

**PROJECT****Standby SRU & Additional Tanks  
IOCL Paradip Refinery****CLIENT****INDIAN OIL CORPORATION LIMITED****JOB SPECIFICATION FOR MATERIAL  
RECEIVING, INSPECTION, HANDLING,  
STORAGE & PRESERVATION****Project No.**  
080557C001**Document No.**  
080557C-000-PP-807**Rev. No.**  
0



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## **JOB SPECIFICATION FOR MATERIAL RECEIVING, INSPECTION, HANDLING, STORAGE & PRESERVATION**

0	16-10-2019	ISSUED FOR INFORMATION	NVK	PKP	LA	JMC
<b>REV.</b>	<b>DATE</b>	<b>DESCRIPTION</b>	<b>PREPARED</b>	<b>CHECKED</b>	<b>APPROVED</b>	<b>AUTHORIZED</b>



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## 1. INTRODUCTION:

**INDIAN OIL CORPORATION LIMITED (IOCL)** has awarded Fax of Acceptance (FOA) dated 29<sup>th</sup> August 2019 to M/s. Technip India Limited (TPIL) for Consultancy services (PMC/EPCM services) for overall project management, FEED Review / FEED, Detailed Engineering, Procurement & expediting services, Tendering & award, Construction Management & Supervision, Assistance in start-up, Commissioning & performance test runs for installation of a Standby SRU of 525 TPD capacity and execution of Additional tanks for Paradip Refinery, Odisha, India.

## 2. DEFINITIONS & ABBREVIATIONS:

Abbreviation	Definition /Expanded form
IOCL/ CLIENT	Indian Oil Corporation Limited
PMC/ CONSULTANT	Technip India Limited
LICENSOR	Party selected by IOCL for process technology ownership for any UNIT
CONTRACTOR	Party whose services are obtained for performing the works specified as part of LSTK / packages.
EPCM	Engineering, Procurement & Construction Management Services.
LSTK	Lump Sum Turn Key portion of the work to be executed by CONTRACTOR
FEED	Front End Engineering Design
AUTHORISED REPRESENTATIVE	IOCL's/ CONSULTANT's representative authorized to act for and on behalf of them.
VENDOR	Any third party supplying the equipment/materials for setting up the Plant
PROJECT	Indicates Standby SRU and Additional tanks Project, Paradip Refinery
UNIT	Indicates any particular portion of the project to be built which can be Process related or Utilities/Offsites related
SRU	Sulphur Recovery Unit

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### 3. SCOPE

This procedure is to apply to all aspects of MATERIALS handling and Control carried out by the respective CONTRACTOR. This MATERIAL RECEIVING, INSPECTION HANDLING AND STORAGE SPECIFICATION is intended to define the requirements, storing, care and custody etc., from receipt through to issue of the MATERIALS supplied by the CONTRACTOR / OWNER (Long lead items if any), and to set forth the respective CONTRACTOR's responsibilities and obligations in this respect.

### 4. KEY PERSONNEL

The following key personnel of the CONTRACTOR's may be assigned in respect of materials handling and storing

#### 4.1 MATERIAL CONTROLLER

A person employed and assigned who shall be responsible to the DY. HEAD OF CONSTRUCTION DIVISION, for overall control of MATERIALS, which includes receiving, Inspection, storing, issuing, stocktaking and disposal of MATERIALS and also includes forecasting of MATERIALS availability and arranging of replacement for shortage, damaged or shortfall MATERIALS.

#### 4.2 STORE OFFICER

A person employed and assigned, who shall be reporting to the MATERIAL CONTROLLER, for the receiving, storing, issuing and stocktaking of MATERIALS at the WAREHOUSE and OPEN STORAGE AREA

#### 4.3 STOREKEEPER



A person employed and assigned, who shall be responsible to the STORE OFFICER, for the receiving, storing and issuing of MATERIALS at the WAREHOUSE and OPEN STORAGE AREA.

