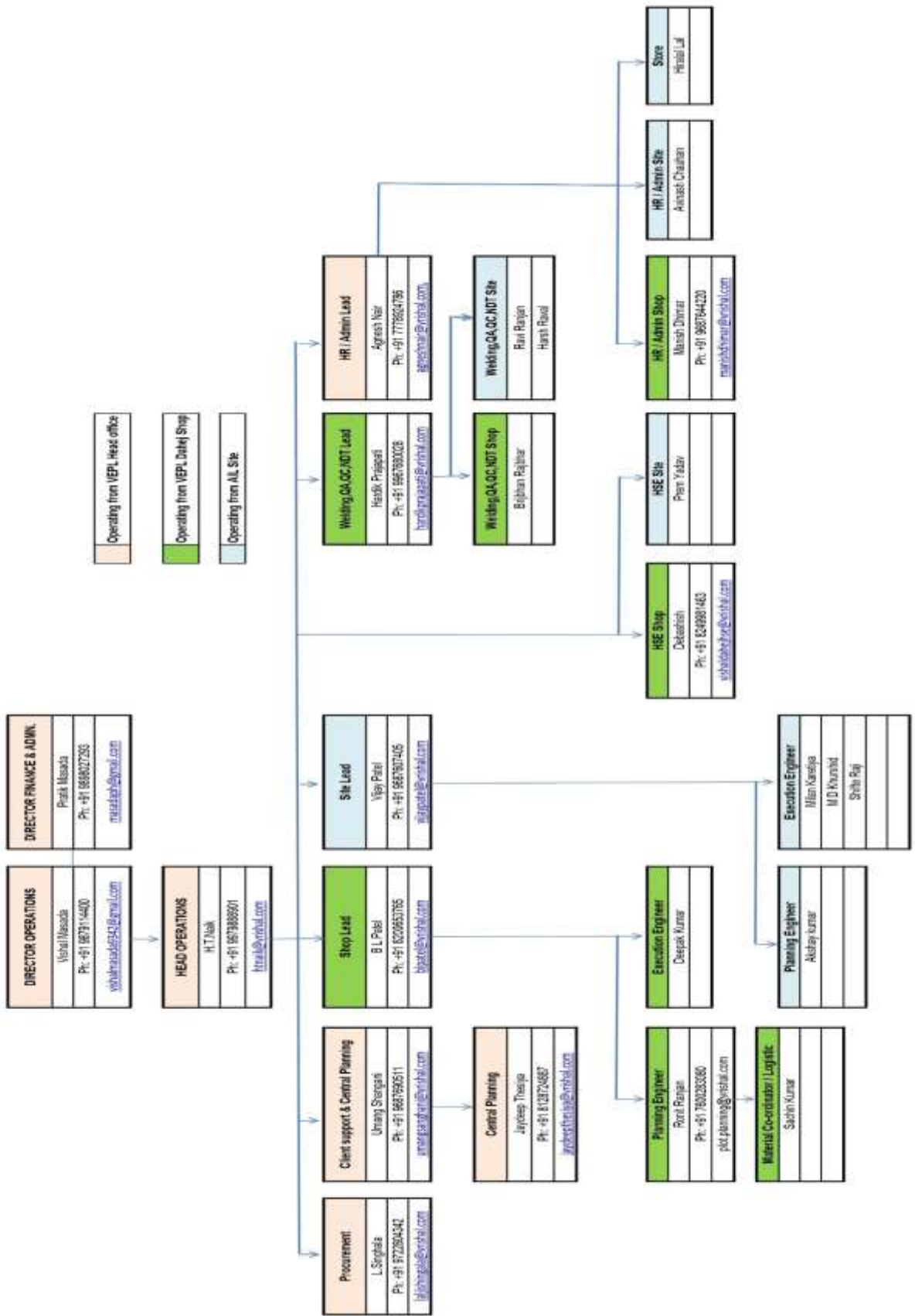
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ANNEXURE-II

ORGANIZATION CHART REV 00 Dt: 26.03.2024

CLIENT : AIL JHAGADIA, ZONE-4

PROJECT : CORAL-2



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ANNEXURE-III



VRISHAL ENGINEERING PRIVATE LIMITED



QUALITY DOCUMENT CONTROL INDEX

CLIENT : AARTI INDUSTRIES LTD - JHAGADIA, ZONE-4

PROJECT NAME : CORAL-2

SR.NO	DOCUMENT NO.	DOCUMENT DESCRIPTION	REV. NO.
<u>QAP</u>			
1	VEPL/AIL-J/CORAL-2/QAP-001	PROJECT QUALITY PLAN	0
<u>ITP</u>			
2	VEPL/AIL-J/CORAL-2/ITP/001	ITP FOR ROTARY EQUIPMENT INSTALLATION	0
3	VEPL/AIL-J/CORAL-2/ITP/002	ITP FOR STATIC EQUIPMENT INSTALLATION	0
4	VEPL/AIL-J/CORAL-2/ITP/003	ITP FOR PIPING FABRICATION & ERECTION	0
5	VEPL/AIL-J/CORAL-2/ITP/004	ITP FOR STRUCTURE FABRICATION & ERECTION	0
<u>QA/QC PROCEDURES</u>			
6	VEPL/AIL-J/CORAL-2/QSI-001	PROCEDURE FOR PIPING SPOOL IDENTIFICATION	0
7	VEPL/AIL-J/CORAL-2/QSI-002	PROCEDURE FOR SURFACE PREPARATION AND PROTECTIVE COATING	0
8	VEPL/AIL-J/CORAL-2/QSI-003	PROCEDURE FOR LIQUID PENETRANT EXAMINATION	0
9	VEPL/AIL-J/CORAL-2/QSI-004	PROCEDURE FOR NCR	0
10	VEPL/AIL-J/CORAL-2/QSI-005	PROCEDURE FOR RADIOGRAPHY TESTING	0
11	VEPL/AIL-J/CORAL-2/QSI-006	PROCEDURE FOR MATERIAL CONTROL -STORAGE & SEGREGATION	0
12	VEPL/AIL-J/CORAL-2/QSI-007	PROCEDURE FOR PMI EXAMINATION	0
13	VEPL/AIL-J/CORAL-2/QSI-008	PROCEDURE FOR WELDER QUALIFICATION	0
14	VEPL/AIL-J/CORAL-2/QSI-009	PROCEDURE FOR WELDING CONSUMABLE STORAGE & CONTROLS	0
15	VEPL/AIL-J/CORAL-2/QSI-010	PROCEDURE FOR DIMENSION & DISTORTION CONTROL	0
16	VEPL/AIL-J/CORAL-2/QSI-011	PROCEDURE FOR WELD REPAIR	0
17	VEPL/AIL-J/CORAL-2/QSI-012	PROCEDURE FOR MECHANICAL CLEARANCE	0
18	VEPL/AIL-J/CORAL-2/QSI-013	PROCEDURE FOR PRESSURE TESTING	0
19	VEPL/AIL-J/CORAL-2/QSI-014	PROCEDURE FOR PICKLING AND PASSIVATION	0
20	VEPL/AIL-J/CORAL-2/QSI-015	PROCEDURE FOR PIPING FABRICATION	0
21	VEPL/AIL-J/CORAL-2/QSI-016	PROCEDURE FOR STRUCTURE FABRICATION & ERECTION	0
<u>WELD BOOKS</u>			
22	VEPL/AIL-J/CORAL-2/WB-001	WELD BOOK - PIPING	0
23	VEPL/AIL-J/CORAL-2/WB-002	WELD BOOK - STRUCTURAL	0

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