




Procedure

Preservation Procedure

Document no.:	52-001076
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About this document

Purpose	The objective of this procedure is to ensure that all equipment, bulk material, special tools, spare parts, modules and system are kept preserved during all steps of the project.
Valid for	This procedure applies to equipment suppliers as well as Engineering / Procurement / Construction, fabrication, Commissioning, warehouse, Hook-up contractors, subcontractors and alliances
Revision Period	2 Years
Non-conformity/ Deviations	If unable to comply with requirements stated in this document, process for deviations and non-conformity applies.

Role	Name
Owner	Unhammer, Ove
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Rev.no.	Date	Description of Change
3.0	2023-07-19	Larger revision of the preservation procedure
2.0	2020-12-02	Revised product list Chpt 3.12
1.0	2019-12-05	New governing document for Aker BP

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1 References

Document Number	Document Name
52-001001	AkeBP Completion Specification
52-000427	AkerBP MC/Completion/Comm manual
52-000770	AkerBP Livening up notice
52-000602	AkerBP Handover Requirements
52-001486	AkerBP Mechanical completion requirements
Preservation	Norsok Z-006
Piping and Valves	Norsok L-001
Technical doc for Subsea projects	DNVGL-RPO101

Completion documents are to be used according to the hierarchy as shown in Figure 1-1.

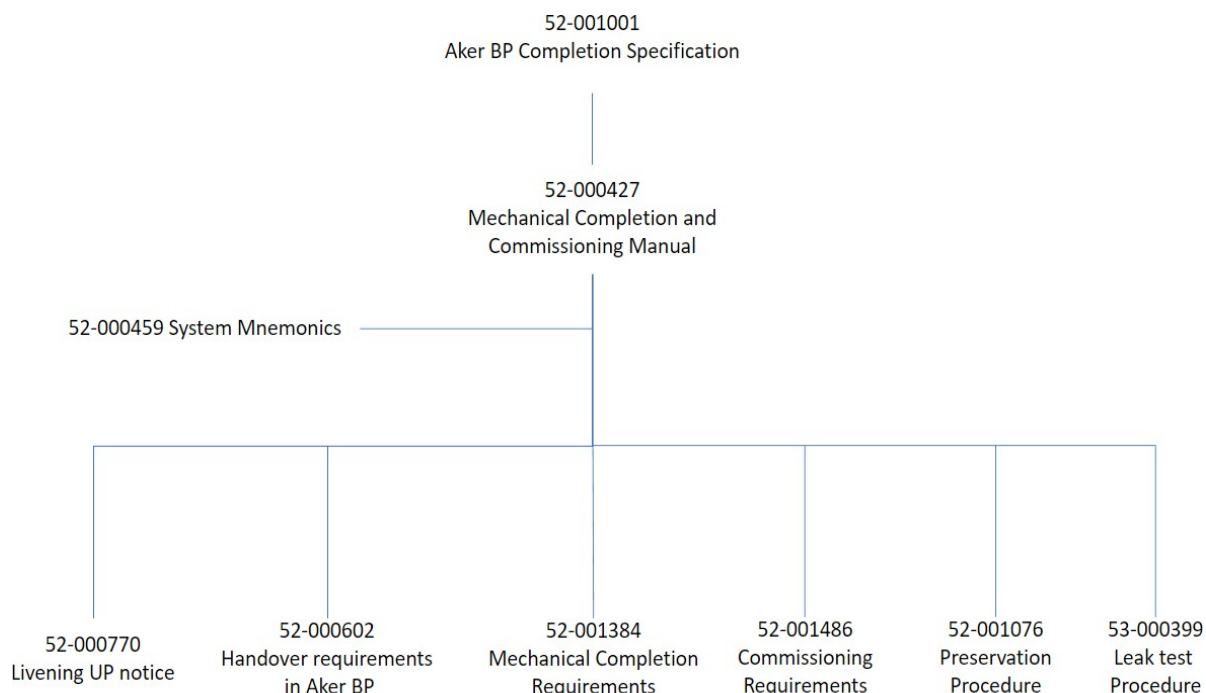



Figure 1-1: AkerBP Completion Governing document.

2 Definitions and Abbreviations

2.1 Definitions

Shall (requirement)	Requirement strictly to be followed in order to conform to the document and from which no deviation is permitted, unless a deviation permit is approved.
Should (recommendation)	Indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) possibility or course of action is deprecated but not prohibited.
May	Indicates a course of action permissible within the limits of the document.
Can	Statements of possibility and capability, whether material, physical or causal.

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Company	AkerBP. Owner and the final recipient of the equipment who may delegate another agent as the purchaser of the equipment.
Purchaser	Owner or owner's agent, who issues the order and specification to vendor.
Manufacturer	Original manufacturer of the equipment.
Vendor/Supplier	Manufacturer or manufacturer's agent that supplies the equipment and is normally responsible for service support.
Contractor/Alliance	Owner or owner's agent in a contractual situation with the owner who carries out all or part of the design, engineering, procurement, construction, commission or management of the project, operation or maintenance of a facility.
Sub-Contractor	Means an enterprise that has an agreement with contractor for supply of goods or services relating to the work specified in the contract.
Purchase Order	Means for this document, an order, placed by either Company or a Contractor for the purchase of goods for the project and which require Preservation. Purchase Order includes Call-off Orders against pre-established blanket orders with Suppliers.
Company Provided Items	Means for this document, items provided by Company to Contractors for the project which require Preservation.
Dust Blind	Means a temporary blind plate with handle, which is cut out from 2-3 mm gasket sheet material or steel plate with gasket on both sides, to protect equipment and skids from any ingress of dirt or foreign materials during the erection of the interconnecting piping.
Preservation	Means that equipment and systems are protected against potential external and internal deteriorating factors. It includes both Initial Preservation and Preservation Maintenance.
Initial Preservation	Means the application of specified preservatives and fitting of specified protection to any equipment/system by Suppliers

	prior to delivery or by receipt or installation by Contractors, to maintain the equipment/system unimpaired.
Preservation Maintenance	Means the periodic activities to confirm that the initial Preservation is intact and functioning. This also includes repair of deteriorated initial Preservation.
Preservation Records	Means the different forms for each discipline which together with this document defines and records the Preservation requirements and activities for the equipment and systems. The Preservation records follow the equipment through the different phases of manufacture, storage, installation etc.
Preservation Check Lists	Preservation Check Lists is the part of the preservation records which define the actions required to maintain the initial Preservation.
Supplier Preservation Maintenance Check List	Means the list which defines Suppliers additional requirements to keep the initial Preservation intact.
Project Completion System (Pims CMS)	Computerised system for status of Mechanical Completion, Commissioning and Preservation by individual tag or area.
Preservation Programme	Computer based list of the equipment and systems requiring Preservation, and which identifies the individual Preservation requirements and the last and the next date for Preservation based on period intervals for the equipment. The programme constitutes the Preservation part of the Company internet based Pims CMS.
Mechanical Completion (MC) package	Smallest and most practical scope of work for one discipline within a commissioning package.
Commissioning package	Primarily a functional unit which can be tested to prove compliance with requirements for functionality and operability. A commissioning package can also contain one or more static parts of an installation like civil, steel structure, tie-ins, hook-up spools etc.