#### 4.4 DISCIPLINE CO-ORDINATOR

A person employed and assigned, who shall be reporting to the Head of Construction Co-ordination Department of the CONTRACTOR's for the supervision and co-ordination of the construction work assigned to him, and carried out by the CONTRACTOR

### 5. SCOPE OF CONTRACTOR



- 5.1 Receipt of Project materials from IOCL entry gate including owner supplied items if any.
- 5.2 Identify the crane movement roads for materials shifting (Including Long Lead Items) from IOCL entry gate to location at site where to be erected / Warehouse for storing.
- 5.3 Road Survey, Road Strengthening, Repair, Road laying, making proper access, demolition of compound wall (if required) & rebuilding of wall for materials shifting from IOCL gate to the location at site where to be erected/Warehouse for storing.

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- 5.4 Construction of hard stands for crane movement, assembly & testing of equipment's at site, shifting & erection of equipment.
- 5.5 Unloading the materials supplied by Contractor and Owner supplied materials if any.
- 5.6 Unloading / Shifting the materials from Owner's warehouse if any.
- 5.7 Unpacking & Inspection of incoming materials and acceptance/ rejection of materials.
- 5.8 Preparing the Material receipt report.
- 5.9 Marking & ensuring the material traceability.
- 5.10 Report on excess, short, damage & reject (ESDR) against each consignment on receipt at warehouse
- 5.11 Storing and preservation of materials.
- 5.12 Protection of materials
- 5.13 Replacing /rectification of defective materials.
- 5.14 Reconciliation, codification of materials (Surplus & Spares) as per SAP & Handing over of all surplus materials & Spares to Owner's warehouse without any cost implication to Owner.
- 5.15 All such materials shall be got codified by Contractors as per SAP code along with cost of materials etc. before handing over the same to the OWNER.
- 5.16 Implementation of good material software package for materials.
- 5.17 Color coding of materials for material traceability as per specification.
- 5.18 Issuing the materials to site for pre-fabrication and erection.
- 5.19 Storing of hazardous materials as per applicable laws and regulations.
- 5.20 Supply and application of anticorrosive compound.

## **6. MATERIAL HANDLING ACTIVITIES**

- 6.1 Prior to receiving of Materials at the SITE, the following planning and preparatory works shall be carried out by the respective CONTRACTOR's.
- 6.2 Preparation / ensure the receipt of the following reference documents for planning
  - 6.2.1 Overall Shipping Schedule,
  - 6.2.2 Over Dimension Cargo List and drawings,
  - 6.2.3 Storage Area General Drawing

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- 6.2.4 Material Handling Procedure
- 6.2.5 Receiving the Detail Packing Lists
- 6.2.6 Planning for required manpower and construction equipment for unloading.
- 6.2.7 Planning of unloading place and designation of storing areas

## **7. MATERIAL RECEIVING, UNLOADING AND INSPECTION**

### **7.1 RECEIVING OF MATERIALS**

The Materials received at the site shall be delivered to one of the following areas as designated by the store officer

- At the WAREHOUSE
- At the OPEN STORAGE AREA
- At any given place in the SITE (DIRECT DELIVERY MATERIALS)

### **7.2 UNLOADING OF MATERIALS**

- 7.2.1 Delivery schedules for all types of materials shall be reviewed by Contractor as and when required and updated by the material controller in order to allow the pre-arrangement of supervision, manpower and suitable equipment to unload the project materials.
- 7.2.2 Utmost care shall be taken by material controller in the unloading to ensure that no damage occurs to materials.
- 7.2.3 Prior to any unloading, packing cases or crates material controller shall inspect for signs of damage during transportation, and where evident, this shall be recorded on the cargo receiving record, and as necessary, photographs of the damage shall be taken.
- 7.2.4 On unloading, cargo weigh bill, which shall be issued by transportation company, shall be received, checked and filed as record by the store officer

### **7.3 UNPACKING AND INSPECTION**

#### **7.3.1 UNPACKING INSPECTION SCHEDULE**



Unpacking Inspection schedule for respective packages shall be prepared by the store officer and submitted to the material controller for his review.

Packed Materials procured overseas shall not be opened without the appropriate customs clearance, which, at the discretion of the customs officials, may be carried out at the site.

