

	TECHNICAL SPECIFICATION OF MINIMUM QUALITY REQUIREMENTS FOR EQUIPMENT AND MATERIAL PROCUREMENT		
	ECOPETROL DESARROLLO DE PROYECTOS VICEPRESIDENCIA DE INGENIERÍA Y PROYECTOS		
	EDP-ET-001-i	Elaborado 25/01/2018	Versión: 2

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1. PURPOSE

In order to ensure delivery of defined requirements for quality, safety, integrity, reliability, maintainability and operability through the purchase process, it is necessary to accurately specify and communicate to the Supplier/Contractor ECOPETROL S.A.'s requirements for QA/QC.

This document describes the minimum quality requirements for vendors of all materials and equipment procured by or on behalf of ECOPETROL S.A. or its Representative.

This document shall be included as part of every Purchase Order/Material requisition, for all purchased materials and Equipment of projects executed by ECOPETROL S.A.

2. SCOPE

This technical specification apply to all purchases performed by ECOPETROL S.A. or third parties on behalf of ECOPETROL S.A. and for all contractors buying equipment or material to be used in the ECOPETROL projects, including to all sub-tier vendors and contractors of the main vendor.

These requirements comprise:

- General QA/QC requirements applicable to all services, equipment and materials.
- Item specific QA/QC requirements based on criticality and are communicated by means of the Purchase Order Quality Requirements (POQR).

3. GLOSSARY

3.1 DEFINITIONS

- **Hold Point:** Is a mandatory verification point beyond which a work cannot proceed without approval by ECOPETROL S.A. or it's Representative.
- **Manufacturing Inspection and Test Plan (MITP):** A controlled document produced by the vendor that identifies and lists all production, manufacturing, quality, inspection and test activities related to the supply of the material, equipment or service as specified by the purchase order. This plan will also identify the control document for each activity, responsible person, acceptance criteria, any resulting documentation and the type/frequency of the activity.
- **Quality system:** The policies, methods, procedures and work instructions used to control the activities affecting the quality of the supplied material, equipment or service. The system will contain methods for providing documentary evidence of compliance to purchase order requirements.
- **Quality plan (QP):** A controlled document produced by the vendor that identifies and lists all production, manufacturing, quality, inspection and test activities related to the supply of the material, equipment or service as specified by the purchase order. This plan will also identify the control document for each activity, responsible person, acceptance criteria, any resulting documentation and the type/frequency of the activity.

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- **Vendor / Vendor:** The Company providing the material, equipment or service described in the subject purchase order and who is identified as the vendor or recipient of the purchase order. When vendor is used in this document, it is meant to include the named company and the manufacturers, vendors and contractors involved in the supply of the specified material, equipment or services. When a purchase order is awarded to an agent or representative, vendor is considered to be the main manufacturer, fabricator or performer of the work.
- **Third Party Inspection (TPI):** the Company performing inspections on behalf of ECOPETROL S.A.
- **Witness Point:** Is an identified point in the process where the approval by ECOPETROL S.A. or its Representative may review, witness, inspect method or process of work. The activities however may proceed.

3.2 ACRONYMS

- EDP: ECOPETROL PROJECT DEVELOPMENT
- FDR: Final Disposition Report
- FI: Final Inspection Report
- MITP: Manufacturing Inspection and Test Plan
- NIB: Nominated Inspection Body
- NCR: Non Conformance Report.
- NDT: Non Destructive Test.
- P.O.: Purchase Order.
- PIM: Pre Inspection Meeting.
- PMI: Positive Material Identification
- QCMD: Quality Control Manufacturing Dossier.
- QMS: Quality Management System
- QP: Quality Plan
- TPI: Third Party Inspection
- VIP: Vice-Presidency of Engineering and Projects.

4. REQUIREMENTS OF VENDOR QUALITY MANAGEMENT SYSTEM

4.1 VENDOR QUALITY MANAGEMENT SYSTEM

Every Vendor shall have a Quality Management System that meets the applicable elements of the ISO 9001 quality system standard or equivalent, to ensure that all material and equipment purchased, processed or manufactured by the Vendor and submitted to ECOPETROL S.A. or its representative fulfills the P.O. requirements. Vendor's Quality Management System and all its associated procedures shall be implemented and available for review by ECOPETROL S.A. or its representative if required.

