



**FACILITY INTEGRITY
TOPSIDES MAINTENANCE SYSTEM
ONSHORE INTERVIEWS**

OPERATOR:

INSPECTION DATE(S):

FACILITY(S):

| No | Topic & Prompts | Guide Notes | Comments / Status |
|----------|---|--|--|
| 1 | Maintenance Policy & Strategy | | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 1.1 | Does the operator have a documented asset register / maintenance management system? | <ul style="list-style-type: none"> • MoSOF Regulation 9(4)(f) and SMS principle 12 requires that the SMS “provide for inspection, testing and maintenance of the equipment and hardware that are the physical control measures for risks to health and safety”. • Are objectives of safeguarding facility integrity clearly described? • Are regulations and standards defined? | |
| 1.2 | Is there a documented maintenance strategy/plan? | <p>There should be clear and actionable strategy/plan derived from the policy for maintenance of systems and equipment:</p> <ul style="list-style-type: none"> • risk based decisions to set appropriate maintenance options i.e. preventive, predictive and run to failure. • Is RCM (reliability centred maintenance) concept applied i.e. focus on systems and equipment with safety consequences and frequent failure? • What resources are provided to achieve the plan, and how are these provided? | |



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| | | <ul style="list-style-type: none"> • How is maintenance performance monitored and measured? • How is technical support provided, and from whom? • Are safety critical elements defined? • | |
| 1.3 | Describe how maintenance tasks are prioritised. Are the priorities for corrective maintenance any different to planned maintenance? | <ul style="list-style-type: none"> • Work orders should be first screened for scope, planning, parts availability etc. • Risk assessment methodology should be applied consistently to determine the time frame within which safety critical work is to be completed. • Safety critical work not completed by the nominated 'required by date' should be the subject of an exception report requiring Management approval. <p>Is corrective maintenance which is necessary to avoid serious safety consequences given priority?</p> | |



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| 2 | Communication between onshore support staff and offshore maintenance technicians | | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 2.1 | How do the onshore technical authorities and support staff monitor the quality of offshore maintenance activities? | <ul style="list-style-type: none"> • Work should be undertaken in accordance with documented procedures. • Safety critical procedures should include a checklist to be filed on completion. • The SMS maintenance system should include performance monitoring arrangements with agreed performance standards and performance indicators. • Onshore support staff should analyse, monitor and verify the maintenance performance against appropriate key performance indicators and these will prompt queries and discussion with offshore staff for compliance and continuous improvement. | |
| 2.2 | How often do onshore support engineers visit the installation? | <ul style="list-style-type: none"> • Is there a procedure and trigger point for onshore support staff to visit offshore? | |
| 2.3 | How are 'front line' maintenance technicians consulted in risk assessments, problem solving and devising maintenance work schedules and procedures? | <ul style="list-style-type: none"> • Maintenance technicians should be involved in task risk assessments (JSA's etc) and in providing feedback to improve procedures etc. They need not be involved in devising work schedules. • MoSOF regulation 15 requires consultation of workforce on risk levels. | |



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| 2.4 | How are maintenance issues discussed between the offshore technicians/supervisors and the onshore support staff? | <ul style="list-style-type: none"> • Is there a daily communication protocol between offshore frontline staff and onshore support staff? • How are problems encountered offshore by the technicians discussed and resolved with onshore support staff? Contact can be made <ul style="list-style-type: none"> • daily for immediate issues, • Monthly for planning purposes, • Quarterly and annually for medium and long term planning. | |
| 3 | Competence of maintenance technicians and their supervisors | <div style="display: flex; align-items: center; justify-content: center; gap: 20px;"> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> </div> Tick one (✓) | |
| 3.1 | How does the operator assess the competence of their maintenance technicians and their supervisors? What level of competence/skills and experience do you feel are required to undertake the maintenance tasks that you define? | Training (both formal and on the job), re-training and competency assessment procedures for maintenance technicians and supervisors must be set out in detail in the safety case (MoSOF regulation 13 and SMS principle 09) | |
| 3.2 | Describe the training given to staff promoted to maintenance supervisor level. | Is there a written staff progression scheme whereby competency of staff is assessed through a series of examinations before being promoted to each level of supervision? | |



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| 3.3 | How is competence in the use of the maintenance management information system established and disseminated? | This should be a module in the training and re-training programme for maintenance technicians and supervisors, including hands-on training and assessment. | |
| 4 | Maintenance of safety critical elements (SCE) | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) | |
| 4.1 | Demonstrate that the SCEs are documented along with their performance standards. | <ul style="list-style-type: none"> • “Safety critical elements” are any part of the facility, plant or computer programmes whose failure will either cause or contribute to a major accident, or the purpose of which is to prevent or limit the effect of a major accident. • Refer to safety case MAE registers, bow tie diagrams and performance standards. • Is there a process of identifying SCEs and their corresponding performance standards in preventing or mitigating the initiation of a MAE? | |



