



Saskatchewan  
Apprenticeship and  
Trade Certification  
Commission



# Apprenticeship

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## **Petroleum Installer Technician**

### **Provincial Occupational Analysis**

**April 1999**  
**Revised March 2000**



Block	Task	Subtask	Knowledge, Skills & Abilities
A. Prepares for Project	A.1 Identifies equipment, materials and manpower requirements	A1.01 Reviews applicable codes A1.02 Completes Applications A1.03 Insures code compliance A1.04 Organizes delivery dates A1.05 Applies safety program and work standards to employees and subcontractors A1.06 Establishes job schedule	<ul style="list-style-type: none"> <li>- Ability to apply codes and regulations</li> <li>- Knowledge of WHMIS</li> <li>- Knowledge of Sask Environment Code</li> <li>- Knowledge of Fire Code</li> <li>- Ability to complete applications</li> <li>- Knowledge of company procedures</li> <li>- Knowledge of Local/Municipal Building Codes</li> <li>- Knowledge of Just-in-Time inventory procedures</li> <li>- Training in safety management for excellence</li> <li>- Ability to schedule</li> </ul>
	A.2 Prepares work site	A2.01 Locates perimeter of work area A2.02 Establishes access routes A2.03 Erects fences or barricades	<ul style="list-style-type: none"> <li>- Ability to predict traffic flow</li> <li>- Knowledge of OH&amp;S legislation</li> <li>- Knowledge of safety programs</li> <li>- Ability to lead personnel</li> <li>- Knowledge of basic math</li> <li>- Knowledge of due diligence legislation</li> </ul>