4.2 SUB-TIER VENDORS AND CONTRACTORS

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The vendor shall identify with its bid all major items of material, equipment or work, proposed for the purchase or service. If vendor requires the service of sub-tier vendors/contractors, it is your responsibility provide, where known, the names and locations of they.

The quality and compliance to purchase order and specification requirements of sub-ordered/sub-contracted goods or services is the prime responsibility of the main vendor.

The vendor's quality system shall provide for controlling his manufacturers, vendors and contractors and for assuring that their quality systems are appropriate for the scope of their supply.

5. VENDOR'S QUALITY PLAN (QP)

Vendor shall prepare an order specific QP covering all quality, inspection and test activities to be performed during the supply of the material, equipment or services specified in the subject purchase order. Quality, inspection and test activities performed by the vendor's sub tier manufacturers, vendors and contractors will be included in, or attached to, the vendor's QP. Those items will be clearly identified as being performed by the sub tier manufacturers, vendors or contractors.

The QP should detail how the Vendor interprets the individual elements of ISO 10005 for the application of Purchase Order/Contract works, including the controls and verifications to be put in place to assure quality during each stage of the design, procurement and fabrication including that of sub-contractors.

The QP should follow the "Guidelines for quality plans" document ISO 10005 and whilst the content may detail standard quality system processes it should also be applicable to the specific case with references to appropriate documented procedure or other documents as necessary.

The QP shall specifically address how the Contractor manages the quality of sub-Contractors and suppliers, as inadequate supply chain management is seen by the company as a major barrier to achieving quality and reliability.

Vendor will indicate on the QP which sub tier manufacturer, vendor and contractor activities he will monitor, verify or witness and shall supply to ECOPETROL S.A., on request, evidence that this surveillance was satisfactorily conducted.

Vendor's and sub-tier vendor's (where applicable) quality plans will be submitted for ECOPETROL S.A. review and validation within the time frame specified by the purchase order and prior to the start of any work. Where Pre-inspection Meeting (PIM), prefabrication or kick-off meetings are specified by the purchase order, the quality plan is required for initial review before the meeting takes place. The quality plan will be discussed and modified at the meeting prior to final submission to and validation by ECOPETROL S.A.

6. MANUFACTURING, INSPECTION AND TEST PLAN (MITP)

Where required on the Purchase Order the Vendor shall compile a Manufacturing Inspection and Test Plan. The MITP should list all the major quality related activities in chronological order in relation to the manufacturing program from initial drawings through manufacturing/construction process controls to final testing and documentation/certification for the material, item or sub-assembly. For each activity the appropriate specification procedure should be quoted, as well as the acceptance criteria and certification produced as a record of that activity.

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Provision should be made on the MITP for the Vendor, any Certifying Authority and ECOPETROL S.A. to record hold, witness, review and approve points. Spaces should be provided for the individual operations/inspections to be 'signed off' by Vendor/Supplier/Fabricator/ECOPETROL S.A./NIB/Certifying Authority, as applicable.

Where activities are to be undertaken by a sub-supplier, the MITP shall make reference to this fact and include details of sub-suppliers involvement. Separate sub-vendor MITP shall be required where Vendor/ECOPETROL S.A consider the sub-order to be a major item. All sub-vendor's MITP shall be approved by main vendor previous to submit it to ECOPETROL S.A.

The MITP's are required for ECOPETROL S.A's review and shall be informed by all parties before manufacture commences.

The MITP should also provide confirmation of the following:

- Timely approval of major sub-suppliers as required.
- Required approvals of drawings, design data, procedures, calculations etc. before proceeding with the relevant activity.
- Correct issues of drawings, specifications etc. are being used.
- Suitably experienced and competent welders and NDT operators are used and their qualification records have been made available for comment and information to ECOPETROL S.A or its representative.