2.2 Abbreviations

Pims	Project Integrated Management System
CMS	Completion Management System
HVAC	Heating, Ventilation and Air Conditioning
MC	Mechanical Completion
VCI	Volatile Corrosion Inhibitor

2.3 Provision

This document applies to equipment suppliers as well as Engineering / Procurement / Construction, Fabrication, Hook-Up Contractors, and Sub-contractors.

3 Introduction (Purpose)

3.1 Objective

Provide requirements for all preservation activities for AkerBP.

The objective of this document is to ensure that all equipment, modules, bulk, special tools, spare parts, commissioning spares, capital spares, hook up materials and systems are kept preserved during all stages of the project.

This includes packing, transport, storage, construction, commissioning, HU at both contractor, fabrication sites and suppliers, as well as during transport to installation/integration and commissioning prior to start-up of equipment and systems.

This Procedure describes preservation in various stages of the project. Each section shall ensure that the responsible department from the previous stage of the project have performed the required preservation.

This manual applies to Equipment Suppliers as well as Engineering, Procurement, Construction, Fabrication, commissioning, Hook-Up Contractors, Sub-Contractor and Alliances.

3.2 Company & Definitions phase


Company will provide Contractor with access to Company's computerized Project Information Management System Pims CMS.

DG1 – DG2

The Preservation frame conditions shall be accounted for in "Project Execution and Overall Procurement Strategy" and Business Case Execution Strategy.

DG2 – DG3

The purpose of the Definition phase is to develop and document the business concept to such a level that project sanction (DG3) can be made.

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A Project specific preservation manual/procedure/strategy is to be developed during this phase. Or this document can be chosen to use as is.

DG3 – DG4

The purpose of the Execution Phase is to design, procure, construct, install and execute preservation, mechanical completion and commissioning of the project objects.

Preservation activities in this phase are divided into the following main categories:

- Preservation preparatory work
- Preservation execution

Preservation activities shall be planned within fully integrated fabrication, mechanical completion and commissioning schedules on a system priority basis in order to meet the optimum sequence of project completion.

Preservation preparatory work typically involves activities like:


- Revise Manpower Projection Plan (MPP) including mobilization / demobilization dates for preservation personnel.
- Revise the organization chart for Preservation.
- Establish job descriptions for preservation personnel.
- Establish examination plan.
- Supplier preservation procedures and philosophy to be reviewed and approved.
- Contractor/Alliances preservation procedures, method statement and philosophy to be reviewed and approved.
- Implementing / update Pims CMS database for preservation scope. There shall be at least one preservation record for each discipline, and one for each tag that requires megging/maintenance (motors, heaters, pumps, compressor, turbines, transformers, vessel with N2/VCI, heat exchangers and other eq with special instructions, etc). Implement supplier special requirements based on supplier procedures into tag-based check sheets. So that check sheet reflects each tag individual requirements for preservation and maintenance.
- Establish access control routines and training of users in PimsCMS. Suppliers, module yard, fabrication yard and contractors.

Based upon the construction and completion strategy, contractual requirements shall be developed and included in the respective Invitations to Tender (ITT)

A verification matrix shall be developed to show where contractor shall notify Company for agreed upcoming activities such as inspections and punch-out.

3.3 Suppliers

The supplier has the full responsibility for the equipment during manufacturing period and shall carry out the preservation activities as required by the Purchase Order, preservation procedures and the project specifications to complete the Preservation Check Records online in the Pims CMS system for tagged equipment (motors, heaters, pumps, compressor, turbines, transformers, vessel with N2/VCI, heat exchangers and other eq with special instructions, etc) and attach required documents / certificates and relevant Punch Lists for the delivery. Checklist for relevant tags will be transmitted through Pims CMS to supplier.

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All other preservation requirements from sub-vendors/vendors and this procedure to be verified prior to dispatch.

Any supplier special preservation requirements, specific to equipment during storage, construction and until commissioning, shall be identified and details given by the supplier in a preservation procedure and Supplier preservation check list.

Special preservation/instructions for EX rated equipment and oxygen service equipment to be highlighted in the supplier preservation procedure if any.

The preservation instructions shall take into consideration possible situations which may occur during the complete project period, and the supplier shall be aware that his preservation instructions and initial preservation form the basis for preservation maintenance throughout the whole project development period. Including storage, construction, commissioning, transport and HU phase.

Capital spares shall follow same requirements and systems.

This procedure shall be issued as approved minimum 8 weeks prior to packing and final inspection for company review and comments.


Initial preservation shall be valid for up to 24 months.

In the event where Equipment is to be stored due to project change/Delay, preservation activities/routines/schedules shall be established and Maintained in Pims CMS system.

Based upon the preservation requirements included in purchase orders, suppliers shall be responsible for:

- Issue a preservation procedure containing detailed description of initial preservation, and according to Norsok Z-006 and Company Preservation procedure. This procedure should also include any equipment package sub-supplier's preservation requirements.
- Application of initial preservation according to requirements.
- Appropriate preservation maintenance and documentation thereof.
- Identify and describe preservation periodical maintenance per tag/equipment and identify if special tools are needed.
- Identification and detailing of any preservation requirements beyond Company's requirements. And prepare a check list to be implemented in supplier preservation procedure.
- Procedure for packing and protection of skid/equipment including list of materials used.
- Procedure for storage of the skid/equipment and for maintenance preservation during the construction period at the fabrication site. This procedure shall also include method for removal of the preservation, used on the skid/equipment.
- Enclose a copy of special instructions / preservation procedure with the skid/equipment to fabrication site.
- Material safety datasheets for preservation products being used.
- Procedure should include thorough description of how preservation is to be performed and for de-preservation activities.
- Recording preservation activities in completion management system Pims CMS. By filling out and submit preservation check sheets prior to final inspection and dispatch.

Note: Preservation products containing hazardous chemicals must be brought to the Companies attention and be approved by Company before use. And all MSDS shall follow the Equipment.

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3.4 Contractor/Alliance

Company or his representatives (Contractor/Alliance) responsibilities.

Contractor/Alliance Partner shall develop a project specific procedure and method statements that in detail describe preservation methods and products to be used for the various preservation applications in a way that preservation has minimum impact on progress and inspections. Contractor/alliance Partner can choose to revise existing procedure or use current document as project specific requirements. Procedure, method statements and product list to be approved by company.

Contractor/Alliance partner shall develop receiving inspection routine for all incoming equipment/modules. Check of Initial/basic preservation and activation of TAG based check sheets to be performed in Pims CMS. Unless otherwise stated by supplier or equipment fitted with vacuum seal that is intact each item is to be inspected. During receiving inspection supplier procedure and preservation check list shall be present.

This procedure shall contain details regarding how EX-rated equipment and Oxygen service equipment will be handled and followed during all project phases. And weather it shall be a part of the TAG based preservation regime.

