

TSC Category	Process Operations Management					
TSC	Process Equipment Preparation for Mechanical Work					
TSC Description	Prepare process plant and equipment so that they are decommissioned before and commissioned after mechanical work respectively in accordance with safe work practices					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	ECM-POM-1005-1.1	ECM-POM-2005-1.1	ECM-POM-3005-1.1	ECM-POM-4005-1.1		
	Identify relevant information, procedures and guidelines to assist in the preparation of process plants and equipment for mechanical work	Apply relevant information, procedures and guidelines to prepare process plants and equipment for mechanical work	Interpret relevant information, procedures and guidelines to ensure that process plant and equipment preparation for mechanical work are performed in a safe and reliable manner	Develop guidelines and safe work practices in accordance with Health, Safety and Environmental (HSE) regulatory and system requirements to supervise and manage all activities on process plant and equipment preparation for mechanical work		
Knowledge	<ul style="list-style-type: none"> • General guidelines for the decommission and commission of process equipment • Principles of Safe System of Work (SSoW) including Permit-to-Work system, isolation procedures and Lock-Out-Tag-Out (LOTO) • Types of safety barriers, notices and signages for work areas • Types of hoses, piping and fittings and their uses • Process Flow Diagrams (PFDs) and Piping and Instrumentation Diagrams (P&IDs) • Hazard identification and risk assessments • Methods of cleaning and decontamination 	<ul style="list-style-type: none"> • General guidelines for the decommission and commission of process equipment • Principles of Safe System of Work (SSoW) including Permit-to-Work system • Hazard identification and risk assessments • Safe isolation procedures • Principles of positive isolations, double block and bleed • Procedures for depressurising process equipment • Types of process utilities used for purging • Types of hoses, piping and fittings and their uses • Utility tie-in for purging 	<ul style="list-style-type: none"> • Principles of activity-based risk assessment • Hazard identification and risk assessments • Safe work practices for isolation and desolation for process equipment • Methods for barrier management and work area guarding • Principles of Safe System of Work (SSoW) including Permit-to-Work system, isolation procedures and Lock-Out-Tag-Out (LOTO) • Isolation and pressure testing methods • Methods of planning and preparing including availability of emergency response equipment and evacuation routes 	<ul style="list-style-type: none"> • HSE related regulatory and system requirements • Best industry practices for process plant and equipment preparation for mechanical work including isolation, depressurisation, utility tie-in, purging, spill control and Safe System of Work (SSoW) • Lock-Out-Tag-Out (LOTO) and Permit-to-Work system • Methods of supervising Simultaneous Operations (SIMOPS) 		

		<ul style="list-style-type: none"> • Procedures for purging and spill control • Lock-Out-Tag-Out (LOTO) and labelling methods • Types of blinds and their pressure rating and uses 	<ul style="list-style-type: none"> • Principles of coordinating Simultaneous Operations (SIMOPS) 			
Abilities	<ul style="list-style-type: none"> • Assist in isolations and de-isolations of process equipment for mechanical work • Assist in permit applications and LOTO • Prepare work areas with appropriate safety barriers, notices and signages • Assist in preparing utility tie-in with correct pipe fittings and hoses • Identify hazards and participate in risk assessments • Follow SSoW and safe work procedures 	<ul style="list-style-type: none"> • Prepare process equipment for mechanical work • Participate in activity-based risk assessments • Carry out isolations and de-isolations when decommissioning and commissioning process equipment respectively • Depressurise process equipment and minimise spillage • Perform utility tie-in to purge or flush process pipeline and equipment with process utility • Perform LOTO and prepare permits to handover process equipment to maintenance teams for mechanical work • Ensure workplace cleanliness is maintained • Ensure safety barriers, notices, signages and zoning are in place 	<ul style="list-style-type: none"> • Conduct pre-work meetings to identify and review tasks on hand • Coordinate the preparation of process equipment for mechanical work in situations • Conduct activity-based risk assessments • Monitor safe isolation and de-isolation activities when decommissioning and commissioning process equipment respectively • Carry out isolations and pressure tests • Communicate and coordinate isolation activities between operations and maintenance teams • Issue isolation certifications • Ensure depressurisations are conducted in a safe and reliable manner • Ensure utility tie-in and purging are performed correctly • Coordinate SSSoW activities including LOTO and permit applications 	<ul style="list-style-type: none"> • Supervise pre-work meetings to identify and review tasks on hand • Develop guidelines and safe work procedures for preparation of process units and equipment for mechanical work • Supervise process unit and equipment preparation for mechanical work and ensure works are carried out safely • Supervise the correct implementation of Workplace Safety and Health (WSH) and SSoW procedures when carrying out process equipment preparation works • Audit work areas and activities to ensure conformance to safe work practices • Take corrective actions if there is non-conformance • Supervise SIMOPS activities 		

			<ul style="list-style-type: none">• Review and monitor barrier management and work area guarding• Monitor SIMOPS activities• Ensure spill control procedures are in place			
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