The required inspection activities are identified by means of marking up the Manufacturing and Inspection and Test Plan. The following notation is commonly used:

- **AP - Approval:** ECOPETROL S.A approval required of the applicable activity or procedure.
- **H - Hold Point;** A critical operation or process beyond which work shall not proceed without attendance of ECOPETROL S.A/NIB and/or ECOPETROL Engineer.
- **R - Review:** Review of documentation providing objective evidence of the Vendor compliance with the contractual requirements.
- **W – Witness Point:** An operation or process that requires witness by ECOPETROL S.A. or its representative. The operation or process may proceed without witness only with the prior approval of ECOPETROL S.A.
- **S - Surveillance:** Periodic surveillance by ECOPETROL S.A. or its representative of an operation or process. No specific notification is required and the operation or process may proceed when ECOPETROL or its representative is not present.

Vendor shall identify it's inspection task as Hold, Witness and Review points (H, W, R, AP, S), before sending for ECOPETROL S.A. or its Representative's verification/validation.

Note: The Vendor shall provide a minimum of 10 working days written notice of Hold and Witness points, with the agreement of ECOPETROL S.A this minimum notice can be revised. Any changes to the notification period may be discussed and agreed.

ECOPETROL S.A. or its Representative shall have the right to monitor vendor's quality related manufacturing, inspection, testing and quality system activities at any time during the manufacturing, fabrication, supply or performance of the material, equipment or services specified in the subject purchase order. Vendor's failure to effectively implement an acceptable quality system which satisfies

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the intent of ISO 9001 may result in increased monitoring, surveillance and/or audit or rejection of the material, equipment or service.

Vendor will provide ECOPETROL S.A. or its representative, with access to any area where the work is being performed, including sub tier vendors and contractors facilities, and will provide all assistance necessary for him to accomplish the specified monitoring, surveillance and/or auditing.

ECOPETROL S.A. or its Representative's approval for any procedure, drawing, waiver, test or release note shall not relieve Vendor of any of its obligations under the P.O. scope, or constitute acceptance of the Goods.

7. MANUFACTURING, PRE-INSPECTION MEETING (PIM)

Purchase Order of inspection level 2 and above may require a PIM (Pre-inspection Meeting) with the Vendor/Manufacturer PRIOR TO the start of fabrication in order to clarify and resolve all Inspection and quality issues, as well as give final approval to MTP's. This meeting will be scheduled by mutual agreement between ECOPETROL S.A. or its Representative and the Vendor. The PIM can be performed at Vendor's fabrication shop preferably but not mandatory.

Inspection level shall be defined into the Material Requisition or Purchase Order and shall be categorized as follows:

- Level 0: Document submittal requirements only; ECOPETROL S.A. or its Representative's visual inspection is not required.
- Level 1: Only final inspection is required prior to shipping.
- Level 2: Includes, as a minimum, pre-inspection meetings, one or more unspecified "in progress" surveillance visits, all witness and hold points, final inspection, and release for shipment.
- Level 3: Same as Level 2, except "in progress" surveillance inspections shall be on a Regular basis (daily, weekly or bi-weekly, etc.).
- Level 4: Resident inspector continuously monitoring and reporting the work.

In all cases, all P.O's should have inspection level on it, In case that no inspection level is assigned into the P.O or attached documents, Vendor shall communicate in written to ECOPETROL S.A. or its Representative in order to assign the respective Inspection level.

Vendor shall have available all required documents, drawings, a record of their approval status, and the production schedule, available for review during the PIM.

Fabrication can NOT proceed unless successful Pre-inspection Meeting has been conducted and recorded properly.

Vendor shall cooperate in the conduct of the pre inspection meeting and will have present the appropriate personnel representing quality, engineering and production. Sub tier vendors performing work affecting the quality of the material or equipment should also be represented.

A suggested PIM agenda will contain (when applicable) but not limited to:

1. Introduction of Attendees.

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2. Organization chart & points of contact.
3. Verify Purchase Order acknowledgement.
4. Review Purchase Order and applicable specifications.
 - ✓ Verify completeness and scope of supply
 - ✓ Highlight specific requirements with regard to supply & inspection
 - ✓ List any exceptions / deviations
5. Clarify documentation requirements.
6. Review sub-order schedule.
 - ✓ Review controlling documentation for sub suppliers
 - ✓ Material procurement status
7. Traceability and certification.
8. Confirmation of production schedule.
9. Review of Quality documentation and Special processes procedures
 - ✓ ITP's
 - ✓ Weld procedures & PQR's
 - ✓ NDE procedures & extent of testing and personnel qualification
 - ✓ Alloy verification procedure
 - ✓ Hydrostatic test procedure
 - ✓ Third Party involvement
 - ✓ Other test procedures
10. Notification for Inspection.
11. Non-conformance procedure.
12. Protection, preservation, packing, marking, storage and shipping preparation.
13. Requirements for Inspection Final Disposition Report & Final Quality Dossier.
14. Inspection release certificate procedure.
15. Release note procedure
16. Tour of suppliers works to review available facilities, manpower, and workload.
17. Any other Quality business

PIM report by the vendor shall be submitted to ECOPETROL S.A. or its Representative within 7 calendar days after conducted.