Preservation Product list to be prepared and approved by client. Listing minimum 3 options of high-Quality products and based on pricing and availability at current location. Emphasize to use 1 single supplier for preservation chemicals such as VCI to avoid mix of products between yards/contractors.

Implementing / update Pims CMS database for overall TAG based preservation scope. There shall be at least one preservation record for each discipline, and one for each tag that requires meggertest/maintenance (motors, heaters, pumps, compressor, turbines, transformers, vessel with N2/VCI, heat exchangers and other eq with special instructions, etc.). Implement supplier special requirements based on supplier procedures into tag-based check sheets. So that check sheet reflects each tag individual requirements for preservation and maintenance.


Contractor/Alliance shall continue the Preservation activities initiated at Suppliers site according to supplier procedures and at other Contractor's / Subcontractor's sites. Also perform Preservation maintenance activities for all own construction work.

Contractor shall be responsible for the management, implementation, execution and documentation of all Preservation activities. Review of supplier preservation procedures and update preservation check sheets with supplier special requirements if any.

Contractor shall include preservation requirements in all subcontracts and purchases orders. The preservation scope shall be prepared and submitted to the supplier electronically through company completion management system Pims CMS.

Contractor shall produce a procedure for "clean dry building construction". The principles of Clean and Dry Building, CDB philosophy shall be followed for all indoor architectural and technical areas/rooms throughout all phases of the work, where the required quality level shall be maintained until formal handover to the Company. Divided into separate stages of project execution. Blue = Steelwork, Green = Basic construction, Yellow = Closed construction, Red = Furnishing and fixture.

Contractor shall, to the extent required by the scope of work of their contracts ensure that:

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- Suppliers' procedures for preservation, packing and shipping of equipment meet Company's requirements and that supplier additional requirements are adhered to, and tag-based check sheets Is updated accordingly.
- Perform final inspection prior to packing and shipment.
- Preservation records are signed by suppliers and verified upon completion of initial preservation in accordance with Company's requirements and prior to Dispatch and updated in Pims CMS system.
- Prepare a project specific procedure and discipline wise method statement for the yard preservation and all requirements in this procedure, Norsok Z-006 and all supplier procedures should be taken into consideration. A project specific procedure showing how preservation will be done in the yard, showing the preservation organization and how the preservation execution is planned. Method statement per discipline describe the basic/initial preservation application, including a preservation product list overall matching the Method statement. Product list should be prepared based on 3 vendor comparison for quality/price evaluation.

Contractors shall be responsible for ensuring that preservation is carried out on all items procured or provided to them (as "free issued") that require preservation, and this shall be done in accordance with their contractual obligation. Contractors shall also ensure that the preservation records for such items are always kept up to date in the completion management system.

For purchase orders assigned to contractor and for Company Provided Items, contractor shall have the same responsibilities as for own scope of work after the assignment of the purchase orders or receipt of such Company Provided Items.


Contractor is responsible for provide/establish for company approval a "transport/sail away procedure" that considers all preservation to be performed prior to and during the transport period of modules, large equipment and skids. Requirements in this procedure and all supplier requirements to be used. And procedure to be approved by Company.

Contractor shall be responsible for the management, implementation, execution and documentation of all preservation activities, including:

- Inspection of equipment on receipt, re-application where preservation has been damaged or deemed to be inadequate.
- Reporting damage to, or removal of preservation. The damaged equipment shall be punch listed.
- Preservation maintenance according to Company requirements and/or Supplier extra preservation maintenance requirements.
- Preservation record must be completed at the initial preservation and signed.
- Update preservation data system Pims CMS.
- Restoring of preservation in accordance with contract and Company's instructions.
- Proposing alternative preservation products if products recommended by Company could represent a safety or health risk to personnel, equipment or environment.

Transport/sail away procedure shall be developed in due time prior to sail away and shall include:

- Periodical maintenance and preservation needed for the voyage/transport according to supplier requirements, company requirements and Norsok Z-006
- Products to be used for protection and preservation.
- Temporary systems and temperature/humidity control where it is needed/required. Depending on routing and weather conditions.

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Module cleaning and sail away preparations.

All areas such as, floor, walls, skids, equipment, piping, cable trays, instrument stands etc. Must be clean, dry, dust free and free from any corrosion/contamination prior to preservation for transport from the yard.

In the event where Equipment is to be stored due to project change/Delay, preservation activities/routines/schedules shall be established and Maintained in Pims CMS system.

When using chemical for cleaning the environmental impact shall be considered. And a HOCNOF/NEMS green or equivalent product to be used.

3.5 Commissioning

Commissioning shall ensure that preservation requirements of equipment and systems are fulfilled during the commissioning phase.

This shall include evaluation of both system/equipment preservation and preservation medium/methods for preservation until handover to operation is completed.

This document together with supplier instructions and projects requirements shall be the commissioning minimum requirements for preservation of systems and equipment. All equipment shall be maintained and well preserved during both the commissioning period and the period prior to transfer of responsibility of systems.

It is preferable to transfer key personnel from construction phase preservation to commissioning to keep routines and history throughout the project execution period until equipment and systems are handed over to operations. And continuous update Pims CMS preservation module.

Method and rate of preservation shall be evaluated with regards to both system/equipment and the time between commissioning stop and start up. These parameters will give main guidelines to preservation mediums and necessary maintenance preservation. Commissioning will be responsible to give this information to the relevant parts for further action and system update.

In projects with combination of site commissioning and transport phase prior to HU and complete commissioning the Commissioning team shall be involved with all preservation activities and execution for packages handed over.


Including sail away/transport preparations and planning of temporary's systems if any.

For HU phase Preservation team/responsibility must be transferred to Commissioning until handover to Operations.

4 Status Reporting

4.1 Preservation reporting and database

Pims CMS is the main project tool for planning, execution, status reporting and management of the preservation maintenance per Tag. (If no other project specific agreements are made to use contractor Preservation systems for minor projects and modifications.)

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Preservation maintenance check lists have been developed for the mechanical/HVAC/piping, electrical and instrument disciplines and to be found in the completion and preservation follow up system Pims CMS. Check sheets shall be auto generated for TAGs defined below, and manually set up for TAGs identified with Special requirements. Update of TAG based special/additional requirements based on supplier procedures is to be done manually for each equipment.

Only Tagged equipment with special supplier requirements, maintenance or of high priority to be implemented in this Preservation system (Motors, Pumps, Heaters, Compressor, Turbines, transformers, Generator, Vessel with N2/VCI, Heat exchangers, and items with special requirements etc). Tag based check sheet follow up is to be kept to a minimum and in general only main components and equipment that need periodical maintenance to be implemented.

Weekly worklist is to be used as reporting of status for TAG based preservation activities.

Dummy tag may be used for un-tagged equipment, areas and systems for preservation maintenance follow up.

Remaining tags to be preserved according to minimum requirements as per this document, project specific procedure/method statements and covered by area inspection. Action list, or preservation actions in the completion tool to be used as reporting of findings and outstanding issues. Major findings are to be punched in completion tool Pims CMS.

Action list is to be developed for Area inspection status/findings and closure of these.

The supplier preservation activities shall be recorded in Pims CMS completion management system preservation records/check sheets prior to dispatch from supplier premises.