<p>B. Installs aboveground tanks</p>	<p>B1. Prepares grade for dyke installation</p> <p>B2. Installs liner material</p>	<p>A2.04 Positions signs at all points of access          A2.05 Conducts start-up meeting to review site rules with owner/manager/employee/sub-contractor          2.06 Contacts utilities to locate services</p> <p>B1.01 Stakes out dyke location          B1.02 Removes overburden          B1.03 Compacts subgrade          B1.04 Installs granular course          B1.05 Installs prefabricated dyke          B1.06 Constructs earthen dyke</p>	<ul style="list-style-type: none"> <li>- Ability to layout squares/rectangles</li> <li>- Ability to calculate quantities and dyke sizes</li> <li>- Ability to use builders level</li> <li>- Knowledge of crane techniques and signals</li> <li>- Ability to rig pre-fab tanks</li> <li>- Knowledge of compaction requirements</li> <li>- Knowledge of pre-cast concrete dykes</li> <li>- Ability to operate small equipment i.e. Bobcat</li> <li>- Ability to construct slope and impermeable layer</li> </ul>
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	<p>B3. Installs tanks</p>	<p>B2.01 Excavates and locates sump                      B2.02 Installs liner                      B2.03 Protects liner from damage                      B2.04 Places sand cover and base material on top of liner                      B2.05 Determines tank location                      B2.06 Prepares tank base</p> <p>B3.01 Directs lift until tank is positioned                      B3.02 Insures tank is vertically level                      B3.03 Installs all valves, vents and fixtures                      B3.04 Raises and re-levels tanks                      B3.05 Tests tanks</p>	<ul style="list-style-type: none"> <li>- Ability to excavate and locate sump</li> <li>- Ability to read and follow directions</li> <li>- Understanding of sealants</li> <li>- Ability to use various kinds of power/pneumatic tools</li> <li>- Knowledge of various liner installations and certifications</li> <li>- Knowledge of sand and base material specifications</li> <li>- Ability to place sand under tank.</li> </ul> <ul style="list-style-type: none"> <li>- Knowledge of good construction practices</li> <li>- Knowledge of crane capacities</li> <li>- Knowledge of cables/slings</li> <li>- Knowledge of hand signals</li> <li>- Knowledge of correct use of a ladder</li> <li>- Ability to use construction tools</li> <li>- Knowledge of geometry and advanced math</li> <li>- Ability to perform basic rigging</li> <li>- Knowledge of tank type</li> </ul>
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	<p>B4. Installs all concrete pads, foundations and piles</p> <p>B5 Installs access/inspection/related equipment</p>	<p>B4.01 Locates and places all concrete pads to allow slope back to collection tanks or pump outs</p> <p>B4.02 Ensures underground preparation(e.g. Electrical, piping, catch basins, piles, etc.) are installed</p> <p>B4.03 Sets forms, installs rebar and anchor bolts</p> <p>B4.04 Supervises concrete pour</p> <p>B4.05 Finishes concrete</p> <p>B4.06 Saws/cut concrete for expansion</p> <p>B5.01 Installs catwalk at top of tanks</p> <p>B5.02 Installs walkovers</p> <p>B5.03 Installs load rack fixtures</p>	<ul style="list-style-type: none"> <li>-Ability to test tanks</li> <li>- Ability, to understand written directions</li> <li>- Ability to use levels</li> <li>-Ability to use lifting jacks</li>   <li>- Knowledge of concrete forming</li> <li>- Ability to use carpentry tools</li> <li>- Ability to read blueprints</li> <li>- Ability to calculate quantities</li> <li>- Ability to pour and finish concrete</li> <li>-Ability to survey grades/drainage patters</li> <li>-Ability to protect pads from frost</li> <li>-Ability to operate concrete tool</li> <li>Knowledge of base requirements</li> <li>-Ability to build forms</li>   <li>- Knowledge of OH&amp;S legislation for work at height</li> <li>- Knowledge of crane signals</li> <li>- Knowledge of cables and slings</li> <li>- Knowledge of crane/picker capacity</li> </ul>
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	<p>B6 Installs and tests monitoring equipment</p> <p>B7. Installs safety/directional signage</p>	<p>B5.04 Installs loading arms                      B5.05 Pours concrete supports at steps                      B5.06 Install pumps and drip pans                      B5.07 Prepares equipment for electrical rough-in</p> <p>B6.01 Installs high level alarm                      B6.02 Installs a gauging system                      B6.03 Installs a leak detection system                      B6.04 Installs a monitoring system                      B6.05 Test monitoring system</p> <p>B7.01 Installs tank content and capacity signage                      B7.02 Installs piping identifiers                      B7.03 Installs safety and directional signage</p>	<ul style="list-style-type: none"> <li>- Ability to install catwalk</li> <li>- Ability to install walkovers</li> <li>- Ability to pour concrete</li> <li>- Ability to install loading arms</li> <li>- Ability to install load rack fixtures</li> <li>- Ability to install pumps and drip pans</li>   <li>- Ability to install electronic/mechanical controls</li> <li>- Knowledge of test procedures</li>   <li>- Ability to use paint stencils</li> <li>- Ability to calculate capacities of cylinders</li> <li>- Ability to use electric/pneumatic tools</li> <li>- Knowledge of paint requirements</li> </ul>
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<p>C. Installs underground tanks and oil/water separators</p>	<p>C1. Locates tank</p>	<p>B7.04 Indicates product flow</p> <p>C1.01 Stakes the excavation perimeter</p> <p>C1.02 Checks the depth of the excavation</p> <p>C1.03 Supervises excavation</p>	<ul style="list-style-type: none"> <li>- Knowledge of various excavation procedures in a variety of soil conditions</li> <li>- Ability to understand and follow company/owner and OH&amp;S regulations</li> <li>- Ability to use hand tools</li> <li>- Ability to use builders level</li> <li>- Knowledge of construction practices</li> </ul>
	<p>C2. Installs underground tanks</p>	<p>C2.01 Installs liner</p> <p>C2.02 Installs deadman anchors</p> <p>C2.03 Tests tanks prior to placing in excavation</p> <p>C2.04 Installs tanks into excavation</p> <p>C2.05 Places piezometers into tank excavation</p> <p>C2.06 Backfills excavation to top of tanks</p>	<ul style="list-style-type: none"> <li>- Knowledge of installation techniques for liners</li> <li>- Knowledge of geo-cloth installations</li> <li>- Ability to follow plans and directions</li> <li>- Ability to take deflections</li> <li>- Knowledge of piezometer installation and VES systems</li> <li>- Knowledge of crane lifting procedures</li> <li>- Knowledge of slings and cables</li> <li>- Ability to use carpentry tools</li> <li>- Ability to test tanks</li> </ul>