In the unlikely case where a PIM is waived in written by QA ECOPETROL S.A. or its Representative, as a minimum, a review of the P.O. and ITP will be conducted by ECOPETROL S.A. or its Representative's inspector with the Vendor and report shall be submitted to ECOPETROL S.A. or it's Representative within seven (7) calendar days after conducted.

Actions and issues noted during the PIM shall be promptly resolved and attended by Vendor before the first inspection point, where the PIM Report action plan will be revised.

8. RIGHT OF INSPECTION ACCESS

ECOPETROL S.A. or its Representative's assigned inspectors shall have open access to Vendor's and/or sub-Vendor's workshops for inspection of the goods at various stages of completion as per MITP inspection points and additional assessments or audits if required.

Vendor shall provide all means and resources and assistance to facilitate the performance of the scope of the inspection.

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Assistance may include, but not be limited to:

- Adequate office facilities to allow for review of documentation, preparation of reports and communication with project offices (i.e. telephone and Wi-Fi access).
- Adequate lighting to allow for the performance of the specified inspections.
- Provision of inspection and measuring equipment necessary to verify compliance to purchase order requirements and access to forklifts, scaffolds, ladders, manlifts, tools, etc.
- Provision of personnel and equipment for moving, turning and positioning of the material or equipment as necessary to perform the inspection.
- Provision of documentation necessary to verify compliance to purchase order and quality system requirements.

9. INDEPENDENT INSPECTION

ECOPETROL S.A. may appoint a third party inspection (TPI) or NIB to verify that all Purchase Order and related Specifications/Requirements are complied with during equipment manufacture, subsequent factory acceptance testing and handling, preservation, packaging and transport.

The cost of the TPI/NIB will be to ECOPETROL S.A's Account.

10. INSPECTION AND TEST NOTIFICATION

Formal inspection notifications must be issued by Vendor to ECOPETROL S.A. or its Representative at least five (5) working days prior to the scheduled inspection date.

The inspection notification shall be officially and formally communicated to ECOPETROL S.A. or its Representative via email and shall include the following:

- Name of person to contact, including telephone number and email address
- P.O. and item numbers
- Any sub-order number assigned by Vendor or sub-Vendor
- Plant location and date goods will be ready for inspection
- The ready inspection points as identified by the approved MITP

Any verbal notification shall be confirmed in writing within twenty-four (24) hours with the above details.

In all cases, Vendor must ensure that Inspection Notifications are received properly and processed by ECOPETROL S.A. or it's Representative. Failure to provide notification may result in rejection of the material, equipment or service and/or a request for any tests or inspections completed by the vendor to be repeated at vendor's cost.

If any inspection or test witnessed by ECOPETROL S.A. or its Representative, or by another party on behalf of ECOPETROL S.A. reveals any defect in Vendor scope of supply materials or during the WORK, Vendor shall bear the cost of such inspection and testing, and shall promptly correct such defect at Vendor's expense.

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If any inspection or test to be witnessed by ECOPETROL S.A. or its Representative, or by another party in behalf of ECOPETROL S.A. is scheduled, confirmed and such inspection is cancelled, postponed, skipped, delayed, declined due to Vendors entire cause, such as lack of readiness, Vendor shall bear the cost of that inspection.

Where QA ECOPETROL S.A. or its Representative decides to waive participation in a witness or hold point, the Vendor shall proceed with inspection upon receipt of the declination notice and shall submit the required records to ECOPETROL S.A. or its Representative's Inspection Coordinator/Expediter prior to shipment. In the case of sub-orders, data shall be reviewed and approved by the Vendor prior to submittal to ECOPETROL S.A. or it's Representative.