Contractor and commissioning shall continue to use Pims CMS preservation program for recording of all preservation activities and checks. Until handed over to Operations. Use of preservation weekly reports for all tagged items and action list for Area inspections and findings. Punch list if any.

5 Requirements


5.1 Initial preservation

Initial preservation shall be based on outdoor storage under salient weather conditions, construction conditions and for the project period until handover to Operations. And all requirements mentioned in this procedure under Supplier and Contractor/Alliance partner section.

All skids, equipment, piping and bulk orders shall be clean, dry, dust free and free from any corrosion or contamination from construction activities prior to initial preservation and transport.

Any supplier additional preservation requirements specific to equipment during storage and construction, shall be identified and details given by the Supplier. And Check sheets updated accordingly.

Life Cycle Cost principles and safety should govern all decisions and actions.

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Special supplier requirements regarding storage and maintenance preservation exceeding minimum requirements in Company's Preservation Requirements shall be specified on Preservation procedure and records/check list.

Contractor is responsible for ensure initial preservation for construction phase is implemented and stated in their procedure/method statements. All equipment including bulk items (equipment without tag-based check sheets) shall have basic initial preservation applied prior to dispatch from warehouse and to construction site.

5.2 Preservation Maintenance & Interval

Preservation maintenance check lists have been developed for the mechanical/HVAC/piping, electrical and instrument disciplines and to be found in the completion and preservation follow up system Pims CMS and activities shall be started during/after receiving inspection.

The Company and Supplier's minimum requirements for preservation maintenance shall be detailed on the preservation check lists according to each equipment. Special instructions shall be implemented in the completion and preservation follow up system Pims CMS per tag in the current check sheet.

Periods will vary if equipment is identified with special instructions, if nothing is stated in the supplier's procedure, then a tagged item is recommended to be checked every 4 weeks.

For each interval there is a description of the check to be carried out. These descriptions are meant to be self-explanatory.

If preservation is removed or damaged due to normal construction, commissioning activities or for any other reason, the Contractor shall immediately rectify and reinstate the preservation to its original condition.

Company or his Representative will verify all Preservation Check records and cleared Punch List items or preservation actions from inspection as soon as possible.

Verification signature by Company or Representative will be given on Preservation Check records when all initial preservation has been completed and punch List/action list items have been resolved.

5.3 Inspection of Equipment and Receiving inspection


All equipment delivered to the fabrication sites shall be checked with respect to the condition of the preservation. Any anomalies shall be noted on the preservation checklist, punch listed and re-preserved according to requirements.

For equipment packages supplied that are internally preserved and/or hermetically sealed with humidity detectors fitted, no further action except external inspection of the package and recording of humidity indication is required during the storage period.

Company may exercise its option to be present during the opening of crates, packages etc.

All Suppliers special instructions noted on packing crates or in the shipping papers shall be regarded by contractors as mandatory during handling, storage and preservation.

Pressurize vessels and heat exchangers to 0.2 barg to be preserved with dry air, nitrogen or VCI and labelled accordingly.

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Any doubt arising from the equipment preservation status as received from a supplier by contractor shall be clarified. If necessary, the supplier shall inspect the equipment at the Contractor's site and advise if any further action is required.

All equipment identified with a TAG based check sheet shall be initiated/started in Pims CMS system and interval for preservation maintenance start running from receiving inspection date. Procedure needs to be present during receiving inspection and check sheet to be verified to see all special instructions is covered and sequence is set correctly.

All equipment that has periodical preservation maintenance requirements shall have a preservation Tag attached. This shall include date tracking history.

5.4 Storage

Contractor shall be solely responsible for the care and cleanliness of the equipment during offloading, handling, storage and construction period and shall always ensure a standard of care and cleanliness appropriate to the type and duty of the equipment. Outdoor storage is only acceptable for equipment so prepared by the supplier. This shall be approved by Company or his representative in each case. Temperature and relative humidity shall be recorded regularly (once a week) in storage areas. Maintenance preservation according to this document shall be performed during storage period if not otherwise instructed by Company or his representative.

Any equipment, pipe, valve etc. delivered to site without sealed covers or plugs on openings shall be inspected and cleaned as necessary and covers or plugs fitted. Flanged openings shall be blinded by use of 3 mm rubber gaskets or self-adhesive flange protector and heavy-duty plastic cap or steel or water-resistant plywood plate with galvanized bolts enough to give mechanical protection and to prevent ingress of water and other foreign matter.

For equipment under internal preservation by N2 or VCI internal preservatives only standard spec blind flange and gasket to be used for sealing. If found open or leaking re-preservation must be done according to requirements stated in supplier procedure.

For special or sensitive equipment, designated storerooms shall be dry, heated, vented, clean and dust free. The storerooms shall not be entered by unauthorized personnel. The storerooms shall be approved by Company.


Special care for EX rated and oxygen service equipment.

For equipment stored in heated and humidity-controlled areas Company can, upon request, modify the preservation requirements and extend the periods between preservation checks.

The storerooms shall have adequate racks and shelving installed. Equipment shall be stored safely and in such a way that removal or transfer of one item will not cause damage to other items.

All warehouses and storerooms which are normally unmanned shall be inspected on a weekly basis to ensure that the equipment is stored securely and to check that the building is dry and HVAC systems, where applicable, are working properly.

Check that temperature and humidity requirements per equipment is followed and equipment stored in an area where temperature and humidity level is within requirements. REH should not exceed 55%

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All space heaters on electrical motors or panels etc shall be connected and live and labelled accordingly.

Contractors shall protect all installed items of equipment susceptible to deterioration during transportation of other equipment, lifting operations and construction works in the vicinity of the item.

It may be necessary to issue further instructions for equipment protection based on the experience of actual site conditions. These will be given as written local site instructions. Such preservation requirements shall not affect the validity of the supplier's extra preservation maintenance requirement list.

All preservation of equipment to be fit for a Construction environment shall be done to the equipment prior to issuing from Storage to site installation.

All special tools, commissioning equipment, general spares, and capital spares shall be a part of the preservation maintenance/inspections and follow up until handed over to Operations.

All equipment to be in storage area shall be preserved according to this procedure and Initial preservation requirements. When issued from warehouse it shall have construction protection applied.

5.5 Construction and Weather Protection

During Storage, fabrication, installation and construction, a flame retardant temporary protective slanting roof/protection with sidings or special made tarpaulin shall be erected around equipment skids and such special equipment as inline instrument valves, pumps, electric motors, etc.

It may be necessary to issue further instructions for equipment protection based on the experience of actual site conditions. These will be given as written local site instructions and project specific procedures/method statements.


Such preservation requirements shall not affect the validity of the supplier's extra preservation maintenance requirement list/procedures.

5.6 General Requirements for Supplier

Supplier has the full responsibility for the equipment until delivery and to deliver the equipment initially preserved according to his own company approved preservation instructions together with agreed Company special preservation requirements. Requirements in this procedure and Norsok Z-006.