#### **7.3.2 NON-SCHEDULED UNPACKING INSPECTION**

In case any damage to the packing is found, Unpacking Inspection shall be carried out by store officer and put to the notice to the PMC.

Contractor shall take immediate action for damaged items.

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### 7.3.3 PREPARATION OF UNPACKING INSPECTION

**The store officer shall make the necessary preparations prior to unpacking inspection and which are:**

Establishing the inspection procedure according to the kind of packing

Provision of, as necessary, the area for the unpacking inspection

Making available all necessary manpower, equipment, tools, materials, etc., for unpacking and re-packing the materials

Designation of the place for storing of the MATERIALS after Unpacking Inspection.

### 7.3.4 UNPACKING INSPECTION

All Unpacking Inspection shall be carried out by the store officer or storekeepers & inspection engineers

If any damage to packing is found prior to Unpacking Inspection, the store officer or storekeepers shall notify it to the material controller and seek for his instruction and bring in notice to PMC.

All Unpacking inspection shall be carried out with the utmost care, to ensure that no damage occurs to the MATERIALS.

#### 7.3.4.1 UNPACKING INSPECTION SHALL BE CARRIED OUT FOR THE FOLLOWING CHECKS.

Visual appearance inspection for

Damage to, and/or deformation of the MATERIALS

Rust or stains,

Evidence of water soaking

Peeling of, and/or damage to, paint, coatings or linings, and/or blistering thereof due to underlying rust.

Verification of Tag Nos., Valve Nos., ID Stamps, ID Markings. Etc.

Quantity verification.

Damaged materials shall be stored separately by store officer



The store officer shall prepare unpacking inspection report and submit it to the material controller for recording.

### 7.3.5 Material Excess, Shortage or Damage

Where excess, shortage, or damage of the MATERIALS shall be discovered, the storekeepers shall prepare the Excess, Shortage or Damage Report (ESD), and present it to the store officer together with the relevant Unpacking Inspection Report.

The Store officer shall submit both reports to the Material controller for review and confirmation.

The Material controller shall arrange for distribution of copies of the ESD to the OWNER / PMC and the appropriate departments of Site Office and, as necessary, shall request a subsequent inspection

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by the Quality Control Department to determine whether repairs are possible and what methods are to be adopted.



The Material controller shall take any necessary steps for the replacement of irreparable Materials, or to make up any deficiency in quantities, through one of the following actions:

- Requesting Supplier to take action if the ESD is pertaining to them
- Requesting local procurement and necessary approval by PMC.
- Preparing Request for Urgent Procurement (RUP)

## **8. STORAGE AND PRESERVATION**

- 8.1 Contractor is responsible for preparing, maintaining and implementing the material control and preservation procedures, which specify the material receiving, handling, storage, preservation and issuing on the construction site.
- 8.2 Contractor shall have software for material management & ware house management.
- 8.3 During storage, all materials shall be protected from damage, loss and ingress of foreign matter. Carbon and low alloy steels shall be segregated to prevent mix-up. Stainless steel materials shall be segregated from carbon and low-alloy steels materials to avoid contamination. Also, stainless steel materials shall be protected from falling debris like CS particles from nearby by grinding activities.
- 8.4 The classification of storage shall be as follows:
  - 8.4.1 Outdoor storage
  - 8.4.2 Weatherproof storage
  - 8.4.3 Indoor storage
  - 8.4.4 Temperature/humidity controlled storage
- 8.4.5 Special storage like N2 purging & other inert gas. If inert gas is lost during storage re-filling action to be done till installation
- 8.5 Contractor shall furnish the area requirements for optimum storage and handling of the materials and equipment's including requirement of their vendors.
- 8.6 For a safe handling of material and equipment and to protect materials and equipment from damages, special handling tools and equipment shall be provided and maintained in good condition. All instructions for material handling requiring special care shall be established and maintained by contractor and shall be implemented by all staff members.
- 8.7 Contractor shall review and audit the receipt of materials at site, ensuring proper receipt inspection, stock records, handling. and storage, and that materials are appropriately segregated to avoid inter-mixing.
- 8.8 Contractor shall store, protect and maintain materials and equipment at the construction site in accordance with manufacturer's recommendations and as per the contractor's procedure for



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preservation and maintenance. Anticorrosive compound specified in the specification or Owner approved material is to be applied on the material during preservation to avoid atmospheric corrosion. All the piping and fitting are to be blanked off using end caps. Sufficient quantities of end caps of different sizes are to be kept in the store for the same.

