

Checklist	Remarks	Action (X)
<p style="text-align: center;">Project System Audit Project and Engineering Management</p> <p>Note: Not all items of the checklist shall be checked. It depends on the status of the work and whether it is the first, second or third audit.</p> <p>1. Project Definition</p> <p>1.1 Has the contract review been held with Sales and/or Legal attending? Have minutes been prepared and distributed?</p> <p>1.2 Is the contract document, between Company and client, readily available to the project group and is the project group familiar with its content? Are there any other contracts between client and third parties and/or between Company and third parties? If so, are the divisions of responsibility clearly defined and understood internally?</p> <p>1.3 Is there a Bonus/Incentive Program? Are there any special contractual requirements/obligations/liabilities? If so, have criteria been conveyed to the project team and reflected in the PEP and special conditions of purchase/subcontract?</p> <p>1.4 Have the critical success factors and corresponding project objectives been defined? How have these been conveyed to the project team?</p> <p>1.5 Has the Project Execution Plan (PEP) been established? Has the PEP been presented within the taskforce? To what extent has this presentation been attended by management?</p> <p>1.6 Has the project kick-off meeting been held with the project task force and <u>all</u> discipline lead engineers and/or managers attending?</p>		
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<p>Have minutes been issued and distributed?</p> <p>1.7 Has the PPEM been (re-)issued?</p> <ul style="list-style-type: none"> • What was the time lapse between project kick-off and initial issue of the PPEM? • What is the latest issue status and date? • Has the Process group issued a design basis memorandum (refer BN-PS-001)? • Does the PPEM include the PQP and HE&S Plan? If not have these been issued separately? • Who has been assigned the responsibility to keep the authorized signature list up-to-date? <p>1.8 Has the PPEM been issued for comments to the departments?</p> <ul style="list-style-type: none"> • Show evidence. <p>1.9 Has an assignment letter been issued by the Director of Projects?</p> <p>Have budgetary limitations for approval of bid tabs been clearly incorporated in the project procurement procedure?</p> <p>1.10 Are licensor packages included?</p> <p>If so, have equipment items/components/ P&ID's with specific licensor requirements been listed in the PPEM together with the licensor approval requirements?</p> <p>1.11 Are the Company or client HE&S procedures applicable?</p> <p>2. Project Controls</p> <p>Note: this section is only to be addressed if no separate Project Control audit has been scheduled.</p> <p>2.1 Where has the man-hour budget for the entire scope of work, broken down in discipline account codes, been defined?</p> <p>2.2 Where has the control budget been defined?</p>		
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<p>Is this information available with the lead engineers?</p> <p>2.3 To what extent was the PM team involved in preparing man-hours/material costs?</p> <p>2.4 To what extent was the PM team involved in the preparation of the contractual overall project barchart schedule including mechanical completion, commissioning and start-up?</p> <p>2.5 Have contractually agreed upon milestones been incorporated in the planning charts?</p> <p>2.6 To what extent have the planning methods been coordinated between the PM team and the Project Control group?</p> <p>2.7 Does the size and/or complexity of the project, or the client require a planning network?</p> <p>2.8 Are the requisition summary tracking reports available within the PM team?</p> <p>2.9 What restriction on agency personnel has been agreed upon with the client?</p> <p>2.10 Have changes in the scope of work been identified and processed in time?</p> <ul style="list-style-type: none"> • Show evidence of effective and timely change alert system being in place. <p>2.11 What is the status of change orders/notices?</p> <ul style="list-style-type: none"> • are any CO's outstanding? • is a CN/CO register maintained? • state latest issue and date. <p>2.12 Are manpower loading curves, per discipline, scheduled and to complete, available?</p> <ul style="list-style-type: none"> • Show evidence <p>2.13 Are the summary level schedules updated in close coordination between project management, planning and cost engineer?</p> <p>What is the frequency?</p> <p>2.14 Are deliverables and quantity tracking curves available within the PM team?</p>					
