

Checklist	Remarks	Action (X)
<p style="text-align: center;"><b>Project System Audit</b></p> <p style="text-align: center;"><b>Material Control Group</b></p> <p><b>Note:</b> 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><b>1. Project Definition</b></p> <p><b>1.1</b> Is the PPEM available?</p> <p><b>1.2</b> Has the role of the project Material Coordinator been described?</p> <p><b>1.3</b> Is the position of the Material Coordinator shown on the Project Organization Chart?</p> <p><b>1.4</b> Has a project specific material control procedure been developed?</p> <p><b>2. Material Plan</b></p> <p><b>2.1</b> Has a material plan been issued?</p> <p>Who approved the plan?</p> <p>Who has received a copy?</p> <p><b>2.2</b> Does the material plan include:</p> <ul style="list-style-type: none"> <li>• details on when MTO's are planned for each discipline?</li> <li>• for each MTO what scope is planned to be covered?</li> <li>• what the procurement action will be?</li> <li>• what the requisitioning contingency philosophy will be?</li> <li>• when piping materials are planned to be requisitioned, to be purchased and to arrive?</li> <li>• to what extent manual MTO's will be kept up-to-date ?</li> <li>• to what extent the PDS downloads will be relied upon?</li> </ul>		
RB28015.doc	www.red-bag.com	SHEET 1 of 9

Checklist	Remarks	Action (X)
<ul style="list-style-type: none"> <li>• an indication of how frequently PDS downloads are planned?</li> <li>• a project definition of which piping items are to be classified as Shop materials and which as Field materials?</li> <li>• any details pertaining to the use of different consignments?</li> </ul>		
<p><b>2.3</b> Has a fabrication sequence philosophy been established and approved by Engineering and construction to guide the design sequence?</p> <p>Does this form the basis for the allocation of priorities to isometrics?</p>		
<p><b>2.4</b> To what extent has a surplus material (strategic overbuy) philosophy been established?</p> <p>Has client's approval been obtained?</p>		
<p><b>2.5</b> To what extent are (pre) fabrication/ construction/erection/installation schedules available as a reference point for requisition planning including ROS dates?</p>		
<p><b>2.6</b> How is proper material control being ensured for:</p> <ul style="list-style-type: none"> <li>• above ground piping?</li> <li>• underground piping?</li> <li>• instrument cables?</li> <li>• electrical cables?</li> </ul>		
<p><b>3. Interfaces/Communication</b></p>		
<p><b>3.1</b> What initiatives have been developed to ensure timely and complete data input from design disciplines?</p>		
<p><b>3.2</b> What channels have been set up to ensure proper transfer of info from the field to the HO and vice-versa?</p>		
<p><b>3.3</b> Is there a regular coordination meeting with the project/engineering management and other lead engineers, including planning and cost control?</p>		

Checklist	Remarks	Action (X)
<p>What is the quality of follow-up actions on items addressed during these meetings?</p>		
<p><b>3.4</b> Is there evidence of good communication with other disciplines?</p>		
<p><b>3.5</b> Have PMC status review meetings been planned?</p> <p>Are they minuted?</p> <p>Have appropriate action plans been developed?</p> <p>Are these followed-up?</p>		
<p><b>3.6</b> Is a list kept up-to-date of what is in PMC and what is not?</p>		
<p><b>4. RMMS Project Set-Up</b></p>		
<p><b>4.1</b> Is the project following the standard RMMS set-up?</p>		
<p><b>4.2</b> Were all the issues of the RMMS Project Set-Up Request addressed during a meeting with the project manager or his delegate?</p> <p>Were the details recorded on an RMMS project set-up request form?</p>		
<p><b>5. RMMS Tracking</b></p>		
<p><b>5.1</b> Have requisition tracking, main item tracking and shipment group tracking been implemented?</p>		
<p><b>5.2</b> Has the Planning Engineer taken ownership of the Main Items table, keeping it up-to-date for changes to the Equipment List?</p>		
<p><b>5.3</b> Does the Planning Engineer keep the ROS dates for main items and bulk material requisitions up-to-date?</p> <p>Are all changes to ROS dates agreed upon by the Construction Manager in writing?</p> <p>Are sensible ROS dates being set for Piping top-up requisitions?</p>		

Checklist	Remarks	Action (X)
<p><b>5.4</b> Have main item trackings been set-up for all main items and requisition trackings for bulk materials (excluding piping top-up requisitions)?</p> <p>Are subcontracts being tracked?</p>		
<p><b>5.5</b> Is each discipline keeping the events related to their discipline up-to-date?</p>		
<p><b>5.6</b> Are regular tracking meetings held?</p> <p>Who attends?</p>		
<p><b>5.7</b> Who is responsible for the total recalculation of all trackings?</p> <p>How frequently is this done?</p>		
<p><b>5.8</b> Who is responsible for the issue of the tracking report, tracking curves and exception reports?</p>		
<p><b>6. RMMS Requisitioning</b></p>		
<p><b>6.1</b> Do all requisitions on the project originate from RMMS?</p>		
<p><b>6.2</b> Is the Engineering Manager responsible for posting requisitions?</p> <p>Has he also appointed a delegate in case of absence?</p> <p>Are requisitions duly posted and not left open?</p>		
<p><b>6.3</b> Have the standard clauses been reviewed by the lead engineers?</p>		
<p><b>6.4</b> Are the following fields duly filled <i>after</i> the requisition has been published for approval/ posting by the Engineering Manager:</p> <ul style="list-style-type: none"> <li>- Checked by and date (only if applicable)?</li> <li>- Approved by and date prior to posting?</li> </ul>		
<p><b>6.5</b> Is the definition of what constitutes a line item for equipment items clear to all?</p>		
<p><b>6.6</b> Is the meaning of non-deliverable clear?</p>		

Checklist	Remarks	Action (X)
<p><b>6.7</b> In case of main items moving from one requisition to another, is this followed up with adjustments in the previous requisitions and the tracking?</p>		
<p><b>6.8</b> In case of renamed tag numbers, is the line item canceled and a new line item inserted?</p>		
<p><b>6.9</b> For E&amp;I bulk materials, is a sensible part number convention being used?</p>		
<p><b>6.10</b> Are requisitions for purchase being prepared within an acceptable time frame?</p>		
<p><b>6.11</b> Are accepted over shipments for piping materials duly administered in PMC?</p>		
<p><b>7. RMMS Purchasing</b></p>		
<p><b>7.1</b> Has a bidders list been set up in RMMS for the project?</p>		
<p><b>7.2</b> Have the job clauses been reviewed?</p> <p>Do they maximize the use of bookmarks and do they not contain redundant information already in RMMS?</p>		
<p><b>7.3</b> Have all Inquiries and Purchase orders that are issued to suppliers been previously posted?</p>		
<p><b>7.4</b> Are purchase order records inserted upon written award?</p>		
<p><b>7.5</b> Are the line item descriptions transferred from Engineering kept unchanged?</p> <p>Are any pertinent details required for procurement entered in the issue description?</p>		
<p><b>7.6</b> Is procurement only adding non deliverable line items to a purchase order?</p>		
<p><b>7.7</b> Has the system of Blanket Orders/Release Orders been implemented for Piping materials?</p>		
<p><b>7.8</b> In case of blanket/release orders, are release orders sent immediately to the supplier, if necessary unpriced?</p> <p>Are such documents always posted?</p>		
<p>RB28015.doc</p>	<p>www.red-bag.com</p>	<p>SHEET 5 of 9</p>

Checklist	Remarks	Action (X)
<p><b>7.9</b> In case a contract delivery is later than the ROS date, how is this administratively handled?</p>		
<p><b>7.10</b> Is additional electrical cable quantity ordered on the original line item, rather than on a new line item?</p>		
<p><b>8. RMMS Order Control</b></p>		
<p><b>8.1</b> Are main equipment items tracked at line item level and all other disciplines tracked at shipment group level?</p>		
<p><b>8.2</b> Does all expediting and inspection reporting originate from RMMS?</p>		
<p><b>8.3</b> Has an expediting and inspection plan been set up within RMMS?</p>		
<p><b>8.4</b> Are forecast delivery dates and status being maintained within RMMS?</p>		
<p><b>8.5</b> Are shipping release dates and inspection release dates maintained within RMMS?</p>		
<p><b>8.6</b> Is a log of non-conformances being maintained in RMMS?</p>		
<p><b>8.7</b> For internal expediting are records of all contacts being maintained in RMMS?</p>		
<p><b>8.8</b> For external inspection/expediting are the dates of all visits being maintained in RMMS?</p>		
<p><b>8.9</b> Is the expediter receiving copies of OS&amp;D reports ( if necessary by fax)?</p> <p>In case of piping OS&amp;D reports are these hand carried to the responsible PMC engineer for advice?</p>		
<p><b>8.10</b> Is the expediter creating an MRR (receiving report) for items that are assembled in a shop before being dispatched to site?</p>		
<p><b>8.11</b> Are order completion reports and curves issued for bulk materials?</p>		

Checklist	Remarks	Action (X)
<p><b>9. RMMS Field Material Control</b></p> <p><b>9.1</b> What electronic connection has been established with site?</p> <p><b>9.2</b> Who is creating MRR's in RMMS?</p> <p><b>9.3</b> What is the average time between receipt of materials and issue of MRR?</p> <p>Are hard copy MRR reports distributed or has it been agreed that Home Office staff print their own copies?</p> <p><b>9.4</b> Does the delivery date on the MRR match the date originally supplied on the DMMR?</p> <p><b>9.5</b> Are MRR reports duly posted and not left open?</p> <p><b>9.6</b> In case of OS&amp;D revisions, is the corresponding MRR report also revised and issued with the OS&amp;D report?</p> <p><b>9.7</b> Are OS&amp;D reports duly closed and not left open?</p> <p><b>9.8</b> Are materials withdrawn and issued to subcontractors administered in WMR reports?</p> <p><b>9.9</b> Are materials shipped off site (e.g. for repairs, or in case of sale of surplus, or return of over shipped materials) administered in an RMR report?</p> <p><b>9.10</b> How are field purchase orders for A-T materials being handled?</p> <p><b>9.11</b> How are field purchase orders for X,Y,Z materials being handled?</p> <p><b>10. RMMS Material Allocation</b></p> <p><b>10.1</b> For piping materials, including underground, are WMR's created using the system of trial and actual withdrawals?</p> <p>Who is responsible for this activity?</p>		

Checklist	Remarks	Action (X)
<p><b>10.2</b> Is the Bill of Materials file for all AFC isometrics imported into RMMS on a weekly basis?</p> <p>Who is responsible for this activity?</p>		
<p><b>10.3</b> Have priorities been assigned to the isometrics?</p>		
<p><b>10.4</b> Are withdrawals grouped by priorities or is the sequence driven by requests from the subcontractor?</p>		
<p><b>10.5</b> Are the WMR reports created by the actual withdrawal process revised to reflect actual materials withdrawn (for instance to reflect differences in piping length quantities)?</p> <p>Are balances between actual issued latest Bill of Material requirements checked from time to time using the Mater?</p>		
<p><b>10.6</b> Are trial withdrawals ,that are no longer required, deleted?</p>		
<p><b>10.7</b> Is the allocation and planning process contributing the project's success?</p>		
<p><b>11. RMMS Material Trending and Forecasting</b></p>		
<p><b>11.1</b> Have the key quantities to be monitored been agreed upon?</p>		
<p><b>11.2</b> Were material estimate data available in a suitable breakdown?</p>		
<p><b>11.3</b> Is a material trend report issued on a monthly basis?</p>		
<p><b>11.4</b> Are the forecast quantities in the trend report based upon a database of scope items, plus a reasonable allowance for development?</p>		
<p><b>11.5</b> Are the forecasts reviewed with the respective lead engineers?</p>		
<p><b>11.6</b> Have the subcontract quantities been reviewed by Material Control and are they in line with the quantities forecast in the material trend report?</p>		

Checklist	Remarks	Action (X)
<p><b>12. Job Control</b></p> <p><b>12.1</b> Where has the budget for the material control group been defined?</p> <p><b>12.2</b> Did the material coordinator prepare or accept the manhour estimate and manpower curve for executing his scope of work?</p> <p><b>12.3</b> What is the relationship between spent and planned manhours for the MC group?</p> <p><b>12.4</b> Who is supplying actual designed quantities?</p> <p><b>12.5</b> How does the forecasted manhours requirement for the discipline relate to the assigned manhour budget?</p> <p><b>12.6</b> Does the MC coordinator receive a copy of the weekly LDS print-out?</p>		
<p><b>13. Additional Questions</b></p>		