- 8.9 Preservation and maintenance activities for equipment shall continue until acceptance of the work, with formal records of such activities maintained by the contractor, and made available for Owner /PMC review, and ultimately for handing over to Owner.
- 8.10 All MATERIALS stored in the OPEN STORAGE AREA shall be landed on pallets or sleepers with height sufficient enough to clear stagnant water and mud during rain and shall be tagged or marked for easy identification by the STORE KEEPER
- 8.11 All MATERIALS stored in the WAREHOUSE shall be landed on pallets, on shelves, on racks, or in bins, and shall be tagged or marked for easy identification by the STORE KEEPER under the direction by STORE OFFICER
- 8.12 Pallets, racks, shelves, and bins must be designed to carry the materials envisaged, in respect of size, weight and quantity.

## **9. DETAILED METHOD FOR STORING**

### **9.1 STRAIGHT PIPES**

All pipes shall be stored outside except for special steel tubing. Pipes shall be stacked on sleepers in a stepped formation, with the bottom layer of pipe sat on timber sleepers, and subsequent layers separated by chocks & wedges to facilitate safe handling.

Pipe shall be segregated by size, schedule and material specifications.

Pipes shall be fitted with secure end caps to avoid ingress of rainwater or mud.

Do not store in contact with the ground

For large diameter pipes, check and if necessary renew the internal cross beam for end concentricity protection

### **9.2 FLANGES**

Flanges up to and including DN 100 shall be stored inside the warehouse; flanges with greater diameter shall be stored outside, except for RFS and RJ flanges which shall be stored inside.

#### **9.2.1 FLANGES STORED INSIDE WAREHOUSE**



Check anti-rust protection on seal surface.

Renew any damaged protection by applying a coat of protection product.

#### **9.2.2 FLANGES STORED OUTSIDE WAREHOUSE**

Check anti-rust protection on seal surface provided.

Renew any damaged protection by applying a coat of protection product. Flanges shall not be stored in direct contact with the ground.

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Flange faces shall be protected from damage.

Storage area must be fully drained, concrete paved or decked Check every 3 months and renew protection as required.

Special care must be taken in handling. Flange surface and grooves must be carefully inspected at flange arrival at site for surface integrity checking; scratches rust or other damages must be immediately shown to QC Supervisor/Inspector for action

### 9.2.3 **RFS AND RJ FLANGES**

These flanges shall be stored inside warehouse and protected with individual rigid covers after renewing the protection coat.

## 9.3 **FITTINGS**

### 9.3.1 **FITTINGS INSIDE WAREHOUSE**

Special steel fittings of any diameter;

Carbon steel fittings up to and including DN 100 (DIA 4").

Carbon steel fittings with diameters of DN 150 (DIA 6") and over shall be stored outside the warehouse.

### 9.3.2 **FITTINGS OUTSIDE WAREHOUSE**

Fittings over 6" shall be stored on pallets with special care to avoid any damage to bevel ends. Protection cover for bevel end to be furnished

## 9.4 **VALVES**

Valves up to and including DN 100 (DIA 4") shall be stored inside the warehouse.

Valves of DN 150 (DIA 6") and over, of whatever type of material, shall be stored outside, except for RFS and RJ valves which shall be stored inside.

### 9.4.1 **VALVES INSIDE WAREHOUSE**

Check the mechanical protection of flanges, on reception, and repair any damage.



Repeat operations as, for flanged valves and for RFS and RJ.

Apply grease or brush or spray protection products to valve pins and screws.

Manual, automatic, and relief valves shall be stored on shelves, or on pallets, in one layer, and segregated by Tag No. and size

### 9.4.2 **VALVES OUTSIDE WAREHOUSE**

Carry out all operations as for valves inside warehouse, protecting the stem with grease and

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oiled paper.