- Preservation checks to be carried out as per the preservation check records and signed out prior to final inspection and shipping/dispatch. As per Tag based check sheets issued for supplier.
- Basic and initial overall preservation to be performed as per this Procedure.
- All electrical equipment shall have the insulation resistance measured for motors, heaters, generators, converters and transformers. Measurements shall be taken and recorded in preservation follow up system Pims CMS per TAG and not more than 1 month prior to delivery date.
- Supplier to indicate voltage used during insulation test and log it in the preservation check records.

- All delivered equipment shall have detailed description of initial preservation in the supplier preservation procedure, included requirements on sub delivered equipment if any.
- Initial preservation to be performed/completed prior to shipping.
- Equipment to be stored according to supplier own requirements and Company requirements.
- All tapes used for preservation shall be of the type that don't leave adhesive residue.
- All JB, instrument, cabinets and other termination points of cable SHALL have VCI emitter installed, and they must be according to current volume of the equipment to be protected. On shipping date VCI emitter must not have less than 6 months to "due date"
- Valves, manual loose delivered. Shall have heavy-duty full-face protection cap, and neoprene self-adhesive gasket to avoid ingress of debris (if ship loose). PTFE lubrication spray to be added on stem, and yoke to be sealed with Vulcanizing tape. All grease nipples to be lubricated and have Cap fitted.
- Valves with Gear. Gearbox to be filled for life @ 80-100%.
- Prior to shipment from the Supplier, all in/outlets from units/skids shall be plugged/blanked.
- Piping/spools etc shall be sealed by using standard flange and gaskets, special made steel plate/flange, or 10mm water resistant plywood, 3mm neoprene with self-adhesive backing and min 4HDG bolts. If N2 overpressure is used only standard flg and gasket to be used.
- Threaded openings to have metal plugs compatible with the metallurgy of the component being capped or plugged. If IP rating is maintained, plastic plugs are acceptable for non-hydraulic/pneumatic systems.
- Drain out water in carbon steel piping systems according to pipe/test spec. Prepare a mixture of corrosion (VCI) inhibitor and water according to inhibitor manufactures recommendation. Flush through system with this mixture. Drain out system ensuring that no water remains trapped in system. If dry VCI application is preferred application/volumes used to be according to manufacturer recommendations.
- Lubricate door hinges, grease nipples and fasteners.
- Machined and untreated Carbon steel surfaces (flanges, base plates, foot plates, earthing points etc) to be preserved by using protective wax. A so-called Contact inhibitor
- Apply/fasten a clear gauge cover or 6 mm water resistant plywood board/plate to all glasses in instruments/panel fronts.
- Flame retardant tape/clear sheet or Aluminum sheeted glass fiber cloth 0,3gm to use for envelope Junction boxes and panels.
- Flame retardant clear sheet or aluminum sheeted glass fiber cloth 0,3gm to be used to envelop instruments, telecom equipment, detectors, transmitters, heaters, push buttons etc.
- Apply thin layer of non-acid Vaseline to gaskets on door covers.
- All spare cable entrances in panels and boxes shall be plugged.
- All ball valves to be locked in open position. Sealed by 3mm neoprene and full-face flag cap and cap sealed with no residue preservation tape.
- All exposed valve spindles shall be sprayed with lubricate oil or PTFE spray and wrapped with vulcanizing tape around the yoke to protect from contamination.
- Grease nipples shall be protected with " Grease nipple cap".
- Packing of equipment for transportation shall protect the equipment against humidity, dust and mechanical stress, which may occur during outdoor storage, or loading and unloading operations. The enclosure used for this purpose shall be constructed to allow for stripping down of the unit, enable receivable inspection and maintenance preservation to be carried out and be provided with hatches for access for lifting, hook-up of piping, electrical/instrument cabling and tubing, without dismantling the entire enclosure.

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- Vessel and heat exchanger's to be preserved with a N2 overpressure minimum 0,2bar. Gauge for reading values to be installed. Equipment to be labelled with information regarding this. Option to use VCI instead of N2 if recommended by supplier.
- Preserve oil filled systems/gear/m with VCI oil additive according to inhibitor manufactures recommendation and supplier preservation instructions ensuring the additive is compatible with the equipment lubricant type.
- All areas like floors, walls, skids, equipment, piping and bulk orders shall be clean, dry, dust free and free from any corrosion prior to initial preservation and transport, included painted surfaces.
- When using chemicals for cleaning the environmental impact shall be considered. If product as classified as HOCNF/NEMS green or equivalent is available and effective, it shall be used providing classification can be documented as so
- All spare parts, tools, capital spares and ship loose items should be corrosion protected with VCI packaging material in accordance with VCI inhibitor manufacturer's recommendation.
- Tailor made self-extinguishing waterproof tarpaulin should be provided for each package. The tarpaulin shall provide re-closable openings for inspection, maintenance, and installation purposes.it must have access for lifting equipment, hook up of piping, el/instr cabling, instruments without being dismantled. To be a part of the supplier normal shipping procedure.

Supplier/contractor shall notify company regarding supplier special requirements, maintenance routines and submit preservation procedure not later than 8 weeks before package release, to ensure identification and implementation in company preservation follow up system Pims.

5.7 General requirements Construction contractor, module contractor, Alliances.


Supplier's special preservation instructions, Company's instructions and requirements described in this manual shall be the minimum requirement for all preservation activities during the fabrication period until commissioning starts and transfer of responsibility of the different systems/equipment is achieved.

For all equipment where ingress of sandblasting grit, dust and moisture can cause harm to the equipment, the Contractor shall design and install a temporary covering enclosure for protection purposes. The enclosure must of flame-retardant materials and be provided with hatches allowing for lifting, hook up of piping, hook up of electrical/ instrument cables and access for periodic maintenance of preservation without removal of the entire enclosure. All Designs and materials shall be approved by Company before installation. Any additional heating or vapor corrosion inhibitor requirements within temporary enclosures for sensitive equipment shall be adhered to.

All surfaces exposed to welding and grinding splatter shall be protected with flame retardant materials, aluminum coated glass fiber cloth, flame retardant tapes or sheets in a way that preservation inspections, maintenance and construction can be done efficiently and with minimum de-preservation and removal of protection. Emphasize use of flame-retardant Clear materials when feasible.

Delicate equipment shall be stored indoors in dry and heated (humidity controlled) storage areas if possible before taken out to module for installation.

Preservation materials list to be implemented in project specific procedure and method statements and sent to company for approval prior to start construction activities.


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- Receiving inspection and check of equipment upon arrival to see if internal preservation is intact. And start logging in the Preservation system per tag. All issues to be captured as Punch, and rectified. Supplier procedure should be present on inspection.
- `Start` all relevant tags for equipment in the preservation system/completion system and commence periodical maintenance routines as quick as possible after arrival. Connect space heater, rotate equipment, N2 logging etc.
- All equipment must have intact preservation for construction phase when issued out of the Warehouse/Store. An according to project specific procedures and Method statements regarding application and product used.
- Materials used for covering Shall be flame retardant. Colored sheet, clear sheets, tapes used for covering, tarpaulins and aluminum coated glass fiber sheets.
- All tapes used for preservation purpose shall be of the “non glue residue” type and UV protected.
- Various VCI emitter used must be according to size and Volumes its designed for.
- All spare cable entrances in panels and boxes shall be plugged.