11. DOCUMENTATION

Vendor's quality system shall provide for controlling documentation relating to the quality of the material, equipment or services specified in the subject purchase order. It shall assure that changes to the purchase order, specifications, procedures, drawings, etc., are identified, controlled and distributed to personnel responsible for performing the work and that the latest authorized applicable documentation are used for material and equipment fabrication, inspection, and testing and ensure obsolete information is clearly identified or removed from work areas to prevent inappropriate use.

All drawings shall clearly show all the changes performed during design revisions and changes defined in the engineering technical specification of the purchase order.

12. RECORDS

Vendor shall maintain adequate records of all inspections and tests as well as material traceability. Records shall provide information regarding the number and nature of observations made; the number and type of deficiencies found; quantities of goods approved and rejected; and the details of any corrective and preventive actions. These records shall be available to ECOPETROL S.A. or its Representative inspectors for review.

13. RESOURCES

Vendor shall ensure assigned experienced, competent and enough certified personal required to cover all quality activities required in MITP's, the scope and requirements of the purchase order.

Vendor shall provide and maintain measuring and test equipment necessary to ensure products conform to P.O. requirements. In order to ensure continued accuracy, this equipment shall be calibrated at defined intervals against certified standards which have known valid relationships to international or contractual standards. When required, Vendor's measuring and test equipment calibration documents shall be available to verify by ECOPETROL S.A. or its Representative inspectors to determine product conformance to P.O. requirements and, if necessary, Vendor personnel shall be available to operate such devices.

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14. TECHNICAL REQUESTS

ECOPETROL S.A. standards shall be fully complied by the Vendor and its sub-Vendors. Any request to deviate from any applicable procedure or standard requirements must be formally initiated under Technical Request Process and submitted by the Vendor in accordance with the applicable ECOPETROL S.A. procedure.

14.1 DESIGN DEVIATION REQUESTS (DDR's)

Any deviation to an approved design shall be subject to a rigorous Technical Request process to ensure that design intent is not compromised.

In the event that the Supplier cannot comply with the Purchase Order and related specification requirements the Supplier is required to complete a DDR (EDP-F-077) and forward it to original ECOPETROL S.A Specifying Engineer for consideration prior to commencement of manufacture.

If as result of the deviation requested, any change to the original design is required, the new changes shall be subject to a management of change process and the new design shall be subject to the same level of checks and approval as the original design and the impact of the changes on the original design intent, associated equipment, operational reliability and plant safety shall be evaluated and approved by ECOPETROL S.A.

14.2 CONCESSION REQUESTS (CR's)

Following commencement of manufacture, if not previously included in the scope of an ECOPETROL S.A approved DDR, no changes to the Specifications, MITP or Purchase Order are permitted without a formal Concession Request that has been reviewed and approved by ECOPETROL S.A.

A CR is defined as a written application by the Supplier requesting ECOPETROL S.A to accept at least one action or item that deviates from agreed specifications as a consequence of a non-conformance. A non-conformance is a non-fulfilment of a requirement within an agreed specification for design, manufacture, construction, intervention, test or commissioning.

A CR may only be made in exceptional circumstances in accordance with an approved ECOPETROL S.A procedure using the form EDP-F-077.

A Concession is not required for a repair which is normal in process repair allowed by the Specification such as grinding to remove Non-Destructive Examination indications, weld repairs in accordance with an ECOPETROL S.A approved procedure or standard mechanical test re-test criteria.

15. IDENTIFICATION AND TRACEABILITY

Vendor shall have a system that ensures purchased goods are properly identified, inspected and controlled, upon receipt as required by the applicable standards and specifications. Required material certifications and test reports shall be available for review by ECOPETROL S.A. or its Representative inspectors. The system shall ensure that accepted material is used in fabrication and assembly. Traceability of the material shall be maintained in accordance with applicable codes, standards, and

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specifications. In the event material cannot be identified or a reasonable doubt exists on its identity, Vendor shall replace the material for new traceable one at its own expense.

Using EN 10204 'Metallic Products - Types of Inspection Documents' as the basis, The Vendor shall develop an Identification, Traceability and Certification Matrix which details the requirements to be followed for identification and traceability process.

