

Discipline: EQP

CMIT-PRT-10.53-240048

Prepared by:

Checked by: Li F.F.

Approved by: Wang X.N.



Contract No.:

0	ISSUED FOR CONSTRUCTION	MENGWEN	LIFEIFAN	WANGXIANGNING	20250917
В	ISSUED FOR APPROVAL	MENGWEN	LIFEIFAN	WANGXIANGNING	20250911
Α	ISSUED FOR REVIEW	MENGWEN	LIFEIFAN	WANGXIANGNING	20250821
Rev.	Description	PRED.	CHKD.	APPR.	Date



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0	Page 2 of 19	

TABLE OF CONTENTS

1. GENERAL	3
2. GENERAL REQUIREMENTS	7
3. RUST PREVENTIVES	8
4. OVERALL STORAGE REQUIREMENTS	9
5. SPECIFIC REQUIREMENTS	11



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0	Page 3 of 19	

1. GENERAL

MISSAN Oil Field is located in the SE of Iraq, close to Iran's border, about 175 km N-NW of BASRA City, and 350 km SE of Baghdad – the capital of Iraq.

MISSAN Oil Field includes three producing fields namely Abu GHIRAB, BUZURGAN and FAUQI. Abu GHIRAB and FAUQI fields extend beyond the Iranian border.

Since MISSAN Oil Field was built in 1976, it has suffered from the Iran-Iraq War and the Iraq War, so a lot of facilities needs to be upgraded and revamped.

The intended Project is mainly concerned for establishing and upgrading of the FQN New Degassing Station Upgrade.

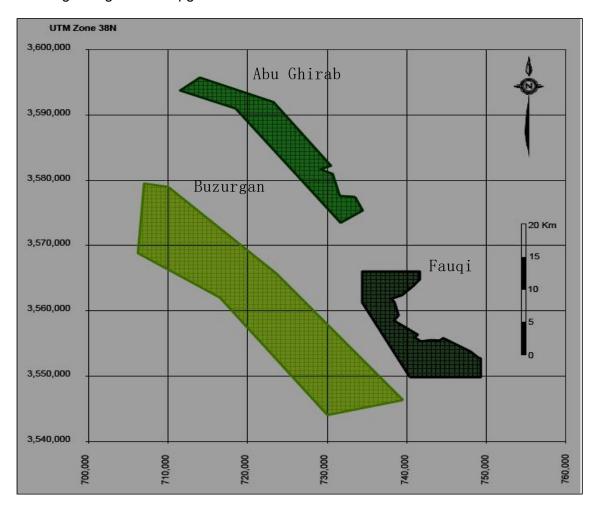


Figure 1.1-1 The overall MISSAN Oil Field

General Field Layout is shown in Figure 1.1-2:



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0	Page 4 of 19	

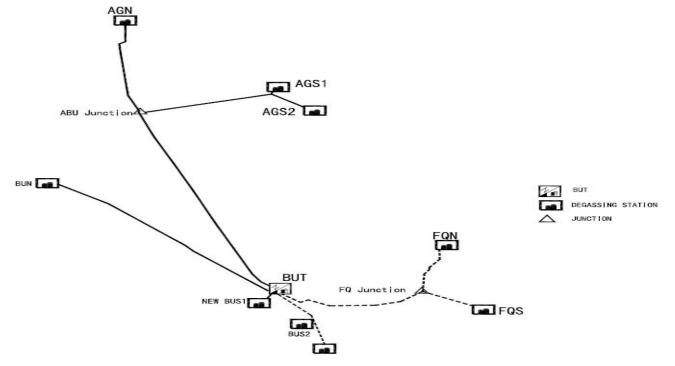


Figure 1.1-2 General Field Layout

1.1. Degassing Station (DS):

The FQN degassing station(DS) was built in 1976, the crude oil with gas and water was sent to the DS, the main target for DS is to separate the gas and water from crude oil, and conduct data collection of each individual well from well pad. Separated Liquid and Gas are exported via individual Trunkline(s) to the BUT CPF located in Buzurgan Area for further processing and treatment.