	<p>C3. Installs oil/water separator and collection system</p> <p>C4. Installs islands</p>	<p>C3.01 Installs catch basin                  C3.02 Establishes drainage system inverts                  C3.03 Installs separator                  C3.04 Installs tank fixtures</p> <p>C4.01 Lays out islands                  C4.02 Installs dispenser sumps                  C4.03 Installs light/canopy piles                  C4.04 Installs island form                  C4.05 Pours island concrete</p>	<ul style="list-style-type: none"> <li>- Ability to install deadman anchor</li> <li>- Ability to operate backfill equipment</li>   <li>-Ability to use builders level</li> <li>-Knowledge of basic oil/water separator operation</li> <li>-Knowledge of various testing procedures</li> <li>-Ability to grout</li>   <li>- Knowledge of construction practices</li> <li>- Ability to read blueprints</li> <li>- Knowledge of suction/hydraulic systems</li> <li>- Knowledge of safe work practices</li> <li>- Knowledge of proper backfilling procedures</li> <li>- Ability to form for concrete</li> <li>- Ability to pour concrete</li> <li>- Ability to finish concrete</li> </ul>
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	<p>C5. Installs vent rack</p>	<p>C5.01 Lays-out vent rack location                  C5.02 Installs vent rack forms                  C5.03 Pours foundation for rack                  C5.04 Installs vent rack</p>	<ul style="list-style-type: none"> <li>- Knowledge of concrete forming</li> <li>- Ability to pour and finish concrete</li> <li>- Ability to install threaded and welded vent rack</li> </ul>
	<p>C6. Backfills over U/G tanks and places tank slab</p>	<p>C6.01 Completes backfill over tank                  C6.02 Establishes finish elevation                  C6.03 Places slab forms                  C6.04 Installs manholes                  C6.05 Installs rebar                  C6.06 Installs concrete</p>	<ul style="list-style-type: none"> <li>- Knowledge of concrete forming procedures</li> <li>- Knowledge of rebar installation</li> <li>- Knowledge of construction practices</li> <li>- Knowledge of compaction methods and procedures</li> <li>- Ability to use builders level</li> <li>- Ability to operate bob-cat</li> <li>- Ability to install rebar</li> <li>- Ability to pour concrete and finish</li> </ul>
	<p>C7. Installs pump/dispensers</p>	<p>C7.01 Installs shear point within sump</p>	<ul style="list-style-type: none"> <li>- Knowledge of pump/dispenser installation</li> <li>- Knowledge of concrete anchors</li> <li>- Ability to operate electric tools</li> <li>- Ability to use lubricants</li> </ul>

	<p>C8. Tests system</p> <p>C9. Paints &amp; Identifies system</p>	<p>C7.02 Installs dispenser/pump C7.03 Arranges for electrical connection</p> <p>C8.01 Tests entire system (e.g. hydrostatic, pneumatic, electronic)</p> <p>C9.01 Paints islands, light poles and other equipment C9.02 Installs signage C9.03 Identifies tank contents and size C9.04 Identifies pumps and dispensers</p>	<ul style="list-style-type: none"> <li>- Knowledge of lubricant use</li> <li>- Knowledge of pump/dispenser operation</li> <li>- Knowledge of SERM/Fire Marshall requirements</li> <li>- Knowledge of company policies, procedures</li> <li>- Knowledge of testing methods</li> <li>- Ability to interpret test results (e.g. hydrostatic, pneumatic, etc.)</li> <li>- Ability to operate test equipment</li> <li>- Knowledge of paint characteristics</li> <li>- Ability to install decals</li> <li>- Knowledge of branding panels</li> <li>- Ability to operate electric tools</li> <li>- Knowledge of fastening systems</li> <li>- Knowledge of blueprint/ code requirement</li> <li>- Ability to prepare and paint surfaces</li> </ul>
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D. Piping Installation	D1. Prepares pipe trenches	D1.01 Lays out trench D1.02 Excavate trench D1.03 Beds trench	- Knowledge of excavating equipment
	D2. Installs catch basin piping	D2.01 Lays out pipe D2.02 Joins pipe	Knowledge of piping practices - Ability to join all appropriate pipe - Knowledge of OEM training
	D3 Installs tank fittings	D3.01 Installs fill pipe assembly D3.02 Installs suction valve assembly D3.03 Installs tank vent assembly D3.04 Install accessory fittings D3.05 Install pressure pumping system	- Ability to grade piping - Knowledge of piping procedure - Ability to install piping systems
	D4. Installs piping to pump or dispenser	D4.01 Lays out pipe D4.02 Installs pipe from tank to shear point	- Ability to install piping systems – PVC, triple wall, flexpipe - Knowledge of connector types