- All types of products that require certification and traceability, not just metallic products.
- Provision of certification and traceability requirements.
- Positive identification and location of mater.
- Type of material certificate to be supplied.

16. PRESERVATION, HANDLING PACKAGING AND TRANSPORT.

The Vendor shall, in accordance with the Quality Plan, prepare a procedure for handling, preservation, packaging and transport.

Vendor shall establish procedures to ensure the quality and integrity of the different equipment and materials that may be affected by inactivity and environmental phenomena during warehousing (indoor, outdoor or temperature controlled rooms), prior to the formal installation and / Or start-up of materials and equipment.

The procedures shall ensure that goods are received, handled, cleaned, packaged, stored, preserved and shipped in a manner which prevents damage and deterioration in accordance with all PO requirements.

The procedures shall include:

- Identification and description of requirements for preservation procedure.
- Performing the initial maintenance preservation at shop.
- Preservation forms and labels (indicated responsible, fluid, pressure, and date).
- Toxicological data sheets for all products used for preservation activities.
- The identification, protection and equipment packaging, including a list of preservation materials and methods used.
- The storage of materials and equipment during construction period at Ecopetrol plant.
- The mechanism for protections removal and/or support structures as well as the lifting procedures and designs that allow the equipment safe movement.

ECOPETROL S.A or its representative will monitor the preservation, handling and packaging of the equipment to ensure the following, when applicable:

- Preservative shall be applied to flange faces to ensure no corrosion occurs during transport and subsequent site storage.
- Flange faces shall be protected against transit damage utilizing a wooden blind of minimum thickness 12mm with a polythene/rubber gasket, the securing bolts should ensure no excessive movement can occur.

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- Movement of rotating or reciprocating elements are to be blocked to prevent damage in transit by sliding. Equipment to be clearly labelled as to mechanical restraints used.
- Equipment is labelled, warning of any inhibitors or desiccants used.
- Particular attention should be paid to lifting points. When spreader bars or other equipment are to be supplied, these shall be provided with proof load test certification issued by an approved statutory lifting equipment test house and marked accordingly.
- ECOPETROL S.A. or its representative will carry out inspection of any coatings as required by the Purchase Order and Manufacturing Inspection and Test Plan (MITP).
- In the case of un-coated equipment, the equipment is to be prepared to ensure no corrosion occurs during the vendor's storage, transportation and subsequent site storage.
- Items of equipment may require to be weighed prior to shipping and a weight report issue containing the center of gravity locations.
- Any temporary support and fixings to be painted a different color to the package and marked temporary.

17. INSPECTION REPORTING

ECOPETROL S.A.'s or its representative will report his inspection visits and reports shall be copied as a minimum to a permanent record file and distributed according to Purchaser requirements.

The content of inspection reports shall be in accordance with Purchaser requirements; reports normally need to be comprehensive in order to aid continuity of inspection and for subsequent reference.

Following is a list of typical information that may be required in an inspection report:

- Means of identification to purchase order or sub order e.g. order number, sub order number.
- Specifications applicable
- Manufacturers (including all sub-suppliers)
- Equipment detail
- Document approvals (and status)
- Problems/deviations
- Actions required
- Inspection activities carried out against the MITP referenced activities, including a statement on the result of the inspection
- Next inspection date

An Inspection Report should be issued:

- Within 24 hours of the inspection being carried out.
- On a weekly basis in the case of resident inspection in the suppliers premises or multiple visits within a one week period.

18. RELEASE OF EQUIPMENT AND MATERIALS

Prior to a Release Note being issued, it is incumbent on the Specifying Engineer to ensure that the following design engineering approvals are in place:

- All Deviation Requests are approved.
- All Concession Requests have been signed off by ECOPETROL S.A. or its representative.
- Where required the item has been weighed and a weight certificate has been submitted.

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- All supplier documentation has been submitted and approved.
- Final testing is complete.

A document status report is to be issued to ECOPETROL S.A. or its representative to ensure that the final inspection is against the latest approved documents.

When all of the above points have been complied with and inspection activities have been satisfactorily completed a Release Note shall be issued.

It is a requirement that a Release Note be dispatched with the item, plus any other documentation as required by the PO, as an aid to goods receipt inspection.

Note that a conditional Release Note should only be issued to a supplier with the written agreement of the Purchaser.