Due to the increase of liquid form the well, the existing facilities of FQN can not meet the requirement, so two Crude Processing Trains (50 Kbbl/d plus 20% (each)) will be contructed in FQN degassing station, with Utilities and Auxiliary Supporting Systems.

1.2. Abbreviation and Acronyms

The following definitions shall apply to this document:

COMPANY: CNOOC IRAQ LIMITED

PMC:Dorsch Gruppe Holding

CONTRACTOR: CNOOC Petrochemical Engineering Co.,Ltd (COPCL or CNOOCPEC).

VENDOR/SUBCONTRACTOR: The party to the contract and/or purchase order which has undertaken the obligation to supply the goods and/or services which are ordered and specified herein.

DGS or **DS**: Degassing Station

SHALL:Mandatory in relation to the requirement of this document



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0	Page 5 of 19	

SHOULD:Strong recommendation to comply with the requirement of this document

1.3. Purpose

This document outlines the minimum procedures for site receiving, handling and storage of equipment and materials and the application of rust preventives and other protection as required for the FQN New Degassing Station Upgrading Project.

This document should be read in conjunction with the technical requirements specified in the Equipment Data Sheets and related PROJECT specifications, codes and standards.

1.4. Scope

This document is applicable to fixed equipment, rotating equipment, instruments, valves, etc. and materials and rust preventives for the FQN new degassing station upgrading project.

1.5. Abbreviations

ACRONYM	MEANING
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
NPS	Nominal Pipe Size

1.6. Order of Precedence for Documents

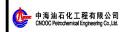
In case of conflict for any requirements, the order of precedence shall be as follow:

- (1) Iraqi Laws and Regulations
- (2) Latest International Codes and Standards
- (3) Purchase Order
- (4) Project referenced Specifications in Material Requisition, Data sheets and P&ID In the event of any conflict of data or requirement in any of the above documents, it is the Vendor's responsibility to resolve these conflicts and obtain written approval from CONTRACTOR and COMPANY before proceeding with design, manufacture or purchase. In any case the most stringent requirement shall prevail.
- 1.7. Any deviation from this specification must be approved, in writing, by COMPANY. Such written approval must be obtained prior to the commencement of any work which would constitute such a deviation.

1.8. Applicable Project Specifications

The following General Specifications shall be used in conjunction with this specification where applicable:

CMIT-240048-728-PCS-15.69-0001	Design Basis
CMIT-240048-728-EQP-15.03-0001	Specification for Welded Pressure Vessels
CMIT-240048-728-EQP-15.03-0003	Specification for Welded Atmospheric Storage Tank



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0	Page 6 of 19	

CMIT-240048-728-EQP-15.03-0004	Specification for Stairs, Handrail, Platform
CMIT-240048-728-EQP-15.03-0007	Specification for Protection of Goods During Shipment

1.9. Language and Units of Measurements

The governing language of the contract shall be English Language. All notices, correspondences, information, literature, data, manuals and other documents required under this contract shall be in the English Language.

Technical units, quantities, etc. shall be expressed, used and abbreviated according to the SI system. Preferred units of measure are as for:

Unit	USC	SI
Temperature	-	$^{\circ}$
Pressure-Absolute	psia	MPaa, kPaa
Pressure-Gauge	psig	MPag, kPag
Length	-	m, km, mm
Time	-	s, min, h
Mass Flow	-	kg/h
Volume, Liquid	bbl	m ³
Volume, Gas	-	Sm ³ /N, m ³
Density	°API	kg/m³, g/cm³
Flow, Liquid	BPD	m ^{3/} h, m ^{3/} s
Flow, Gas	MMSCFD	m ^{3/} h, m ^{3/} s
Heat	-	J
Power	-	kW, MW, kVA
Current	-	A
Voltage	-	V
Thermal Conductivity	-	W/(m.k)
Heat Transfer Coefficient	-	W/(m².k)
Viscosity-Dynamic	сР	mPa.s, Pa.s
Velocity	-	m/s
Diameter	Inch	mm
Concentration	-	ppm
Mass	-	kg