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| 4.2 | <p>Request a copy of a planned maintenance work order for a sample SCE.</p> <p>a. Does the work order refer to the relevant performance standard?</p> <p>b. Does the work order contain acceptance criteria to enable the maintenance technician to know whether the performance standard has been met?</p> <p>c. If the work order does not contain acceptance criteria, how does the onshore management monitor that their SCEs actually meet their performance standard?</p> | <ul style="list-style-type: none"> • Critical function tests should be based on a checklist with acceptance parameters. • SCE acceptance criteria are sometimes laid out in WSE (Written Schemes of Examinations) • SCE's PMs are called CFT's (Critical Function Testing) checklists and procedures • Performance measures can be found in SCE/CFT Integrity Manuals • Performance standards define the minimum acceptable standards for an SCE in terms of functionality, reliability/availability and survivability. | |
| 4.3 | <p>What happens if the acceptance criteria are not met? Request a copy of the documentation describing the contingency action to follow should the SCE fail the acceptance criteria.</p> | <ul style="list-style-type: none"> • Failed functions not immediately repaired should be the subject of a management of change report for Operations Manager sign off with contingency measures in place for safe operation • Should be listed on temporary defeat board. | |



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| 5 | Supervision | | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 5.1 | a. Who checks the quality of maintenance work? b. How is this done in practice (e.g. inspection of plant, checking maintenance records, discussion with technicians)? | <ul style="list-style-type: none"> • Work should be undertaken in accordance with documented procedures. • Safety critical procedures should include a checklist to be filed on completion • Operations staff must inspect the equipment and test reports before permit sign off and handover. • The SMS maintenance system should include performance monitoring arrangements with agreed performance standards and performance indicators. | |
| 5.2 | a. What feedback do you get from supervisors regarding the balance of time they spend out on the plant against dealing with paperwork? b. Do you think they spend enough time out on the plant with the technicians? | Site management team spend 20-40% of time in office environment and rest at site inspections / supervisions. | |
| 5.3 | a. How do you know you have sufficient supervisory cover? b. Is it sufficient for all disciplines? | Supervisory cover can include Site inspections before and after work as part of the PTW process, analyse work outcomes, initiate necessary follow-ups and fill-in necessary paperwork. | |



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| 5.4 | How do you monitor maintenance work undertaken by specialist contractors (e.g. gas turbines, pedestal cranes, etc)? | The safety case should include procedures for monitoring and evaluating the performance of third party service providers (SMS principle 13) | |
| 6 | Recording of completed maintenance work | | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 6.1 | How do you assure yourself that the information recorded following maintenance work is of sufficient quality? | Work Orders should be completed fully and closed out, any deviations noted, and follow ups initiated. Regular audits by OIM and onshore technical support staff should be carried out | |
| 6.2 | Is information on the 'as found' condition, or fault codes, etc. entered on the maintenance history record. How is this information used onshore? | This implies the need to subject the info to further analysis through FMEA and Root Cause Analysis etc and establishment of corrective measures and sharing of lessons learnt. | |
| 6.3 | Do you record the status of SCE performance standard tests (e.g. pass/fail/remedied)? | <ul style="list-style-type: none"> • Critical function tests should be based on a checklist with acceptance parameters, and results of tests shall be recorded • Failed functions not immediately repaired should be the subject of a management of change report for Operations Manager sign off, and this should be listed on temporary defeat board. | |



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| 7 | Backlogs | | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 7.1 | How does the operator define a backlog? | <ul style="list-style-type: none"> • A backlog is work which has not been completed by the nominated “required by date”. • Backlog on safety critical work should be the subject of an exception report requiring Management approval with appropriate risk assessment. | |
| 7.2 | Request a report describing the current position with regard to backlogs for SCE and non-SCE equipment. | <ul style="list-style-type: none"> • There should be separate reports for backlog of SCE and non-SCE equipment. | |
| 7.3 | What is the target for backlog reduction (i.e. amount and timescale)? Explain what measures are in place to achieve this? | <p>Key performance indicators should be readily available from the inspection and maintenance management system, for instance;</p> <ul style="list-style-type: none"> • Programme completion % • Months of backlog • Backlog of critical items • Percentage emergency work • Weekly schedule compliance • PMs vs. CMs <p>To sight evidence of target for backlog reduction and measures to achieve the reduction</p> | |