Release notes are not authority for the supplier to dispatch the goods. This can only come from ECOPETROL S.A. by issue of a clearance authorization.

No equipment or material, with inspection level 1 or higher, must be dispatched without the Release Note issued by ECOPETROL S.A. or its representative as evidence of product conformity.

19. CONTROL OF NON-CONFORMANCE

The Vendor shall implement an internal control procedure for managing non conformances.

This procedure shall address disposition of the non-conforming material, component or equipment; identification the root cause of the nonconformance and agreed corrective action to prevent re-occurrence.

When a non-conformance is identified by Vendor's own management system, a Non-Conformance Report (NCR) shall be raised by the Vendor on his own forma. The TPI/NIB should ensure that the Vendor actions for all NCR's are managed through his own approved internal non-conformance control procedure and shall ensure close out of all NCR's prior to dispatch of the goods. Vendor shall ensure that all NCR's are addressed properly. If the non-conformance is identified by TPI/NIB, this shall be reported to ECOPETROL S.A. and a NCR shall be submitted by TPI/NIB to vendor in the ECOPETROL S.A. form EDP-F-011.

The Vendor shall seek authorization from ECOPETROL S.A. to use, repair, recondition, reclaim or release a quantity of material, components or equipment already in process or manufactured, that does not comply with the specified ECOPETROL S.A. requirements, including any change affecting specifications agreed by design review, the Risk Analysis process, and qualification or type testing. Examples of such non-conformance are listed below.

- Any material property which is out of compliance with the material specification for major project items. Major project items include all pressure containing main bodies.
- Any defect requiring weld repair of or into the base material, and for which the weld procedure requires either pre-heat or post weld stress relieve.
- Any repairs of the corrosion resistant cladding if extended within 1 mm of the base material.
- Any repair requiring modification to an adjacent or mating part.

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- Any dimensional defect, the repair of which would affect fit/form/function/interface or interchange ability of the item or assembly.
- Any non-compliance against ECOPETROL S.A. specification requirements.

All non-conformances and relevant corrective actions shall be approved by ECOPETROL S.A before being repaired, and therefore should be reported to ECOPETROL S.A on an immediate basis.

All such concession requests will be submitted using the ECOPETROL S.A procedure for Technical Requests and should also be recorded in.

Vendor shall have a procedure that details the process to identify, correct and record all material, testing, and manufactured product non-conformances against the requirements of the P.O. technical specification.

20. FINAL DOCUMENTATION

20.1 MATERIALS FINAL DOCUMENTATION

For material P.O.s, the vendor shall submit to ECOPETROL S.A, as minimum the following documentation

- Materials certificates according to industrial standards and EN 10204.
- Test report and compliance certificate according the product type, industrial standard and EN 10204
- Material traceability documents if apply.
- Data Sheet.
- Catalogue.
- Drawings if apply.

20.2 EQUIPMENT DATA BOOK- MANUFACTURING

The final documentation that Vendor shall submit to ECOPETROL S.A. for the delivery of the equipment are those defined in the Purchase Order and its attachments. As minimum the documents are:

- Documents established in the industrial applicable standards according the type of equipment (API, ASME, etc.).
- Documents defined in the PO issued by ECOPETROL S.A.
- Final MITP.
- Copies of changes approved by ECOPETROL S.A. (DDR 's and CR 's).
- Copies of all Internal and ECOPETROL S.A. issued NCR's with final dispositions and resolutions.
- Outstanding punch list items
- Pre-shipment inspection forms

Vendor shall provide all records and data required according with ECP-VIN-G-GEN-GT-003 Guide for Preparation of the Quality Control Manufacturing Dossier.

Records shall be made available to ECOPETROL S.A. or its Representative inspectors before or at the time of final inspection. Data is to be reviewed and stamped by ECOPETROL S.A. or its Representative's

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inspector and an evidence of this review is to be included with the documentation and final equipment data book.

RELACIÓN DE VERSIONES

Versión	Fecha	Cambios
2	25-Ene-2018	General review and update of reference documentation (Revisión general y actualización documentación de referencia)
1	27-Mar-2017	Elaboración del documento

Para mayor información sobre este documento dirigirse a quien lo elaboró, en nombre de la dependencia responsable:

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