

## SELF-ASSESSMENT GUIDE

Qualification:	<b>ICE PLANT REFRIGERATION SERVICING NC III</b>	
Certificate of Competency 1:	<b>INSTALL ICE PLANT REFRIGERATION SYSTEM</b>	
Units of Competency covered:	<ul style="list-style-type: none"> <li>• <b>Survey Site for Installation</b></li> <li>• <b>Install Ice Plant Refrigeration Piping System</b></li> <li>• <b>Install Ice Plant Refrigeration Electrical System</b></li> <li>• <b>Install Ice Plant Refrigeration Equipment</b></li> </ul>	
Instruction: <ul style="list-style-type: none"> <li>• Read each of the questions in the left-hand column of the chart.</li> <li>• Place a check on each question to indicate your answers.</li> </ul>		
<b>Can I?</b>	<b>YES</b>	<b>NO</b>
• Interpret technical plan/drawing		
• Survey site as per approved sketch/plan		
• Prepare alteration/comments as per survey conducted		
• Prepare supplies and materials needed for installation in accordance with specification		
• Prepare and check piping requirements for damages in accordance with plans and specifications		
• Check fabrication and installation of brackets and supports according to plan		
• Lay-out and install refrigerant/secondary piping in conformity with design		
• Apply insulating/sealing/adhesive materials in accordance with system requirements		
• Inspect welded pipe joints ensuring air tightness and quality weld		
• Prepare and check electrical materials in consistent with job requirements		
• Lay-out electrical system in conformity with designs, specifications and/or approved working plan/drawing		
• Mount/insulate/terminate electrical system as per standard operating procedures		
• Check and install power supply wirings, controls and protective devices in accordance with specifications		
• Perform termination, insulation and testing of electrical system according to established procedures		
• Prepare and record results of installation and testing of electrical system		

<ul style="list-style-type: none"> <li>• Install ice plant refrigeration system (compressors, shell &amp; tube/plate heat exchangers, unit coolers, liquid receivers, intercoolers, separators, evaporative condensers, pipes, fittings, stop valves, control valves and other accessories according to unit manual recommendation)</li> </ul>		
<ul style="list-style-type: none"> <li>• Complete installation with no damage to equipment and its components</li> </ul>		
<ul style="list-style-type: none"> <li>• Identify faults/problems and take necessary remedial action in line with standard operating procedures</li> </ul>		
<ul style="list-style-type: none"> <li>• Ensure charging of ice plant system and components with refrigerant and secondary heat transfer fluid in accordance with manufacturer's standard operating procedures</li> </ul>		
<ul style="list-style-type: none"> <li>• Perform pre-start up checks in accordance with standard operating procedures</li> </ul>		
<ul style="list-style-type: none"> <li>• Complete reports and documentation based on approved format</li> </ul>		
<p>I agree to undertake assessment in the knowledge that information gathered will only be used for professional development purposes and can only be accessed by concerned assessment personnel and my manager/supervisor.</p>		
<p><b>Candidate's signature:</b></p>	<p><b>Date:</b></p>	

## SELF-ASSESSMENT GUIDE

Qualification:	<b>ICE PLANT REFRIGERATION SERVICING NC III</b>	
Certificate of Competency 2:	<b>SERVICE AND MAINTAIN ICE PLANT REFRIGERATION SYSTEM</b>	
Instruction: <ul style="list-style-type: none"> <li>• Read each of the questions in the left-hand column of the chart.</li> <li>• Place a check on each question to indicate your answers.</li> </ul>		
<b>Can I?</b>	<b>YES</b>	<b>NO</b>
• Read and interpret work instructions to determine job requirements		
• Select appropriate manufacturer's manual based on system requirements		
• Select tools and instruments in accordance with job requirements		
• Clean evaporator/condenser in accordance with manufacturer's maintenance manual		
• Check refrigerant piping for condition, leak, and insulation in accordance with manufacturer's maintenance manual *		
• Inspect tightness of support/brackets according to plan*		
• Inspect and adjust operating condition and electro-mechanical controls/settings in accordance with manufacturer's operation/service manual *		
• Check and adjust refrigeration components as per manufacturer's operation/service manual *		
• Check and adjust lubrication system variables and components based on operational specifications *		
• Check and adjust oil levels, properties and circulation balances based on operational specifications *		
• Check oil filters base on manufacturer's maintenance procedures *		
• Check liquid supply and back pressure filters as per manufacturers maintenance procedures		
• Detect and rectify refrigerant leaks based on procedures *		