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0	Page 7 of 19	

Amount of substance	-	mol
Area	-	m ²

2. GENERAL REQUIREMENTS

- 2.1. Under the worst-case scenario, the protection provided shall be adequate for up to 12 months under specified environmental data. Only Equipment that is designed for outdoor installation will be stored outside. The Vendor's instructions for each item, material, or equipment shall be strictly followed, unless more stringent instructions have been specified by the Company or are detailed in the Contract. In particular, the Vendor's instructions for the Company's provided equipment shall be activated whenever the goods are handed over to the Contractor. This shall also imply the safeguarding of the equipment's internals as well, particularly when stored for a considerable period under idle conditions.
- 2.2. The objective is to protect equipment, erection materials and selected construction materials against damage, contamination, rusting deterioration and against loss of components which may result during handling and storage from the time the items are received at the worksite until they are installed or used.
- 2.3. The protective measures to be taken at the worksite include:
 - 2.3.1. Provide worksite inspection of items as received to verify compliance with the purchase order and renew rust preventive including vapor phase inhibitor or desiccant, where required. Refer to Section 3 for acceptable rust preventive, vapor phase inhibitor, desiccants and solvents.
 - 2.3.2. Comply with special procedures recommended by the Vendor.
 - 2.3.3. Provide suitable storage considering storage duration, available space and security.
 - 2.3.4. Provide regular scheduled inspections to ensure that protective measures are adequate, drain condensed moisture, flush with solvent, renew rust preventatives or desiccants where required, and take corrective actions if the existing measures prove ineffective.
 - 2.3.5. Purge with dry air or nitrogen where required. Pressurize certain equipment with dry air or with nitrogen, where the application of oil based rust preventative, vapor phase inhibitor or desiccants is not acceptable or practical.
 - 2.3.6. Rotate the shafts of rotating equipment and turn drive shaft of reciprocating machinery to move pistons, subject to the manufacturer's recommendations at the recommended intervals.
 - 2.3.7. Maintain records of the following information for each item of material or equipment:
 - (a) Specifications.
 - (b) Vendors recommendations and documents relating to matters of equipment protection.
 - 2.3.8. Items of equipment that have been shop primed should be inspected for damage to the primer. Any rusting should be thoroughly hand cleaned and touched up using an approved cleaning and coating method.
 - 2.3.9. All small items or tubular goods shall be stored in the pallet in which such goods have been shipped as per conditions set out in ASTM A-700. Each pallet shall be checked to ensure it is labeled with the relevant purchase order number, manufacturer's symbols and an itemized list of contents. All labeling must be able to withstand weathering up to 12 months with no fading or deterioration.



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008	
Job's Doc. No.	253001D0728EQ00S08	
Phase	Detailed Design	
Rev.	0 Page 8 of 19	

2.3.10. Particular care shall be given to the inspection of equipment enclosed and taped or heat sealed in a transparent overwrap, so as to prevent opening or damaging the protective overwrap, unless there is evidence that the hermetical seal has failed in some fashion. A small off-colour indicator type desiccant can be inserted through the transparent overwrap and taped or heat sealed in place to give indication of failure of the overwrap.

