

TSC Category	Process Operations Management					
TSC	Process Operations Troubleshooting					
TSC Description	Perform a structured approach in process operations troubleshooting by using appropriate tools, techniques and engineering documents to identify and locate causes of problems and correct them in a safe and reliable manner					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
		ECM-POM-2006-1.1	ECM-POM-3006-1.1	ECM-POM-4006-1.1	ECM-POM-5006-1.1	
		Identify a structured approach in process troubleshooting to assist in identifying and locating causes of problems	Implement appropriate tools, techniques and engineering documents to perform process troubleshooting	Investigate the approach, tools, techniques and engineering documents used for process troubleshooting to supervise troubleshooting activities and correct situations in a safe and reliable manner	Evaluate the approach, tools, techniques, root cause analyses, remedial actions and their effectiveness to manage troubleshooting activities and make recommendations for improvements	
Knowledge		<ul style="list-style-type: none"> • Troubleshooting techniques • Root Cause Analysis (RCA) assessment methods • Principles of cause and effect • Principles of using engineering documentation to provide guidance in troubleshooting activities 	<ul style="list-style-type: none"> • Troubleshooting techniques • Root Cause Analysis (RCA) methods • Diagnostic tools and equipment principles and applications • Principles of separating cause and effect • Methods of tracking problems with engineering documentation 	<ul style="list-style-type: none"> • Troubleshooting techniques and fault analysis • Digital system interrogation and interpretation methods • Breakdown and failure relationship analysis • Systematic approaches to troubleshooting • Methods of multi-disciplinary troubleshooting 	<ul style="list-style-type: none"> • Methods of managing troubleshooting activities • Methods of managing updates and reports for prolonged troubleshooting activities • Principles of working with vendor specialists, equipment and systems when troubleshooting problems • Methods of managing case study reports on major troubleshooting activities, lessons learned, root causes and approaches to solving problems 	

**SKILLS FRAMEWORK FOR ENERGY AND CHEMICALS
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT**

<p>Abilities</p>		<ul style="list-style-type: none"> • Carry out troubleshooting activities • Perform RCA assessments • Communicate and document findings 	<ul style="list-style-type: none"> • Perform troubleshooting of processes, equipment or systems • Perform RCA assessments and implement corrective actions • Maintain troubleshooting logs identifying the causes and effects and steps taken to resolve issues 	<ul style="list-style-type: none"> • Supervise troubleshooting of processes, equipment or systems • Apply a range of techniques in troubleshooting and fault analysis • Evaluate breakdown and failure relationships • Advise the best remedial actions and implement solutions to correct situations • Liaise with vendors and experts on problem-solving issues • Work as part of a team in troubleshooting and solving problems 	<ul style="list-style-type: none"> • Manage troubleshooting of processes, equipment or systems • Apply a wide range of troubleshooting techniques and practices • Develop and present management reports on plant and equipment root cause analyses and make improvement recommendations • Review resolved issues and ensure lessons learned are recorded and available for future review and use 	
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