<ul style="list-style-type: none"> <li>• Check and adjust refrigerant system variables and contaminants based on procedure's manual *</li> </ul>		
<ul style="list-style-type: none"> <li>• Check and adjust automatic and manual non-condensable gas purgers *</li> </ul>		
<ul style="list-style-type: none"> <li>• Check secondary heat transfer loop and documents results in accordance with established procedures *</li> </ul>		
<ul style="list-style-type: none"> <li>• Check and adjust liquid properties to meet system requirements *</li> </ul>		
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Qualification:	<b>ICE PLANT REFRIGERATION SERVICING NC III</b>	
Certificate of Competency 3:	<b>TROUBLESHOOT AND REPAIR ICE PLANT REFRIGERATION SYSTEM</b>	
Units of Competency covered:	<ul style="list-style-type: none"> <li>• <b>Troubleshoot Ice Plant Refrigeration System</b></li> <li>• <b>Recover and Recycle Refrigerant in Ice Plant Refrigeration System</b></li> <li>• <b>Repair and Retrofit Ice Plant Refrigeration System And Its Accessories</b></li> <li>• <b>Perform Start-Up and Commissioning for Ice Plant Refrigeration System</b></li> </ul>	
Instruction: <ul style="list-style-type: none"> <li>• Read each of the questions in the left-hand column of the chart.</li> <li>• Place a check on each question to indicate your answers.</li> </ul>		
<b>Can I?</b>	<b>YES</b>	<b>NO</b>
• Interpret appropriate wiring diagrams, charts and manuals in line with job requirements		
• Select and prepare appropriate materials, tools and equipment based on manual		
• Check power supply to ensure compliance with nameplate rating and/or manufacturer's standard		
• Diagnose faults/problems with refrigerant system in line with established standards		
• Take remedial action to overcome faults/problems in accordance with system requirements		
• Test refrigeration system in line with manufacturer's instructions		
• Evaluate system in accordance with specifications and requirements		
• Prepare and complete report on testing refrigeration system in line with enterprise procedures		
• Determine appropriateness of unit for refrigerant recovery/recycling according to Clean Air Act/Montreal Protocol requirements and manufacturer's specifications		
• Sets up equipment and accessories according to recovery/recycling requirements		
• Performs recovery/recycling of refrigerants according to manufacturer's recommendations		

<ul style="list-style-type: none"> <li>Removes contaminants from the system based on instrument readings</li> </ul>		
<ul style="list-style-type: none"> <li>Identify and label recovered refrigerant in the tank prior to recycling based on procedure</li> </ul>		
<ul style="list-style-type: none"> <li>Observe safety measures in recovery/recycling of refrigerants in accordance with industry requirements</li> </ul>		
<ul style="list-style-type: none"> <li>Check refrigeration system based on manufacturer's specification</li> </ul>		
<ul style="list-style-type: none"> <li>Perform leak test base on time requirement and repairs leaks according to manufacturer's specifications</li> </ul>		
<ul style="list-style-type: none"> <li>Identify faults from a visual inspection and rectifies operational check according to system requirements</li> </ul>		
<ul style="list-style-type: none"> <li>Optimize amount of oil in the compressor crankcase/oil separator based on procedure</li> </ul>		
<ul style="list-style-type: none"> <li>Recover optimum amount of refrigerant in accordance with manufacturer's recommendations</li> </ul>		
<ul style="list-style-type: none"> <li>Pump-out and evacuate refrigeration system</li> </ul>		
<ul style="list-style-type: none"> <li>Identify and diagnose faults based on procedure</li> </ul>		
<ul style="list-style-type: none"> <li>Repair/replace ice plant components as per manufacturer's operation/repair manual</li> </ul>		
<ul style="list-style-type: none"> <li>Recondition and overhaul ice plant components in accordance with workplace procedures</li> </ul>		
<ul style="list-style-type: none"> <li>Perform leak detection test and seals any leaks in compliance with compressor and manufacturer's instructions</li> </ul>		
<ul style="list-style-type: none"> <li>Carry out inspection and testing of ice plant refrigeration system within compressor and manufacturer's acceptable limits of temperatures and pressures</li> </ul>		
<ul style="list-style-type: none"> <li>Perform preventive maintenance according to established plan</li> </ul>		
<ul style="list-style-type: none"> <li>Report and record maintenance records/service reports in accordance with standard operating procedures</li> </ul>		
<ul style="list-style-type: none"> <li>Complete pre-commissioning checks and complies with procedures laid down in system documents</li> </ul>		
<ul style="list-style-type: none"> <li>Prepare and calibrate commissioning instruments in accordance with system documents</li> </ul>		

<ul style="list-style-type: none"> <li>Isolate faults component level and apply appropriate corrective action</li> </ul>		
<ul style="list-style-type: none"> <li>Evacuate refrigeration system using appropriate method and techniques in accordance with prescribed codes and regulations</li> </ul>		
<ul style="list-style-type: none"> <li>Charge the system with required refrigerant and adds lubricating oil according to system specifications and instructions</li> </ul>		
<ul style="list-style-type: none"> <li>Test and set electrical, pneumatic, and other controls to meet specified requirements</li> </ul>		
<ul style="list-style-type: none"> <li>Verify motor, motor ratings and pump rotation directions against fuse ratings and overload settings</li> </ul>		
<ul style="list-style-type: none"> <li>Test and balance fluid flows to ensure noise and vibrations levels are within set limits</li> </ul>		
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