3. RUST PREVENTIVES

- 3.1. Rust preventative shall be applied to exposed finished surfaces and elsewhere as necessary to equipment received at the worksite that is not adequately protected. Equipment manufacturers shall be consulted for application instructions regarding protection for their specific item of supply.
- 3.2. Three basic types of rust preventives per Table 3.1 shall be available and used as outlined herein. COMPANY equivalent products shall be used where possible.
 - 3.2.1. Bearings, cylinders and other internal surfaces shall be protected with a lubricating oil base rust preventive, Type A. It may be applied by brushing, splashing, spraying or through lubricating systems. All gear boxes and bearing housings shall be flushed clean to remove rust preventives and accumulated dust prior to putting equipment into service.
 - 3.2.2. External surfaces where a hard durable finish is desired shall be protected with an asphaltic base rust preventive, Type B. It may be applied by brushing or dipping. It must be completely removed by a petroleum solvent before installing equipment or putting equipment in service.
 - 3.2.3. External surfaces where removal of Type B rust preventive would be difficult or where a lubricating feature is desirable shall be protected by a petroleum grease base rust preventive, Type C. As an alternative, a rust preventive that will dry to a thin plastic or waxy finish may be used if the application does not require lubrication and removal would not be difficult. Type C rust preventive may be applied by brushing or dipping. It must be completely removed by a petroleum solvent before installing equipment or putting equipment in service.

Table 3.1

Type A	Type B	Type C
Lube Oil Base	Asphalt Base	Grease Base
Rust-Ban 337		
(SAE 10W)	Rust-Ban 373	Rust-Ban 326
Pour Point°C		
Preservative Oil 107		
(SAE 20)		
Pour Point -36°C		
	Rust-Veto 334	
	Rust-Veto 342	
Tectyl 910	Tectyl 890	Tectyl 858-C
(SAE 10W)	160tyl 030	1661y1 000-0



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0 Page 9 of 19		

Pour Point -33°C	
Tectyl 930	
(SAE 30)	Tectyl 506 with Waxy Finish
Pour Point -21°C	

Special water repelling rust preventives and vapor type protection for packaged items or interior surfaces can also be used where necessary for the proper care of stored equipment, subject to prior approval by COMPANY.

Internal and external surfaces shall be clean and dry before any rust preventive of Type A, B or C is applied. Petroleum naphtha or solvent shall be used for this purpose. Vendor recommendations shall supersede Types A, B, C, where specified. COMPANY approved alternates may also be used.

4. OVERALL STORAGE REQUIREMENTS

Normally, equipment shall be stored such that the setting is similar to the operating position. Free standing panels, switch rack, etc., shall be stored upright. When internal access is required for inspection, etc., storage shall allow access.

4.1. Outdoor Storage

- 4.1.1. In general, equipment and materials to be installed outdoors may be stored outdoors where accidental damage is not likely to occur. Such item shall be placed on solid supports, pallets or dunnage in well drained areas and covered for weather and dirt protection.
- 4.1.2. Similar type equipment shall be stored in a common area in view of the rust preventive inspection and renewal program, gas pressurizing program and supplying power to electrical equipment space heaters.
- 4.1.3. Temporary cribbing or support shall be provided as required for vessels, columns and exchangers that cannot be set in place on foundation or support when received at worksite.

4.2. Indoor Storage

- 4.2.1. In general, equipment and materials to be installed indoors shall be stored indoors on supports and provided with adequate ventilation (HVAC) system subject to the designated equipment's Vendor instructions.
- 4.2.2. Subject to the designated equipment's Vendor instructions and the sensitivity of the equipment, some indoor type equipment may be stored outdoors if a shed roof and tarpaulin siding, or equivalent, is provided and the equipment or material itself is sealed in plastic film or container.

4.3. Gas Pressurization or Desiccant Charge

- 4.3.1. Equipment such as pressure vessels, exchangers, closed tanks, centrifugal compressors, rotary compressors, blowers, steam turbines and gas turbines shall be nitrogen pressurized or have desiccant added whenever so specified by the Vendor. Unless otherwise noted, small pumps, centrifugal compressors, rotary compressors and blowers may be Type A protected as noted in paragraph 5.2.
- 4.3.2. All protected equipment shall be adequately marked to indicate the type of protection applied.