Do not store in contact with the ground and cover with plastic sheeting. Check every 3 months and replace protection as required.

Manually operated valves larger than 12" shall be stored on pallets in a single layer with caps fitted to both ends to prevent the ingress of rainwater, mud, etc.

#### 9.4.3 **VALVES WITH REDUCER**

Inspect the gear combination, remove any rust, and clean the gear casing, the gears, rod and other mechanical parts.

Protect the reducing mechanism with a plastic cover, after greasing appropriately or spraying protection product.

Repeat operations as for valves outside/inside warehouse.

#### 9.5 **NUTS AND BOLTS**

All nuts and bolts shall be stored inside the warehouse.

Protection products shall be applied to all nuts and bolts by immersion.

Bolts, with nuts, shall be stored separately in bins, bags or boxes by type, diameter, length and material.

Washers shall be stored separately in bags or boxes by type, diameter and material.

In case rusting appears, they shall be soaked in rustproofing oil and greased.

#### 9.6 **GASKET & PACKING**

Gasket & Packing shall be stored inside the warehouse. Flat packing shall be stored on flat surfaces to avoid deformation due to stress and protected against any mechanical damage.

Ring-joints shall be stored as for flat packing above, and shall be protected with grease and covered with oiled paper, or sprayed/brush coated with protection products.



Check every 3 months.

Sheets and non-metallic shall be stored on shelves, stacked and segregated by rating & size.

Metallic gaskets shall be stored, on shelves, stacked in greaseproof wrappings, and segregated by rating and diameters.

#### 9.7 **SPECIAL ACCESSORIES**

For special accessories, follow manufacturer's instructions.

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## 9.8 NON-FERROUS PIPING MATERIALS

These shall be stored without special protection inside the warehouse.

If, by reason of dimensions or quantity, outside storage is necessary, means of suitable protection shall be selected, case-by-case, together with Project Team.

## 9.9 PREFABRICATED PIPING

The end of prefabricated piping shall be protected in the workshop, as follows:

Flanges of all diameters: protective layer and mechanical protection for seal surfaces;

Coupling, nipples and similar: greased and protected with plastic caps;

Piping up to and including DN 500: coat of anti-rust on the chamfering and ends closed with plastic caps;

Piping over DN 500: coat of anti-rust on the chamfering and ends closed with suitable materials.

On reception, check state of mechanical protection and renew if necessary.

Repeat checking after sandblasting/painting and storing in painted-piping yard, renewing where required the anti-rust protection of the flange seal surfaces, proceeding as for flanges.

## 9.10 SPRING HANGERS

Spring hangers less than 10 kg shall be stored inside the warehouse on pallets, in one layer, according to the order of the support number. Care must be taken at the time of unpacking not to cause any confusion on hanger and component parts

Spring hangers greater than 10 kg shall be stored outside the warehouse on pallets or sleepers, the spring barrel to be wrapped with a waterproof material.

## 9.11 STEEL SECTION

Steel sections shall be stacked outside warehouse on sleepers, flanges down to avoid the collection of rainwater.

Separating timbers shall be provided to allow safe handling and to prevent any deformation



## 9.12 STEEL PLATE

Steel plate shall be stored outside warehouse flat on sleepers with separating timbers to allow safe handling.

Steel plate shall be stored in such a way as not to cause deformation.

## 9.13 TOWERS, VESSELS, DRUMS, AND HEAT-EXCHANGERS

On reception, check mechanical protection on joint provided by Supplier and replace if damaged. Repeat operations as for flanged couplings and in particular protect, or renew the protection, for RFS and RJ flanges with individual rigid covers after renewing the protection coat

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These items shall be stored free from ground contact.

These items shall be placed with sufficient space between packings to enable easy identification of each individual item without double handling.

Some items will be transported directly to the PLANT area. (DIRECT, DELIVERY MATERIALS)

Accessories and spare parts for these items shall be correctly identified, tagged and stored inside the WAREHOUSE after unpacking. If they are to be stored in the OPEN STORAGE AREA, tarpaulins or similar protective coverings must be used to prevent deterioration by water ingress.