E. Decommissioning	D5. Installs vent rack piping	D5.01 Lays out pipe D5.02 Installs pipe from tank to vent rack	<ul style="list-style-type: none"> <li>- Knowledge of pipefitting</li> <li>- Knowledge of SERM code</li> <li>- Ability to install piping systems/manifolds</li> </ul>
	D6 Installs above ground piping	D6.01 Lays out piping D6.02 Cuts and assembles threaded piping D6.03 Prepares pipe for welding	<ul style="list-style-type: none"> <li>-Knowledge of pipefitting</li> <li>-Ability to operate threading machine</li> <li>-Ability to use angle grinder</li> <li>-Ability to use chop saw</li> <li>-Knowledge of B31.3 code (welded piping)</li> </ul>
	D7. Tests piping systems (double wall, primary and Secondary)	D7.01 Prepares system for test D7.02 Test system	<ul style="list-style-type: none"> <li>-Knowledge of test procedures</li> <li>-Ability to perform test</li> </ul>
	E1. Prepares to remove underground tanks and piping	E1.01 Removes check valves E1.02 Removes pumps/dispensers and shear valves E1.03 Dips tank to establish remaining inventory E1.04 Removes all inventories to the lowest level E1.05 Gasfrees tank E1.06 Removes dykes	<ul style="list-style-type: none"> <li>- Knowledge of system operations</li> <li>- Ability to operate pumping systems</li> <li>- Knowledge of static bonding and Ohm meter use</li> <li>- Ability to calculate volumes</li> <li>- Knowledge of SERM/code</li> <li>-Ability to gasfree tanks</li> </ul>

	<p>E2. Excavates tanks from ground</p>	<p>E2.01 Removes all overburden, asphalt and concrete from above tank                  E2.02 Disconnects piping from vents and islands                  E2.03 Removes piping from ground                  E2.04 Removes backfill from alongside tanks                  E 2.05 Checks interior of tanks to insure they are still gasfree</p>	<p>-Knowledge of crane signals                  -Ability to attach slings and cables                  -Knowledge of excavating equipment                  -Knowledge of electronic monitoring                  -Knowledge of tank destruction methods                  -Knowledge of confined entry procedures                  -Ability to operate bob-cat</p>
	<p>E3 Tests underground excavation</p>	<p>E3.01 Checks excavation for oxygen levels and explosive limits                  E3.02 Takes soil samples                  E3.03 Notifies owner if contamination exists                  E3.04 Produces drawing of site</p>	<p>-Ability to use electronic monitors                  -Knowledge of sampling procedures                  -Knowledge of confined entry procedures                  -Knowledge of SERM requirements</p>
	<p>E4 Prepare above ground tanks</p>	<p>E4.01 Checks inventory                  E4.02 Removes manholes                  E4.03 Removes remaining inventory                  E4.04 Drains and</p>	<p>-Ability to draw site plan                  -Ability to use electronic explosion monitors                  -Knowledge of confined entry</p>

<p>F. Closure</p>	<p>E5 Removes above ground tanks</p> <p>E6 Disposes of tanks</p> <p>F1 Closes site</p>	<p>disconnects piping and valves</p> <p>E4.05 Removes access/inspection equipment</p> <p>E4.06 Gasfree tanks</p> <p>E4.07 Removes dyke</p> <p>E5.01 Lifts tank by lugs and removes from dyke area</p> <p>E5.02 Inspects area below tank</p> <p>E6.01 Ensures tank is gasfree</p> <p>E6.02 Arranges for tank inspection to determine remaining life</p> <p>E6.03 Destroys tank by mechanical or oxy-fuel cutting</p> <p>F1.01 Contacts all sub-contractors for as-built information</p> <p>F1.02 Completes as-built</p>	<p>procedures</p> <ul style="list-style-type: none"> <li>-Ability to use hand tools</li> <li>-Ability to use product transfer equipment</li> <li>-Knowledge of safe work procedures and permits</li> <li>-Knowledge of gasfreeing procedures</li> <li>-Ability to operate bob-cat</li> <li>-Knowledge of crane/excavation equipment lifting procedures</li> <li>-Ability to use slings and cables</li> <li>-Ability to use electronic monitors</li> <li>-Ability to work at heights</li> <li>-Knowledge of testing equipment</li> <li>-Ability to operate test equipment</li> <li>-Ability to operate nibbler</li> <li>-Ability to operate oxy-fuel equipment</li> <li>-Ability to complete reports</li> <li>-Ability to perform basic drafting</li> </ul>
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	<p>F2 Decommissions site</p>	<p>drawings                      F1.03 Provides all warranty, operating and maintenance manuals to owner                      F1.04 Submits all information to owner                      F1.05 Removes all barricades and safety signage                        F2.01 Submits a closure report</p>	<p>-Knowledge of SERM requirements                      -Ability to make site drawings</p>