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0 Page 10 of 19		

- 4.3.3. Gas pressurization, if required, shall be provided:
 - All equipment which require storage under inert gas blanket (such as nitrogen) shall incorporate temporary connections for pressure gauge and top-up. Suitable safety procedures shall be put in place to avoid entry of Personnel into Equipment under inert gas blanket.
 - If equipment is relatively gas tight, the unit may be gas pressurized to 35 kPa.
 - Equipment that is large in volume or has a high leakage rate at 35 kPa may be pressurized 0.25kPa to 0.5kPa and maintained by a pressure regulating valve. A manometer shall be provided at a point on the equipment remote from the pressure connection and shall be monitored at 2-week intervals.
 - Mechanical equipment shall be purged with a quantity of gas equal to 1 to 3 times the casing volume to be protected prior to establishing the normal gas pressurization level.
- 4.3.4. Indicator type desiccant, if required, may be provided as follows:
- (a) Type of equipment will determine the type of desiccant container to use; contamination of some equipment with dust or particles of desiccant may be prohibitive.
- (b) Desiccant charges shall be located at major openings of equipment. The quantity of desiccant shall be such that protection is provided throughout the period between scheduled inspections; re-sealing of major openings may be required if desiccant life is unduly short. Two to four weeks or longer active period is desirable.

4.4. Spare Parts Storage

- 4.4.1. In general, spare parts shall be stored indoors, preferably in a separate spare parts storage area.
- 4.4.2. All spares shall be clearly designated and the protection measures applied clearly defined.
- 4.4.3. COMPANY shall be advised of any damage incurred during shipment.
- 4.4.4. Special attention shall be taken or rust prevention measures and general protection against atmospheric conditions in view of prolonged storage.

4.5. Lubricant Storage

- 4.5.1. Indoor storage is preferred. Adequate space shall be provided for storage and for the handling of dispensing equipment for cleaning and servicing materials. The space shall be kept locked and its use restricted to qualified personnel.
- 4.5.2. Outdoor storage shall be avoided but, if necessary, drums shall be stored on planks. All containers shall be elevated and covered with tarpaulin for weather protection.
- 4.5.3. One or more lubricant storage spaces may be located for efficient operation at convenient dispersal points. Storage areas shall be properly covered and no smoking permitted. Adequate firefighting apparatus shall be located for convenient use.



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008	
Job's Doc. No.	253001D0728EQ00S08	
Phase	Detailed Design	
Rev.	0 Page 11 of 19	

5. SPECIFIC REQUIREMENTS

5.1. General

- 5.1.1. For large multi-stage centrifugal pumps, compressors, gearboxes and turbines that are normally stored unassembled, the manufacturer 's recommended procedures shall be followed.
- 5.1.2. Set on foundation, if available, or store outdoors under tarpaulin or plastic film secured against high winds and entry of dirt. Arrange to permit access for periodic inspection. Remove all accessories susceptible to damage during construction. Protect accessories as required, tag with equipment identification and store in a safe place.
- 5.1.3. Stainless steel machinery that is to be insulated shall be stored indoors, if practicable, in order that chloride attack is minimized, thereby eliminating stress corrosion cracking. If stored outside, paint to prevent chloride attack and keep closed to atmosphere.
- 5.1.4. Spare rotating parts of equipment shall be stored per Vendor's recommendations. Intermediate shaft support may be necessary to prevent shaft sag.
- 5.1.5. Protection requirements for package equipment such as compressor-driver-seal/lube oil combination shall be as specified by Vendor. As a minimum each component of the assembly shall be protected as noted in this specification.
- 5.1.6. Renew all rust preventive materials.
- 5.1.7. For machinery spares, if storage exceeds 2 years, open, inspect and renew rust preventives as required.