All Heat exchangers shall be filled with Nitrogen purging & other inert gas during storage and maintained till Installation.

#### **9.14 EQUIPMENT INTERNALS**

Plates for Columns and supporting beams

Store outside, not in direct contact with ground, and protect with plastic sheeting.

##### **9.14.1 NUTS AND BOLTS, PLATES AND SMALL FITTINGS**

Store inside the warehouse without removing from their packing case. Repeat operations as for nuts and bolts and for oxidable material.

##### **9.14.2 DEMISTER**

Store outside warehouse, not in direct contact with the ground, and cover with plastic sheeting.

#### **9.15 CENTRIFUGAL PUMPS – TURBINES – AGITATORS – VENTILATORS – GEAR BOXES**



All accessories mounted on the before-mentioned machinery which may be damaged during the work shall be removed, marked and stored in the warehouse.

Upon arrival, all the temporary protective devices previously applied by the Manufacturer on the flange faces and on the apertures communicating with the interior of the machinery shall be checked. If any are missing they shall be replaced and if any are damaged they shall be repaired. In these cases, check that water or extraneous matter has not penetrated into the machinery. If necessary, the interior of the machinery shall be cleaned again and the damaged rust-proofing shall be restored.

All machined surfaces which are uncovered and exposed to outside agents (e.g. wheelworks, flange surfaces, motor coupling joints, rods, pistons, cams, etc.) shall be cleaned, if necessary, with solvents and coated with protective product.

Twice a week, centrifugal pumps shall be rotated by hand for a few revolutions so that the rust-proofing oil is uniformly distributed over all surfaces. Never keep the shaft in the same position.

Pumps, compressors, turbines and ventilators, after being mounted and during erection of the piping, shall be separated from the piping by inserting blind plates with gaskets on both sides

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between the coupling flanges, to prevent the entry of foreign bodies into the machinery. These blind plates shall be removed only after the testing and washing of the piping.

#### **9.16 RECIPROCATING PUMPS AND COMPRESSORS**

For these machines, the same operations as described in previous points for piping material shall also be carried out.

The steam liquid cylinders, as well as the valve housing, shall be filled with protective oil or coated with grease or protective product.

Twice a week the forced lubrication circuits of the compressors shall be operated by hand, operating the oilers and squirts (if any) and allowing the oil to drip from the respective nozzles for at least one minute. At the same time, the transmission shaft shall be rotated a couple of times. Finally, if necessary, the oil level shall be topped up.

#### **9.17 HAZARDOUS MATERIALS**

Hazardous MATERIALS shall be stored independently from other MATERIALS, and shall be sheltered from direct sunlight. Their handling shall be carried out in a safe manner, taking all necessary precautions.

The storage of these MATERIALS should be grouped as follows:

- Oil based products
- Gaseous products
- Chemicals
- Catalyst

#### **9.18 ELECTRICAL MATERIALS**

##### **9.18.1 ELECTRIC MOTORS**

These shall be stored inside the warehouse.



Motors shall be stored on pallets in a well-ventilated area. All accessories and spare parts shall be correctly identified, tagged and stored on shelves

Check anti-rust protection on the coupling extremities.

Check that the bearings are lubricated and if necessary, lubricate according to Supplier's instructions.

Rotate the shaft a few times every two weeks.

Motors equipped with "space-heaters", in case of expected long storage, shall be connected to a provisional supply.

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#### 9.18.2 **ELECTRIC PANEL BOARDS**

Switchgears, MCC, electric switchboards or control boards shall be stored inside the warehouse, or directly in the electrical substation.

In case of expected long storage, “space-heaters” shall be connected to a provisional supply.

#### 9.18.3 **BULK ELECTRICAL MATERIAL**

Bulk electrical material, such as lighting fixtures, control stations with or without ammeters junction boxes, etc. shall be stored inside the warehouse.

Material shall be wrapped in plastic bags, with drying agent inside for delicate material. Check silica-gel every 3 months.

Electrical wire shall be stored inside the warehouse in a well-ventilated area, and segregated by type and size.

Distribution and control panels shall be stored inside the warehouse on timbers or pallets, off the floor, in a well ventilated or air-conditioned area, when climatic condition requires.