Piping

All piping and piping related materials such as spools, supports, clamped shoes etc to be preserved with flame retardant materials. Internals clean and free of debris. If carbon steel quality internals to be preserved by proper VCI products (wet or dry application). All materials to be always free of any contamination from construction activity to avoid damage and corrosion/contamination.

- All stainless pipe spools to be preserved externally with flame retardant materials and internally if exposed for “hot works” and construction debris. Internals free of debris and clean, flange or open end to be capped/sealed to avoid ingress with neoprene 3mm self-adhesive gasket and heavy-duty full-face protective plastic cap or water-resistant plywood and 4 x galvanized bolts.
- For long time storage and if spools are preserved internally with VCI wet/dry and as per manufacturer recommendations, 3mm neoprene self-adhesive gasket and min 10mm water resistant plywood/steel plate/flange with 4 x galvanized bolts is needed to seal flanges and pipe ends.
- Valves, manual loose delivered. Shall have heavy-duty full-face protection plastic cap, and 3mm neoprene self-adhesive gasket to avoid ingress of debris. PTFE spray to be added on stem, and yoke to be sealed with Vulcanizing tape. All grease nipples to be lubricated and have Cap. During construction valve shall be protected from construction debris, blasting etc to be avoid damage. Clear flame-retardant sheet or aluminum sheeted glass fiber cloth recommended to be used as construction protection externally.
- All manual valves internals shall be preserved by spraying with high quality anti-seize lubricant oil. Valves to be stroked fully open/closed on a 3-monthly basis. (Except when installed in a pipe system not taken over by commissioning)
- Valves with Gear. Gearbox to be filled for life @ 80-100%
- Valves, actuated/on/off. Stem to be protected by PTFE spray, and to be protected from construction activities with flame retardant materials during construction. Flange surface to be protected with neoprene self-adhesive and Heavy-duty full cover plastic flg cover. When exposed from hot works and construction activities covered with clear Flame-retardant sheets or similar. internals shall be preserved by spraying with high quality anti-seize lubricant oil.
- Supports to be protected from contamination from construction activities and hot work by using flame retardant materials.

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- All internal surfaces of carbon steel pipe spools etc. that is not coated or lined should be protected with VCI.

Mechanical

All mechanical equipment such as skid, pumps, motors, generators, base plates, HVAC units and ducts, insulation, safety, structure to be preserved with flame retardant materials to avoid damage from construction activities and hot work.

For periodical maintenance of mechanical equipment see tag-based check sheet. Initial/basic preservation listed in this doc is standard and minimum requirements.

Bolts used for temporary blinds shall not cause corrosion on equipment.

All exposed unpainted machined surfaces shall be coated with corrosion protective contact inhibitor wax.

Any additional heating, VCI or HVAC requirements within temporary enclosures for sensitive equipment shall be adhered to and implemented in the preservation check sheet.

Greased bearings that are to be greased shall be appropriately preserved per the supplier's instruction.


Follow special instruction for EX rated and oxygen service equipment and implement handling/preservation in the project specific procedure/method statement.

On insulated units where the insulation could be exposed to damage during storage or installation process, the insulation shall be protected with flame retardant sheet.

- All items to be preserved for construction condition prior issued from warehouse according to project specific procedure and method statements.
- All equipment that will be exposed from construction activities/debris/blasting etc to be covered with flame retardant materials.
- All motors and other rotating equipment internally preserved with lubrication corrosive protective oil and turned manually 2-1/4 turn every 4 week OR in a frequency identified by supplier and updated in the tag-based check sheet.
- Vessel and heat exchanger's to be preserved with a N2 overpressure minimum 0,2bar. Gauge for reading values to be installed. VCI can be used if manufacturer/supplier recommend.
- Hood, HVAC duct, stainless cover and such to be protected from contamination from construction activities and hot work. By using flame retardant materials such as, flame retardant tape, sheet, tarpaulin or aluminum sheeted glass fiber cloth.
- Open flanges, flexible hose and other open connection to be blanket off/plugged. See requirement under piping.
- Prepare a mixture of VCI oil additive and oil in pump/motor/turbine/generator/housing/gear housing etc. according to inhibitor manufactures recommendation and supplier preservation instructions ensuring that the additive is compatible with the lubricant. Ref preservation check sheet for current tag.

Electrical and instruments

Check received equipment for initial preservation, cleanliness and damage. All protection of equipment shall provide mechanical protection as well as protection against moisture, dust and carbon contamination.

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Follow special instruction for EX rated and oxygen service equipment and implement handling/preservation in the project specific procedure/method statement.

Equipment having inbuilt space heaters shall have temporary supply to heaters during storage period in any non-heated and humidity-controlled area. This heating shall not be left un-energized for more than 14 days in dry air or 48 hours in moisturized air. Once equipment is in position, space heaters (if fitted) shall be energized as soon as possible, from a temporary supply until the permanent supply becomes available. Equipment that may be exposed to moisture and dust shall be covered with flame retardant, waterproof materials such as flame-retardant tape, sheet or aluminum sheeted glass fiber cloth. Ref preservation check sheet for current tag.

All control, transformer and battery rooms shall have portable electrical airdrying/HVAC units installed with enough capacity to maintain air at a maximum relative humidity of 55%. Generators and motors installed inside ventilated hoods are subject to the same requirements as for electrical rooms above.

Alle electrical rooms, technical space, LQ etc shall have temperature and REH control by dehumidifiers or HVAC/heating. And have remote monitoring.


Batteries shall be stored in dry rooms at temperatures between 0°C and +10°C. Batteries shall be protected against fouling and corrosion by applying a thin layer of Vaseline to the untarnished metal parts.

Instruments exposed for possibly damage shall be removed and stored separately, clearly tagged and preserved. Instruments, control units, and valve position indicators which cannot be removed are to be protected with flame retardant materials, and clear gauge cover.

Blank all instrument nozzles on skid where instruments are removed using metal blanks compatible with the metallurgy of the equipment being blanked. For flanges use oil resistant rubber gaskets or 3 mm self-adhesive flange protector, heavy duty plastic cap or steel or water-resistant plywood with galvanized bolts enough to provide mechanical protection and water/dust tight sealing.

Instrument equipment containing electronic components shall be protected with VCI or equivalent, according to Manufacturer's instructions and volumes. If required Desiccant might be added together with VCI for special sensitive equipment.

- Junction boxes and cabinets to be protected with flame retardant tape, flame retardant sheet or aluminum coated glass fiber sheet. This to avoid damage from construction debris and hot work and scratches during installation period.
- JB, cabinet, transmitter, switchgear, UPS, etc and all other places where cables are terminated to be fitted with VCI emitter based on volume and size. During construction to be changed every 1 year, during operation to be changed every 2 years. And with a sticker identifying installation and expire date. Utilize VCI with 2-year lifetime to avoid additional works.
- Loose cable ends to be preserved with a heat shrink shroud.
- All instruments, transmitter, gauges to have clear "gauge protector" so that the various equipment can be used. Or 6mm plywood plate
- All instruments, transmitter, gauges, detectors, light fixture, flood lights, speakers etc to be fitted with VCI emitter based on size, gauge cover when needed. And to enveloped with flame retardant clear sheet or aluminum coated glass fiber cloth for protection from construction debris and hot work.

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Hazardous Chemicals

- Preservation products containing hazardous chemicals shall be brought to the Companies attention and shall be approved by the Company before use. New chemicals shall be approved by the Company.

Protective Coatings

- Exposed machined surfaces shall be protected with a corrosion protective wax. And removal of this shall be subject to approval from Company if needed.

Module cleaning and sail away preparations.

All areas such as, floor, walls, skids, equipment, piping, cable trays, instrument stands etc. Must be clean, dry, dust free and free from any corrosion prior to preservation for transport from the yard.

When using chemical for cleaning the environmental impact shall be considered. And a HOCNOF/NEMS green or equivalent product to be used.

HU phase

Contractor shall continue the Preservation activities initiated at Suppliers works and at other Contractor's / Subcontractor's sites and perform Preservation maintenance activities for all own construction work.

The responsibility for the Preservation records from the suppliers will be transferred to Contractor for updating of the Preservation status upon delivery of the equipment.

5.8 General requirements transport phase of modules and large skids.


For large modules and skids a procedure must be in place showing the Preservation to be implemented to avoid any damage to equipment due to the various conditions that can occur during the transport route chosen.

Basic/initial minimum requirements for general preservation according to project specific procedures/method statements shall be verified before transport protection applied.

Temporary equipment such as HVAC/De-humidification or Heating need to be arranged for if needed. And proper engineering performed based on this procedure and supplier requirements to make sure all Equipment is in good conditions on arrival. Plan for demob of such equipment to be made.

This must be taken into consideration:

- Weather, temperature conditions for the whole voyage and how this will affect the various equipment.
- Temporary systems, if any.
- Sand, dust, seawater ingress
- Protective materials must be enough for withstand a sea voyage. Materials to be approved by company.
- Prepare a plan for maintenance of equipment that have high priority during the transport phase if any.
- Prepare a list of tags to have priority for inspection on arrival destination. To make sure all equipment are intact. Arrival check.
- Identify and prepare scope of de-preservation on arrival site.
- Movement and mechanical strain from the voyage must be taken into consideration.

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5.9 Commissioning requirements

This procedure, project specific procedure/method statements together with supplier instructions and requirements shall be commissioning minimum requirements for preservation of systems and equipment. All equipment shall be maintained well preserved during both commissioning period and the period prior to transfer of responsibility of systems to Operations. Preservation periodical maintenance shall continue in Pims CMS during commissioning. If TAG is put on hold for preservation due to ongoing commissioning it shall be identified per TAG preservation check sheet and logged in Pims CMS

Method and rate of preservation shall be evaluated with regards to both system/equipment and time between commissioning stop and start up. These parameters will give main guidelines to preservation mediums and necessary maintenance preservation. Commissioning will be responsible to give this information to the relevant parts for further action.

In the final stage of construction, the preservation team must work closely with commissioning and even be under Commissioning organization in final stage, transport and HU stage. Preferable transfer key preservation personnel to join commissioning team to continue the activities.

6 Completion management system

Pims CMS is the tool for planning, execution, status reporting and management of the preservation maintenance program.

Suppliers and Contractors records shall be updated in this completion system for recording throughout the entire project. Supplier to fill the preservation check sheets prior to Final inspection and dispatch.

Contractor shall take over and start record the preservation check on arrival and until commissioning.

Commissioning shall continue record preservation activities until all equipment under preservation maintenance until handed over to Operations.


Weekly Activity List shows the preservation maintenance activities for the respective week.

After completion of the preservation Weekly Activity List, Pims CMS shall be kept updated.

Any deviation which occurs and cannot be solved immediately shall be punch listed/Action points made.

The preservation status of equipment and materials can be extracted from the Pims CMS at any time.

Preservation Maintenance Program shall be updated by Contractor. Company will monitor the Contractor's execution of preservation activities.

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7 Documentation

Supplier

Preservation documentation such as Supplier preservation procedure shall be prepared by supplier and approved by Company. This procedure shall be kept in company document control system as per contractual agreements. And shall follow the equipment when dispatched.

Preservation dossier including approved supplier procedure and ready filled and approved check sheets for relevant tags/equipment to be submitted.

Preservation check sheets shall be filled and submitted in Pims CMS system after MC/FAT and prior to final inspection and dispatch.

Ref pkt 2.2, 4.1 and 4.6

Contractor

Project specific procedures and Method statements are subject to company approval.

Preservation check records in Pims CMS system shall be initiated during receiving inspection. And all preservation check sheets, findings and punches shall be kept updated in the Pims CMS system for reference and traceability through the entire project and until RFOC.


Ref pkt 2.3, 3.1, 4.2, 4.3 and 4.7

Each subsequent phase after initial preservation and delivery shall include the supplier preservation documentation in the preservation to the next phase. Check sheets in Pims CMS and preservation procedures in company document control systems.


8 Attachments

To be attached, examples of preservation check sheets from NORSOK


EP01 Preservation Record Electrical


		PRESERVATION RECORD ELECTRICAL (EP-01)		Sheet no.	<Project>
PO no. :		Area :		MC Package no.	
Manufacturer :		System :			
Description :		Subsystem :		Tag no. (Applicable Items)	
VALID STATUS CODE - OK, NA					
	INSPECTION ITEM	SUPPL.	FABR.	HOOUP	COMMENTS
01	Supplier's initial preserv. instructions issued				
02	Preservation performed				
03	Preservation labels fixed				
04	Toxicological data sheets attached				
05	Corrosion inhibitor installed				
06	Frost precautions taken				
07	Storage/transport protection implemented				
08	Ship loose items marked and preserved				
09	Insulation resistance performed (Ref. EP-02)				
10	Periodical preservation carried out				
11					
12					
13					
14					
15					
16					
17					
18	SUPPLIERS ADDITIONAL MAINTENANCE REQUIREMENT LIST				INTERVAL
<div style="border: 1px solid black; padding: 10px; display: inline-block;"> Example of typical check </div>					
VERIFIED		SUPPLIER		FABRICATION	
Name		Name		Name	
Sign		Sign		Sign	
Date		Date		Date	
Name		Name		Name	
Sign		Sign		Sign	
Date		Date		Date	

[illegible]


	PRESERVATION MAINTENANCE CHECK LIST ELECTRICAL EQUIPMENT (EP-03)	Sheet no.	<Project>
INTERVAL IN WEEKS	CHECK DESCRIPTION		
	<p><u>Note:</u> Ensure that equipment is not energised other than for heating and that safety precautions are followed.</p> <p><u>GENERAL CHECK ITEMS</u></p> <p>1 Shafts on rotating equipment which are not locked shall be rotated 1 1/4 turn in the rotating direction to avoid brinelling when located in one position for long periods. Make sure that the new shaft position varies from check to check.</p> <p> Bearings with lube oil housing, check that oil level is adequate prior to rotation.</p> <p>2 Inspect for corrosion, cleanliness and moisture and add preservative as required and ensure sealing and protection.</p> <p>2 Ensure that preservation labels are in position.</p> <p>1 Inspect and punch list any damage to the equipment.</p> <p>2 Ensure that heating works using an ammeter or handfeeling the unit. Ensure that indication light on temporary heating distribution panel is working.</p> <p>4 Inspect connection boxes for moisture and replace corrosion inhibitor if necessary.</p> <p><u>SPECIAL CHECK ITEMS</u></p> <p>4 For switchboard, pull out at least one circuit breaker and inspect.</p> <p>4 For heaters that are not temporarily energised, measure insulation resistance phase to phase and phase to earth.</p> <p>4 For motors, generators and transformers measure insulation resistance phase to phase and phase to earth.</p> <p>4 For batteries, follow suppliers instruction.</p> <p>4 Ensure that non terminated cables are fitted with shrinking shroud.</p> <p><u>AREA RELATED CHECK</u></p> <p>4 Check for physical damage to cable trays, light fittings, push-button etc.</p> <p>2 Check that battery, switchboard and electrical equipment rooms are clean and dry.</p> <p><u>Note:</u> Ensure that shipping stops are fitted on relevant equipment, prior to transfer of equipment.</p>		


IP01 Preservation Record Instrument

		PRESERVATION RECORD INSTRUMENT (IP-01)		Sheet no.	<Project>		
PO no. :		Area :		MC Package no.			
Manufacturer :		System :					
Description :		Subsystem :		Tag no. (Applicable items)			
VALID STATUS CODE = OK, NA							
INSPECTION ITEM		SUPPL.	FABR.	HOOKUP	COMMENTS		
01	Supplier's initial preserv. instructions issued						
02	Preservation performed						
03	Preservation labels fixed						
04	Toxicological data sheets attached						
05	Corrosion inhibitor installed						
06	Frost precautions taken						
07	Storage/transport protection implemented						
08	Ship loose items marked and preserved						
09	Periodical preservation carried out						
10							
11							
12							
13							
14							
15							
16							
17							
18 SUPPLIERS ADDITIONAL MAINTENANCE REQUIREMENT LIST					INTERVAL		
<div style="border: 1px solid black; padding: 10px; margin: 20px auto; width: 60%;"> Example of typical check </div>							
VERIFIED		SUPPLIER		FABRICATION		HOOKUP	
Name	Empl./no.		Empl./no.		Empl./no.		Empl./no.
Sign							
Date							
Name	Comp.		Comp.		Comp.		Comp.
Sign							
Date							

		PRESERVATION MAINTENANCE CHECK LIST		Sheet no.	<Project>
		INSTRUMENT EQUIPMENT (IP-02)			
INTERVAL IN WEEKS	CHECK DESCRIPTION				
	<p><u>Note:</u> Ensure that unit is not energised.</p> <p><u>GENERAL CHECK ITEMS</u></p>				
1	Ensure that all covers or doors on units are properly secured and sealed. If unit is protected with purge instrument air, ensure that recommended pressure and humidity is maintained.				
1	Inspect and punch list any damage to the equipment.				
4	Inspect units for corrosion damage, moisture etc. Clean and dry unit carefully. Replace corrosion inhibitor where required.				
4	Check that external surfaces or paintwork are not damaged.				
4	Ensure that recommended preservatives are in good condition. Re-apply as necessary to unpainted sliding and static surfaces. Do NOT apply to working electrical parts. Wipe off preservative from non-metallic surfaces.				
4	Ensure that all hinges, cover threads and fasteners are greased.				
4	Ensure that all necessary covers, end caps and plugs are in position on cables, tubing ends and associated control equipment. Replace any missing covers, plugs, caps etc.				
4	Ensure that preservation labels are in position. Correct and update as required.				
2	Check that all sensitive instrumentation exposed to damage are protected.				
	<p><u>SPECIAL CHECK ITEMS</u></p>				
8	Check that gas detector heads are stored in their respective factory sealed bags in a suitable storage location.				
4	Ensure that non terminated cables are fitted with shrinking shroud.				
	<p><u>AREA RELATED CHECK</u></p>				
4	Check for physical damage and damage of preservation protection.				
2	Check that instrument rooms are clean and dry.				
	<p><u>Note:</u> Ensure that shipping stops are fitted on relevant equipment, prior to transfer of equipment from suppliers and module contractors.</p>				

MP01 Preservation Record Mechanical

		PRESERVATION RECORD MECHANICAL (MP-01)		Sheet no.	<Project>		
PO no. :	Area :	MC Package no.					
Manufacturer :	System :						
Description :	Subsystem :	Tag no. (Applicable Items)					
VALID STATUS CODE = OK, NA							
INSPECTION ITEM	SUPPL.	FABR.	HOOUP	COMMENTS			
01	Supplier's initial preserv. instructions issued						
02	Preservation performed						
03	Preservation labels fixed						
04	Toxicological data sheets attached						
05	Corrosion inhibitor installed						
06	Frost precautions taken						
07	Storage/transport protection implemented						
08	Ship loose items marked and preserved						
09	Equipment enclosure sealed off						
10	In/outlets sealed off						
11	Insulated part protected						
12	Periodical preservation carried out						
13							
14							
15							
16							
17							
18 SUPPLIERS ADDITIONAL MAINTENANCE REQUIREMENT LIST					INTERVAL		
<div style="border: 1px solid black; padding: 10px; display: inline-block;"> Example of typical check </div>							
VERIFIED		SUPPLIER		FABRICATION		HOOUP	
Name	Emcler		Emcler		Emcler		Emcler
Sign							
Date							
Name	Comp.		Comp.		Comp.		Comp.
Sign							
Date							

		PRESERVATION MAINTENANCE CHECK LIST		Sheet no.	<Project>
		MECHANICAL (MP-02)			
INTERVAL IN WEEKS	CHECK DESCRIPTION				
1	Shafts on rotating equipment which are not locked shall be rotated 1 1/4 turn in the rotating direction to avoid brinelling when located in one position for long periods. Make sure that the new shaft position varies from check to check. Bearings with lube oil housing, check that oil level is adequate prior to rotation.				
1	Check that compartment heater is working.				
1	Check and report that preservation of control-, instrument-, switchgear-rooms, quarters and offices are maintained as per preservation requirements.				
1	Inspect and punch list any damage to the equipment.				
4	Check storage and preservation condition on all mechanical shipped loose equipment.				
4	Check that dust blinds are fitted on nozzles in and out from skids on single items of equipment and on free pipe ends and ducts.				
4	Check that painted and machined surfaces, which shall be coated with a rust preventive wax or oil are maintained.				
4	Check that the protective cover are maintained.				
24	Open up access hatch or inspection nozzles, check and report internal condition of surfaces and existing preservation on carbon steel coolers, heater, crude/gas meters, tanks and vessel, centrifugal, screw-reciprocating compressors.				
4	Check for physical damage and damage of preservation protection.				

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