5.2. Small General Service Pumps, Turbines and Gearboxes

- 5.2.1. If Vendor has not applied rust preventives or has not made a specific recommendation that rust preventives shall not be applied, flush all interior surfaces including case, bearing housing with solvent per rust preventive Vendor instruction until clean. If packing or seal is not installed, stuff with soaked rags into clearance between shaft and housing where specified. Fill case and housings until shaft seal and bearings are covered. Rotate shaft to coat shaft impeller bearings and mechanical seal, drain case and plug.
- 5.2.2. If Vendor has applied rust preventive, check all drains for presence of water. If moisture is present, proceed as above, otherwise the unit can be placed into storage.
- 5.2.3. Renew flange and coupling protection as required. Close all openings.
- 5.2.4. When the equipment is set on its foundation, install a gasketed, blind flange between flanged item and piping. Do not remove blinds until piping has been cleaned. Caps or plugs shall not be removed from threaded connections until connecting piping has been cleaned.
- 5.2.5. Each flange for centrifugal or rotary compressor shall be shipped with protection plates. Preliminary piping fit-up shall be made with plates in place. Plates shall be kept in place as long as possible. The removal of each plate shall be done only immediately before final pipe fit-up.

5.3. Centrifugal Pumps

5.3.1. Store pumps in a clean, dry, and well-ventilated area to prevent exposure to moisture, dust, and corrosive elements. Avoid storing pumps in areas with extreme temperature fluctuations or direct sunlight. Ensure the storage area is free from vibration and mechanical



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0 Page 12 of 19		

shocks. Store pumps in their designated orientation (typically horizontal or vertical, as specified by the manufacturer) to prevent stress on internal components.

- 5.3.2. Apply a protective coating or corrosion inhibitor to exposed metal surfaces to prevent rust and corrosion. Cover the pump with a breathable, waterproof tarp or protective cover to shield it from dust and environmental contaminants.
- 5.3.3. Rotate the pump shaft manually at least once every 30 days to prevent bearing brinelling (indentations caused by prolonged static load). Apply a light coating of oil or grease to the shaft and bearings to prevent corrosion and ensure smooth operation.
- 5.3.4. Inspect seals and gaskets regularly for signs of drying or cracking. Apply a suitable lubricant or preservative to maintain their elasticity. Ensure that mechanical seals are not exposed to excessive humidity or contaminants.
- 5.3.5. Cover all flanges, nozzles, and threaded connections with protective caps or plugs to prevent damage and contamination. Ensure that openings are sealed to prevent the ingress of dirt, moisture, or insects.
- 5.3.6. Check and replenish lubrication in bearings and other moving parts as per the manufacturer's recommendations. Use the appropriate type and grade of lubricant specified for the pump.
- 5.3.7. Conduct regular inspections (at least once every three months) to ensure the pump remains in good condition. Check for signs of corrosion, moisture ingress, or damage to protective coverings and address any issues immediately.
- 5.3.8. Recommendation of pump manufacturer shall be taken in to consideration for the storage of pumps.

5.4. Gear Units

Subject to manufacturer's instructions, rotate shaft so that both drive and driven shafts are rotated 1½ revolutions for the previous position. During inspection, drain about one quart and replace if not contaminated. If moisture is evident, drain completely, flush with solvent and refill with oil. Take corrective action to prevent recurrence. (Check manufacturer's instruction, which might supersede the above).

5.5. Reciprocating Pumps and Compressors

- 5.5.1. Subject to manufacturer's instructions and housings and turn drive shaft to move piston about 1½ strokes.
- 5.5.2. Reciprocating compressor cylinders are usually coated with a special film that will be destroyed if the cylinder is stroked. Manufacturer's instructions must be consulted.
- 5.5.3. Temporary piping or other means shall be provided at suction and discharge to permit piston movement without overpressurizing the unit.

5.6. Pressure Vessels, Heat Exchangers and Tanks

- 5.6.1. Most of the equipment in this category does not require the special protection. If required, special requirements will be noted in the purchase orders, specifications or drawings.
- 5.6.2. Shop fabricated tanks, open or closed top, shall be stored upright, leveled to drain properly with drains open.