Transformers, current transformers, and disconnect switches designed for indoor service shall be stored inside the warehouse on pallets in a well-ventilated area.

#### 9.19 **INSTRUMENTATION MATERIALS**

All instruments shall be stored indoor.

Control panels and DCS shall be stored on timbers or pallets without unpacking in a well ventilated or air-conditioned area in accordance with the VENDOR's instruction.

Meters, switches, and relays shall be stored on shelves in a dry, well ventilated area to avoid damage by heat or humidity, and must be handled carefully to avoid damage.

Potentiometers shall not be exposed to temperatures below 0°C and above 500°C.

Analysers shall be stored on pallets in a well-ventilated area. If special conditions of storage - are required, the Vendor's instructions shall be followed.

Orifice Plates less than 4" in diameter shall be stored on shelves. Larger than 4" in diameter shall be stored on pallets in one layer. Care is to be taken to avoid damage to their protective wrappings.

Capillary tube shall be stored on shelves after unpacking



#### 9.20 **PAINTING MATERIALS**

Products for painting operations shall be stored in their original sealed containers in covered warehouse.

Where warehousing is not possible, paint shall in all cases be stored in a shaded area, not exposed to the sun at any time of day.

The containers shall not come into contact with heat sources or naked flame.



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The containers shall be stored subdivided according to the quality of the product and in such a way as to be able to use, as required, those containers stored longest.

Particular attention shall be paid to the shelf-life specified in the contractual documents and/or on the packing itself, in order to identify special items requiring specific storage precautions which may deviate from the above general requirements.

#### **9.21 INSULATION MATERIALS**

Insulation materials shall be stored inside the warehouse.

Insulation materials shall be segregated by size, Thickness and material specifications

Insulation accessories materials shall be stored as per manufactures instructions.

#### **9.22 WELDING RODS**

Welding rods shall be stored in a well ventilated, dry, secure place. Drying facilities may become necessary due to local climatic conditions.

#### **9.23 MATERIAL SUBJECT TO EXPIRING DATE**

For such kind of product (e.g.: refractory, resins, chemicals, calibration of valves) the following actions are required:

Maintain a record showing expire dates;

Strictly follow Vendor recommendations for storage (i.e.: cooled zone. Covered areas etc);

Strictly follow Vendor HSE recommendations for handling and storage (i.e.: paved and curbed areas, specific PPI etc) as per MSDS (material safety data sheet) requirements;

Maintain a log for material repurchasing (i.e.: resin for RTR pipes).

#### **9.24 PRECIOUS METALS**

These items shall be stored in a closed, fully secure area within the facility with access restricted to nominated responsible person(s).

#### **10. MATERIAL REQUISITION AND ISSUING**

Materials shall only be issued from the storage facilities i.e. warehouse and/or open storage area against requisitions.



While preparation of requisition, approval is required from the discipline co-ordinator responsible for the construction work on which the materials are to be used, and then from the Material controller.

#### **11. STOCKTAKING**

11.1 The storekeepers shall carry out monthly stocktaking of all materials being in the storage facilities, both within the warehouse and open storage area.

11.2 The purpose of the exercise is to compare actual quantities of materials held in stock with the quantities indicated on the stock book, bin cards and/or materials issued control report.



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11.3 The results of the exercise, i.e., surplus or shortfall of materials shall be recorded by the store officer on stock book, and reported to the material controller.

11.4 Additional stocktaking may be requested by the material controller from time to time and the results will be recorded and reported in the same manner as the regular stocktaking

## 12. **DOCUMENTATION**

Contractor shall prepare the following documents but limited to

- Material receipt report
- Daily material reception report
- Detail packing list.
- Material/equipment inspection deficiency report
- Excess shortage /damage report.
- Request for urgent summary report
- Material receipt status and inventory status with respect to material delivery schedule
- Report on excess, short, damage & reject (ESDR) against each consignment on receipt at warehouse
- Weekly status of consignments, material receipt report (MRRs)
- Log Register of rotating equipment's maintenance
- Log register of N2 protection by periodic recording of the pressure gauge reading.