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<p>What is the frequency of their issue and review?</p> <p>2.15 Is an effective bulk material quantity trending procedure in place? Show evidence.</p> <p>What is the frequency of issue and review?</p> <p>Show evidence of advice to management, PM team and construction.</p> <p>2.16 What is the status of invoices payable?</p> <p>Is an invoices payable register maintained and how frequently is it issued?</p> <p>3. Client Contact</p> <p>3.1 What line of contact and communication frequency has been established?</p> <p>3.2 Has a client's comments/approval procedure been established and documented?</p> <p>3.3 How has this document been made available to the various disciplines?</p> <p>3.4 Does the procedure list which standards/specifications/requisitions and drawings need to be commented/approved/certified?</p> <p>4. Engineering General</p> <p>4.1 How does Project Management ensure, that specifications and/or requisitions are:</p> <ul style="list-style-type: none"> • issued in accordance with the overall and discipline project schedules? • addressing inspection plan requirements to be detailed directly after PO award? • listing supplier drawings, certificates, final inspection/test reports and release notes to be included in the manufacture(s) book(s)? <p>4.2 Has the document distribution list been:</p> <ul style="list-style-type: none"> • reviewed and approved by all project people involved including department managers? 					
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<p>• used correctly by the project (distribution) clerk?</p> <p>4.3 How is ensured that lead discipline engineers, inspection and QA representatives attend pre-qualification and/or pre-award meetings?</p> <p>4.4 Is a documents received register available?</p> <ul style="list-style-type: none"> • who is responsible for maintaining subject register? • how are relevant engineers informed about receipt of new material? • where are originals being filed? <p>4.5 Is a confidentiality/secretcy agreement required?</p> <p>If so, has this agreement been issued? How is it secured?</p> <p>4.6 Is a project security plan required?</p> <p>If so, how is it implemented and monitored?</p> <p>4.7 Has a (project specific) CIED manual been issued to all relevant individuals?</p> <p>4.8 Have the authority requirements been established?</p> <p>Have documents to be submitted for authority approval been listed?</p> <p>4.9 Has a value engineering/cost reduction program been established early in the project?</p> <p>If so, who participated and what are the anticipated cost reductions?</p> <p>4.10 How is ensured that a proper safety review or HAZOP is/has been conducted and findings will be/have been minuted?</p> <p>4.11 How is/will be ensured that all findings are/will be properly implemented?</p> <p>4.12 Does the project file contain minutes of meetings held with the client and do these minutes indicate subject and/or reference?</p> <p>4.13 Are minutes of meetings held with suppliers/manufacturers/subcontractors</p>					
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<p>indicating subject and/or reference stored in the project file?</p> <p>4.14 Was a formal team building program implemented on the project?</p> <p>If so, give details and perceived benefits (or otherwise).</p> <p>4.15 Are regular weekly or bi-weekly model reviews and discipline coordination meetings held with all disciplines concerned and are minutes stored in the project file?</p> <p>4.16 What is the follow-up status of corrective actions on previous audits?</p> <p>4.17 To what extent are audit results discussed in communication meetings as a lessons learned aspect?</p> <p>4.18 Are <u>all</u> project personnel located in one office or task force group?</p> <p>If not, how are contacts/inter-faces organized?</p> <p>4.19 Is engineering undertaken via multi-office execution?</p> <p>If so, are procedures/responsibilities defined to secure consistency in design? Show evidence.</p> <p>4.20 To what extent are process data sheets updated after issue of requisitions with mechanical data sheets?</p> <p>4.21 How does the PE team ensure that LDT's are issued simultaneously with the EFD's?</p> <p>4.22 How are changes to EFD's monitored, controlled, registered and effectively communicated to <u>all</u> disciplines?</p> <p>4.23 How are updates to Equipment List handled, particularly for package units?</p> <p>How frequently are these updates issued to <u>all</u> disciplines?</p> <p>4.24 How is follow-up on action items, resulting from meetings controlled and administered?</p> <p>Are action item logs being maintained and what is the status?</p> <p>4.25 How is it ensured that applicable procedures</p>					