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008	
Job's Doc. No.	253001D0728EQ00S08	
Phase	Detailed Design	
Rev.	0 Page 13 of 19	

5.6.3. All stored vessels should have a sign on them, stating "PERMIT REQUIRED FOR VESSEL ENTRY".

5.7. Instruments and Control Panels

- 5.7.1. Indoor storage of instruments, except relief and control valves over 2-inch, shall be required. Refer to Paragraph 4.2 for various types of indoor storage that may be required to provide storage in accordance with Vendor recommendations.
- 5.7.2. Most containers shall be opened to permit inspection, count, specification check, etc.
- 5.7.3. Renewal of rust preventive coatings, flange covers, hermetic enclosures, VSI materials may be required depending on type of instrument and expected storage duration.
- 5.7.4. Shop assembled control panels shall be retained in the shipping containers until moved to the control house. The desiccant or VSI material included in the panel hermetic enclosure shall be inspected at 6-month intervals and renewed when required.
- 5.7.5. All valves except as noted in 5.7.1 shall be stored outdoors on a cleared area provided that accessories are not subject to severe moisture and damage. Machine finish surfaces shall be properly coated and flange openings shall be protected and sealed. The valves shall be stored on palletized supports with a covering. Outdoor items shall be inspected at 6-month intervals with rust preventives, cover, etc., renewed when required. Valves shall be stored with stem in approximately vertical position to avoid entrapping moisture and dirt in the bonnet.

5.8. Piping, Valves and Fittings

5.8.1. Piping

Protection of finished pipe ends and exclusion of dirt shall be enforced.

- 5.8.2. Valves and Fittings
- 5.8.2.1. Valve and Fitting items NPS 2-inch and smaller shall be stored indoors. Protection of flanged facing and weld ends shall be enforced. In general, flange facings and valve parts rust preventive coated by Vendor will not require renewal of coating, except ring joint flanges.
- 5.8.2.2. Valves NPS 3-inch and large may be stored outdoors on a covered dunnage.
- 5.8.2.3. Fittings NPS 3-inch and larger may be stored outdoors on wood supports provided with adequate cover. Renew coating and cover on flanged or other special items as required and provide tarp or film cover. Other fittings shall be stored on dunnage and position so as to be self-draining. Provide wood spaces, bracing, etc., to prevent damage to leveled ends.

5.9. Motors

- 5.9.1. Weatherproofed motors shall be stored outdoors on supports under tarps or plastic sheeting and secured against the wind. Oil/waterproof tape shall be used to seal opening between shaft and case. Remove Vendor provided film covers from ventilation openings of drip proof, etc., motors. Renew shaft coupling and coatings and plastic film cover as required. Drain and solvent flush if drain fluid shows contamination. Fill oil bearing housings with oil. In the case of special motors, the Vendor's instructions shall be followed on the continued protection of its equipment.
- 5.9.2. Ascertain that grease-type bearings are fully greased and renewed yearly at 6-month intervals.



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008		
Job's Doc. No.	253001D0728EQ00S08		
Phase	Detailed Design		
Rev.	0 Page 14 of 19		

5.9.3. At monthly intervals, rotate shaft $1\frac{1}{4}$ revolutions, subject to Vendor instructions, using tools that will not mar shaft surface. Replace shaft-to-case tape seal.

Note: This is a minimum requirement. Consult manufacturer's instructions.

5.9.4. Supply power to motor space heaters immediately on arrival at worksite. Measure insulation resistance of motor windings when motors are relocated to operating position.

5.10. Transformers

5.10.1. Outdoor type transformers may be stored outdoors on supports, without cover. Indoor type units shall be stored indoors. Large indoor type units may be stored outdoors, it shed (shed roof and tarp siding or equivalent) cover is provided.

5.11. Switchgear, Starters and Control Equipment

- 5.11.1. Except for large outdoor type units, this type of equipment shall be stored indoors in a dry, dust free area and where condensation cannot occur.
- 5.11.2. Space heater, if provided, shall be powered when units are stored.
- 5.11.3. Free standing metal enclosed units shall be stored upright.
- 5.11.4. Before start-up check insulation of all electrical circuits using a megger. Low readings indicate that unit requires drying before placing into operation.

5.12. Cable and Wire

- 5.12.1. Large cable reels and wire spools shall be stored outdoors in a cleared and well drained area, on wood supports and covered and protected from corrosion. Protect cable ends using Duct Seal tape or shrinkage caps.
- 5.12.2. Wire rope slings and other lifting cable shall be stored indoors, or outdoors beneath a protective roof as a minimum, hung on racks or stacked on pallets clear of the ground.



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008	
Job's Doc. No.	253001D0728EQ00S08	
Phase	Detailed Design	
Rev.	0 Page 15 of 19	

MECHANICAL EQUIPMENT PROTECTION RECORD

Equipment Name:		_ Purchase Order No.:	
Tag No.:		Vendor Print No.: _	
Inspected Upon Arrival E	Ву:		
	CONTRACTOR		COMPANY
	 Date		 Date
Condition Upon Arrival :			
Type of Protection:			
Rotation Required:		Interval:	



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008			
Job's Doc. No.	253001D0728EQ00S08			
Phase	Detailed Design			
Rev.	0	Page 16 of 19		

INSPECTION AND ROTATION HISTORY

CONTRACTOR	COMPANY	DATE	CONTRACTOR	COMPANY
	CONTRACTOR	CONTRACTOR COMPANY	CONTRACTOR COMPANY DATE	CONTRACTOR COMPANY DATE CONTRACTOR

CONTRACT NO :
CONTRACT NO.:



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008			
Job's Doc. No.	253001D0728EQ00S08			
Phase	Detailed Design			
Rev.	0	Page 17 of 19		

INSTRUMENT INSPECTION RECORD

PLANT:				REPORT	NO.:		_	
INSTRUMENT TYPES:			DATE:					
INSPECTOR:				_	COMPAN	Y:		
					(CC	ONTRACTO	OR)	
TAG	DATA SHEET	DISPOSITION	CHECK	KED	STORED		P.O.#	

TAG	DATA SHEET	DISPOSITION	CHECK	ŒD	STORED		
NO.	NO.	REMARKS	DATE	BY	AISLE	SHELF#	P.O.#



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008			
Job's Doc. No.	253001D0728EQ00S08			
Phase	Detailed Design			
Rev.	0	Page 18 of 19		

INSPECTION REPORT FOR MAJOR ELECTRICAL EQUIPMENT

Equipment Name:			
Equipment Tag No:		Date:	
Purchase Order No.:		Inspec	ted By:
			Contractor
Vendor Print No.:		Inspect	ed By:
			COMPANY
Name Plate Date:			
GENERAL INFORMATION			
Item Description:			
Visual Examination (Before Of	f-loading):		·
Visual Examination (After Off-l	oading):		·
Photographs:			·
	Yes	No	<u>Comments</u>
Documentation Included	0	• _	
Lifting Lugs	0	• _	
Paint Damage	0	• _	
Glass Damage	0	• _	
Instrument Damage	0	• _	
Tagged Properly - Named	0	• _	
Loose Parts	0	• _	
Parts Missing	0	• _	
Special Storage Required	0	• _	



Owner Doc.No.	CMIT-240048-728-EQP-15.03-0008			
Job's Doc. No.	253001D0728EQ00S08			
Phase	Detailed Design			
Rev.	0	Page 19 of 19		

INSPECTION REPORT FOR MAJOR ELECTRICAL EQUIPMENT

	Yes	No	<u>Comments</u>
Special Maintenance Required	0	•	
Vendor Storage Instructions	0	0	
Estimated Weight: kgs	5		
(lbs)			
Size: H cm L	cm	W	cm
(in) (in)	(in)
Remarks:			