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| 7.4 | What is the trigger period on backlogs to provide additional resource to reduce overdue maintenance? | The KPI's should be regularly reviewed by supervisors and managers. Reports of outstanding critical maintenance and other exception reports should be approved by the manager responsible for facility integrity. | |
| 8 | Deferrals | | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 8.1 | Request documentation describing how deferrals are authorised and justified. When is the technical authority consulted? Is the ICP informed? | Any deferrals of safety critical items should follow the change management system of the safety case. | |
| 8.2 | If maintenance of an SCE is deferred, what steps are taken to identify and implement additional measures (e.g. increased inspection) to restore the integrity of the barriers weakened by the deferral? | To sight the details of some management approval documents authorising deferrals of SCE, and to note the additional measures to restore the integrity of the equipment | |
| 8.3 | When a deferral is approved, is that work item still referenced as a backlog? | All work requests that have not been completed are "backlog" by definition. | |



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| 8.4 | <p>Request documentation detailing the number of maintenance tasks currently deferred.</p> <p>What is the trigger point to reduce the number of deferrals?</p> | | |
| 9 | Corrective maintenance | | <div style="display: flex; align-items: center; gap: 10px;"> ● ● ● Tick one (✓) </div> |
| 9.1 | <p>Describe the procedure for determining whether a defect/anomaly is significant.</p> <p>At what point are the technical authorities consulted to decide how critical the defect is, e.g. safety critical/production critical/not critical.</p> | <ul style="list-style-type: none"> For safety critical systems and equipment the safety case must include performance standards. Safety critical anomalies should be remedied immediately unless sufficient redundancy exists. For the rest a hazard assessment is required. If the anomaly has shown deterioration with time then an estimate of when it will become critical can be made. If failure cannot be predicted before the next planned maintenance, it should be scheduled for repair in the next maintenance campaign. | |
| 9.2 | <p>Are the risks to continued safe operation evaluated for their degrading effect on the major hazards (e.g. contribution of faulty/passing valves)?</p> <p>Is this risk assessment recorded?</p> | <p>The safety case change management system will apply in this case. The first step would be a risk assessment that would need to be documented and attached to authorisation form.</p> | |



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| 9.3 | If equipment is allowed to continue operation when it is known to be defective - e.g. a passing valve, describe the procedures in place to identify what other barriers and defences need to be put in place to compensate. | A risk assessment is required to arrive at mitigating measures for continued operation | |
| 10 | Defined life or temporary repairs | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) | |
| 10.1 | Are 'temporary' repairs subject to an engineering assessment and given a 'defined life' prior to implementation? | When temporary measures are put in place they must be limited to a specified time period and authorised in accordance with change management procedures, including a risk assessment. | |
| 10.2 | Request a copy of the procedure describing how temporary repairs are justified, assessed and engineered. Challenge why the repairs cannot be carried out by conventional methods such as 'like for like' replacement. | Any change in the design of safety critical systems or equipment must be subject to change management system procedures and authorisation levels. | |



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| 10.3 | Are all defined life repairs subject to approval from the relevant technical authority and assigned a defined life by the technical authority? | Any change in the design of safety critical systems or equipment must be subject to change management system procedures and authorisation levels including that of technical authority who will assign a defined life. | |
| 10.4 | Is the defined life repair subject to a design review to establish the requirements specification and the basis for the design? | Any change in the design of safety critical systems or equipment must be subject to change management system procedures and authorisation levels including design review and approval | |
| 10.5 | For SCEs, is the ICP consulted regarding the proposed method of repair and the length of defined life? | Any change in the design of safety critical systems or equipment must be subject to change management system procedures and authorisation levels including technical authorisations | |
| 10.6 | Is a work order generated on the maintenance scheduling software to record the defined life and to schedule when the temporary repair should be inspected, maintained and replaced with a conventional repair Within the defined life? | An established procedure and guidelines should be in place. | |



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| 10.7 | Are any existing temporary repairs in operation beyond their defined life? | To sight the temporary repairs record for any beyond defined life operation and seek justification. | |
| 11 | Measuring the effectiveness of the maintenance system | | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 11.1 | What information is routinely collected to measure performance (e.g. backlog hours, number of deferrals, ratio of corrective maintenance to planned maintenance, resources)? | Key performance indicators should be readily available from the inspection and maintenance management system, for instance; <ul style="list-style-type: none"> • Programme completion % • Months of backlog • Backlog of critical items • Percentage emergency work • Weekly schedule compliance | |
| 11.2 | What are the operator's maintenance performance targets? How are these targets set and challenged? | Operator to provide and be able to explain | |