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<p>and guidelines on QA and safety stated in the PPEM are followed?</p>					
<p>4.26 Who monitors and controls the implementation/execution of applicable codes, rules, regulations, standards, guidelines, procedures and project requirements?</p>					
<p>4.27 What is the frequency of updating the specification/requisition tracking reports?</p>					
<p>4.28 What arrangements have been made for defining identification codes for spare parts?</p>					
<p>4.29 What instructions have been submitted to suppliers concerning complete and correct purchase descriptions of spare parts?</p>					
<p>5. Engineering Technical</p>					
<p>5.1 How is a smooth flow of information promoted between Process - Project - Design - Engineering - Purchasing - Expediting - VPC and Inspection, including Home Office and Field Construction Group?</p>					
<p>5.2 How is it ensured that problem areas in the scope of work of the discipline specialist engineers/design groups are properly coordinated, resolved and reported?</p>					
<p>5.3 How are interface problems between Company disciplines, between Company and suppliers/subcontractors, client, authorities (if any) and Company home and field office coordinated and resolved?</p> <p>Show/describe recent examples.</p>					
<p>5.4 How has the project subcontract plan been defined, including a planning schedule, for the activities concerned?</p> <p>At what stage in the project was this defined?</p> <p>How frequent has the plan been updated and re-issued?</p>					
<p>5.5 Have the site meteorological and utility data been collected, defined and issued in a (G1) specification early at the project start?</p>					
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<p>5.6 To what extent have plant maintenance equipment requirements been defined and issued to all parties concerned, such as: hoisting beams, trolleys, mobile equipment, i.e.: cranes, forklifts, fixed and/or mobile H.E. bundlepullers etc.?</p> <p>5.7 Was a formal constructability program initiated early in the project design phase?</p> <p>If so, who participated and how frequent were/are these reviews?</p> <p>How are these reviews conducted?</p> <p>5.8 Has modular/pre-assembly construction been considered?</p> <p>5.9 What measures, if any have been taken to minimize field labor and abnormal peaking in numbers of field labor?</p> <p>5.10 Has a mechanical completion check list been prepared in time and agreed upon with the client?</p> <p>5.11 Have hand-over systems been defined in time and agreed with the client and our construction / commissioning team?</p> <p>How are these systems defined on deliverables, in PDS and in RMMS?</p> <p>5.12 How are supplier print documents routed to the specialist engineers involved, including the systems and process engineers if applicable?</p> <p>5.13 Are tracking curves used to monitor progress of supplier documents received (preliminary and final)</p> <p>How frequently are these updated/issued?</p> <p>5.14 In case of a revamp/conversion, how has it been verified that up to date as built information is available and being used?</p> <p>5.15 How does the PM/EM team ensure all key deliverables and materials for critical shut-downs and tie-ins are available on site in good time?</p>					
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<p>6. Job Control</p> <p>6.1 Where has the budget for the PM/EM team been established?</p> <p>6.2 Was the PM/EM team involved in preparing the estimate, planning and manpower curve for the discipline?</p> <p>6.3 How does the final expected man-hours requirements for the team relate to the assigned man-hour budget?</p> <p>6.4 Have the Project Execution Control System (PEC) and scheduled man-hours been adjusted, to incorporate approved project variations?</p> <p>6.5 Does the team receive a copy of the weekly LDS print-out? How is this communicated to the discipline leads?</p> <p>6.6 What is the appreciation level for the communication within the taskforce?</p> <p>6.7 Indicate current problem area(s) if any.</p> <p>6.8 What is currently the percentage of agency personnel on the job within the taskforce?</p> <p>7. Additional Questions</p>					
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