

	<b>HGRS MASTER - Maintenance</b>		
	Type of Skill:	Specific Technical Skills	
	Category :	Kiln	
	Module:	Kiln Maintenance Routines	
	Unit:	Yearly PMRs	5 of 6
	Version:	1.0	02.12.2003
	Reference:	Kiln Maintenance Routines.ppt	

## Yearly PMR's

<b>Purpose:</b>	<p>To assess the kiln condition by specific measurements.</p> <p>To ensure the compliance of the Planned Maintenance Routines with Holcim standards</p>
<b>Description:</b>	<p><b>Kiln seal</b></p> <ul style="list-style-type: none"> <li>• <b>General</b> Measure the disc thickness, shell thickness, scale or blade thickness in order to determine which parts need to be changed in the annual shutdown.</li> </ul> <p><b>Kiln shell</b></p> <ul style="list-style-type: none"> <li>• <b>Condition</b> Conduct a kiln shell deformation measurement (see specific training). Track changes and determine the root causes Foresee adjustments (shell replacement)</li> </ul> <p><b>Kiln tires</b></p> <ul style="list-style-type: none"> <li>• <b>Temperature</b> Conduct a shelltest (ovality) measurement on each tire</li> <li>• <b>Condition</b> The tire axial run-out is recorded (axial movement of the tire at its below side). Value should always be below 6mm.</li> </ul> <p><b>Kiln rollers</b></p> <ul style="list-style-type: none"> <li>• <b>Adjustment</b> Conduct a lead wire test. Record complete measurement campaign in the specific table. determine necessary adjustments. Carry out the required adjustments and foresee if needed rollers and tire machining (see specific training on Holspace)</li> </ul> <p><b>Kiln girth gear</b></p> <ul style="list-style-type: none"> <li>• <b>Condition</b> Check the axial and radial run out Evaluate and plan eventual adjustment during the shutdown</li> </ul> <p><b>Kiln general</b></p> <ul style="list-style-type: none"> <li>• <b>Alignment</b> Conduct preparation measurement for a cold alignment (internal or external). Allowed misalignment: 3 mm horizontal (lateral). 5 mm vertical Every three years a hot alignment is organized in the same time (see specific training on Holspace) Perform the needed adjustments</li> </ul> <p><b>Civil Structure</b></p> <ul style="list-style-type: none"> <li>• <b>Piers</b> Check pier levels Check damage to all concrete structure Check for oil in grouting and/or penetrating the concrete</li> <li>• <b>Area</b> Check drainage is working properly in the area, proceed to eliminate blockages.</li> </ul> <p><b>To carry out a yearly inspection is an integrated part of this unit</b></p>
<b>Standards:</b>	<ul style="list-style-type: none"> <li>• Holcim standards <ul style="list-style-type: none"> <li>➢ Hot alignment every 3 years, Cold alignment every year</li> <li>➢ Shell deformation measurement</li> <li>➢ Kiln roller adjustment (lead wire test)</li> <li>➢ Shelltest</li> <li>➢ Tire axial run-out measurement</li> <li>➢ Girth gear run-out measurement</li> </ul> </li> </ul>

<b>Impact if not applied:</b>	<ul style="list-style-type: none"> <li>• Stops due to sudden failure</li> <li>• Damage due to lack of maintenance during planned stops (correctives actions not carried out because of missing inspections)</li> <li>• High maintenance cost due to the extent of damages</li> </ul>
<b>Actions:</b>	<ul style="list-style-type: none"> <li>• Training and information</li> <li>• Severity of non conformance has to be assessed and processed to the shutdown work list or for immediate kiln stop.</li> </ul>
<b>Unit Completion:</b>	<ul style="list-style-type: none"> <li>• Check the actual level of PMR's in the plant and recommend corrective actions</li> <li>• The trainee has carried out a yearly inspection on his own.</li> </ul>
<b>See site specific unit for additional information, respective actions and applicable safety instructions.</b>	



Yearly kiln PMRs