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| 11.3 | Request a copy of the monthly maintenance performance report, showing backlog performance, targets and trends. <ul style="list-style-type: none"> • Who is the report circulated to? • What are the significant trends? | Key performance indicators should be readily available from the inspection and maintenance management system, for instance; <ul style="list-style-type: none"> • Programme completion % • Months of backlog • Backlog of critical items • Percentage emergency work • Weekly schedule compliance | |
| 11.4 | How are maintenance records analysed? | The KPI's should be regularly reviewed by supervisors and managers. Reports of outstanding critical maintenance and other exception reports should be approved by the manager responsible for facility integrity. | |
| 12 | Measuring compliance with performance standards | | <div style="display: flex; align-items: center; gap: 10px;"> <div style="width: 15px; height: 15px; background-color: green; border-radius: 50%;"></div> <div style="width: 15px; height: 15px; background-color: yellow; border-radius: 50%;"></div> <div style="width: 15px; height: 15px; background-color: red; border-radius: 50%;"></div> <div style="width: 15px; height: 15px; border: 1px solid black; border-radius: 50%;"></div> Tick one (✓) </div> |
| 12.1 | Provide reports showing the status of the operator's performance standards. | Operator to provide | |
| 12.2 | Is any equipment currently in use that cannot meet its performance standard? | <ul style="list-style-type: none"> • Safety critical equipment and systems not capable of meeting defined standards and not immediately repaired should be the subject of a management of change report for Operations Manager sign off. • Should be listed on temporary defeat board. | |



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| 13 | Measuring the quality of maintenance work | | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 13.1 | What checks do the technical authorities carry out to confirm that maintenance activities have been carried out correctly and in accordance with the work order (e.g. are sample work orders inspected to confirm that they have been adequately completed with required data and history)? | <ul style="list-style-type: none"> • Work should be undertaken in accordance with documented procedures. • Safety critical procedures should include a checklist to be filed on completion • Operations staff must inspect the equipment and test reports before permit sign off and handover. The SMS maintenance system should include performance monitoring arrangements with agreed performance standards and performance indicators. | |
| 13.2 | Is the maintenance system subject to internal or external audit? | <ul style="list-style-type: none"> • Periodic internal and external audits should be carried out. • Reviews should include evaluation of the effectiveness of existing equipment, maintenance systems and maintenance procedures as well as an evaluation of the benefits to be gained by adopting newer equipment and improved systems and techniques. | |
| 13.3 | Have non-conformances identified during audit been reviewed, corrective action taken and closed out? | To check close-out reports | |



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| 14 | Verification | | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 14.1 | For a sample SCE, provide evidence that the verification scheme defines the ICP's tasks in terms of the nature of examination, the frequency of examination, how results and recommendations are recorded, and how remedial action is recorded. | To confirm whether there is an Operations Verification Scheme to validate the effectiveness of the assurance process in meeting the performance standards, and is it carried out by an Independent Competent organisation. | |
| 14.2 | How are SCE performance standards reviewed? What triggers this review? | In some cases this is included in an annual third party inspection by a certification agency, referred to as ICP (Independent Competent Person) | |
| 14.3 | Describe how temporary equipment is evaluated as Safety Critical Elements. How is temporary equipment captured in the verification scheme? How do you ensure temporary equipment is maintained? | <ul style="list-style-type: none"> • This may be ascertained from integrity management manuals as contingency measures. • The manual should be reviewed to ascertain this requirement. | |







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| 15 | Review of ICP (Independent Competent Person) recommendations | | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 15.1 | Request a copy of the ICP's recommendations. How are the recommendations reviewed? | | |
| 15.2 | How are the ICP recommendations prioritised and actioned? | | |
| 15.3 | Is remedial work scheduled into the planned maintenance system? | | |
| 16 | Reporting to senior management on integrity status | | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Tick one (✓) |
| 16.1 | How frequently are the integrity strategies reviewed? | This should be in the integrity management manual | |
| 16.2 | Request a copy of the statement of integrity produced by the technical authorities for senior management. Who is on the circulation list? How is the information assembled to produce this report? | | |



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| 16.3 | How are recommendations made to senior management regarding the level of resources required to maintain integrity? | | |
| 16.4 | How are observations on the effectiveness of the maintenance system reported to senior management? | | |
| 17 | Key performance indicators for maintenance effectiveness |     Tick one (✓) | |
| 17.1 | What are the key indicators for reviewing the effectiveness of the maintenance system? | KPI's include the following as a minimum (a) Ratio of planned to corrective maintenance (b) Status of performance standards not met (c) Resources Strength/Slack (d) Backlog vs. Completed WOs (e) Deferrals (f) Uptime (g) Resource hours (h) Uncontrolled hydrocarbon release | |



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Legend:



- complies



- partially complies (incomplete system)



- non compliance (major failing or
Key elements missing)



- Not Tested /
No Evidence

(Please send the completed prompt sheets to T3 EA with 3 good practices 3 practices with deficiencies/major failures)

INSPECTION CARRIED OUT BY

Name:

Signature: