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MANUFACTURING ASSURANCE

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PURPOSE AND SCOPE

Manufacturing Assurance is a system of checks and audits, undertaken on behalf of National Grid, to ensure that throughout the manufacturing process the manufacturer's quality systems demonstrate compliance with the requirements to National Grid policy, relevant specifications, standards and satisfies the quality expectations for that product, prior to leaving their place of manufacture.

Manufacturing Assurance is to be undertaken to validate the Supplier/Manufacturer Quality Control Systems.

Manufacturing Assurance is a process to determine that the identified Delivery Unit Quality Systems are in compliance with their own requirements with regard to the inspection, testing and confirmation of compliance with manufacturer's quality control processes throughout the product's manufacture.

The Delivery Units shall develop and implement working procedures and detailed processes to comply with the requirements of this procedure.

PART 1 – PROCEDURAL

1 RESPONSIBILITIES

1.1 Delivery Unit Project Management Team

The responsibilities for enacting Manufacturing Assurance lay with each Delivery Unit Project Management Team.

1.2 National Grid Construction Business Integrity – Technical Assurance

Technical Assurance shall ensure compliance of this procedure by Manufacturing Assurance Process Assessment and Audits.

2 MANUFACTURING ASSURANCE

2.1 Manufacturing Assurance Strategy

The implementation of the manufacturing assurance strategy includes the:

- Identification and notification of any product, new or established, that will be employed in the delivery of the project.
- Establish the Intervention Level (see section 2.3) for the Manufacturing Assurance required for each product.
- Estimate the appropriate level of costs to be allocated against the project for manufacturing assurance activities.
- A procurement supplier assessment strategy.
- A Type Registration procedural (TP183) and specification strategy

2.2 Level of Manufacturing Assurance

Quality Inspections/Audits are to be undertaken at the supplier's/manufacture's location.

The level of manufacturing assurance is determined by the following criteria, as a minimum requirement:

- **Design Process Complexity** - the overall complexity of carrying out design, analysis, and development. This is not the complexity of the parts or the function of products or services.
- **Production Process Complexity** - the number of different processes involved and the difficulty of each process.
- **Product Characteristics** - the inherent complexity of the product such as number of moving parts, leak-tightness, strength, resistance to corrosion, abrasion, creep, and electrical characteristics.
- **Programme Effects & Economics** - considered in terms of the effect that a delay in manufacture or failure during final test would have on the overall project programme and any associated costs.
- **Health, Safety, Environment and Quality** - the potential level of impact or risk of injury should failure of the product occur in service for whatever reason.
- **Design Maturity** - defines the availability of proven design.
- **Supplier Performance** - considered in the context of knowledge of the supplier involved for the particular equipment type.
- **Change Process** – considered in terms of how potential changes are managed with regard to time and cost.

Each Delivery Unit will be required to develop a method of determining the level of Manufacturing Assurance required for each product identified.

The method of determining the level of manufacturing assurance shall be undertaken in such a way that it provides evidence to demonstrate that all the above information has been taken

in to account. The delivery units may include any other additional valid information to assist in determining the level of manufacturing assurance.

2.3 Intervention Level

The delivery units shall develop and implement a process for identifying the product intervention level, with regard to the above level of manufacturing assurance criteria:

- **High** - Detailed intervention activities in accordance with the Supplier's/Manufacturer's Quality Plan carried out progressively from commencement of manufacture to final acceptance.
- **Medium** - Selected intervention activities in accordance with the Supplier's/Manufacturer's Quality Plan of nominated sample equipment items or random batch inspection of bulk materials, together with a degree of final inspection prior to shipment as appropriate.
- **Low** - Random final witness inspection/test of equipment as notified.
- **None** - No formal surveillance or witness inspection required to be undertaken. Acceptance of equipment on the basis of Manufacturer's Certificate of Conformity, where appropriate.

These identified intervention levels shall be documented and uploaded to Livelink within each project file location

These details should also be provided to the Supply Chain/Procurement Management Team for inclusion in purchase contracts/agreements, etc to ensure that the manufacturing assurance activities are included within the Supplier/ Manufacturer's QA Plan and Inspection Plans and associated Programmes.

2.4 Performance of Contract Status Activities

Contract status checks will be performed at the supplier/manufacturer's works with regard to ensuring that the supplier/manufacturer effectively meets their requirements under the procurement terms of contract.

2.5 Performance Of Inspection Activities

Where identified, by the intervention level, designated inspection activities will be performed at supplier/manufacturer's works, which shall include, but not limited to, the verification of:

- The existence of an approved Supplier/Manufacturer's Quality Plan with regard to Inspection and Test Plans
- Revision and approval status of all drawings and reference documents used for construction, inspection or testing of products
- Calibration status of any specified tools/instruments used during the construction and inspection.

2.6 Performance of Surveillance Activities

Surveillance checks will be performed at the nominated supplier/manufacturer's works to ensure that, for specific manufacturing stages or operations for particular product items, the necessary activities are being performed in a controlled, safe and satisfactory manner.

This shall include the verification of the existence of an approved Supplier/Manufacturer's Quality Plan as this will be the focus for Surveillance activities.