

**U5 - ABOVEGROUND STORAGE TANK SYSTEM INSTALLATION/RETROFITTING
JOB TASK ANALYSIS & EXAMINATION OUTLINE**

1-1/2 Hours, Closed Book

Approximate % of 70 Questions

01 PRE-INSTALLATION PLANNING (Content Area)		12%
0101	<u>Permits</u> (Task) Notify the appropriate authority, submit plans for approval including tank configuration, type and use of tanks, location and occupancy. Obtain required permits for installation of the AST system and comply with all local, state and federal regulations..	3%
0102	<u>Property Clearances</u> (Task) Determine location and necessary set-back and clearances to structures, property lines, utilities and right-of-ways.	3%
0103	<u>System Layout</u> (Task) Verify correct layout and configuration for tanks, piping, related equipment, traffic flow and physical protection.	3%
0104	<u>Hazardous (Classified) Areas</u> (Task) Identify classified areas. Verify that electrical components which are to be used or installed in classified areas are approved for the purpose.	3%
02 FOUNDATIONS, SUPPORT, AND PROTECTION (Content Area)		6%
0201	<u>Soil and Site Conditions</u> (Task) Verify site soil conditions are suitable for the installation. Review soil stability and structure necessary for foundation design.	2%
0202	<u>Tank Support</u> (Task) Verify that base preparation for tanks and tank supports are appropriate to the installation. Verify the structural integrity of field-constructed tank supports. Verify that tank supports have a minimum fire rating when required.	2%
0203	<u>Physical Protection</u> (Task) Verify that tanks are protected in locations subject to flooding, in seismic or high-wind zones, from vandalism and accidental damage by bollards, concrete wheel stops, fencing or other barriers.	2%
03 (KSA) SECONDARY CONTAINMENT (Content Area)		10%
0301	<u>Integral Tank and Pipe Secondary Containment</u> (Task) When integral tank secondary containment is used or required, verify proper installation. When secondary containment of piping is used or required, verify proper installation.	2%
0302	<u>Dike Construction</u> (Task) Verify proper design, sizing, and construction of dikes, including installation of impervious barriers and drainage control.	4%
0303	<u>Vaults and Special Enclosures</u> (Task) Verify proper above or below ground vault construction, including waterproofing and drainage when required.	2%
0304	<u>Leak Detection Monitoring Systems</u> (Task) Verify proper installation of leak detection equipment.	2%
04 (KSA) TANKS AND EQUIPMENT (Content Area)		16%
0401	<u>Tank Approvals and Materials</u> (Task) Verify that new tanks are listed and labeled as required by nationally recognized standards, and are approved for the intended purpose. Verify that all equipment is as specified, undamaged and meets minimum requirements for strength, compatibility and durability.	2%

0402	<u>Tank Unloading</u> (Task)	2%
	Unload tank on site using proper procedures to avoid tank damage, chalking tank to prevent movement. Verify that tanks are lifted using tank lifting lugs when required.	
0403	<u>Tank Testing and Gauges</u> (Task)	2%
	Conduct tank test and inspection on new or retrofit installations. Verify that gauges are properly installed and calibrated.	
0404	<u>Tank Overfill Protection and Spill Containment</u> (Task)	2%
	Verify selection and installation of tank overfill protection and spill containment as required.	
0405	<u>Tank Fill Lines, Devices and Connections</u> (Task)	2%
	Verify proper installation of tank fill lines, connectors and other devices.	
0406	<u>Alarm Systems and Signs</u> (Task)	2%
	Verify installation of alarms including overfill, automatic fire detection or others as required. Verify that all required signs are properly installed.	
0407	<u>Tank Corrosion Protection</u> (Task)	2%
	Verify that corrosion protection systems are installed properly and not damaged.	
0408	<u>System Retrofitting</u> (Task)	2%
	Verify suitability for continued or change of service and that existing systems are functioning properly including the repair/replacement of system gaskets, tank relining or other alterations.	

05 (KSA) PUMPS AND VALVES (Content Area) 21%

0501	<u>Pumping Systems</u> (Task)	3%
	Verify proper installation of suction, pressurized, return and other pumping systems and electrical controls.	
0502	<u>Fire Valves</u> (Task)	3%
	Verify that approved fire valves are provided where required and correctly installed.	
0503	<u>Anti-Siphon Valves</u> (Task)	3%
	Verify that approved anti-siphon valves are provided where required and correctly installed.	
0504	<u>Pressure Relief Valves</u> (Task)	3%
	Verify that approved pressure relief valves are provided where required and correctly installed.	
0505	<u>Other Valves</u> (Task)	3%
	Verify that other valves are provided where required and correctly installed. Valves which may be required include: block valves; pressure regulating valves; check valves; water draw-off valves; solenoid valves; fill limiting valves; shear valves and emergency break-away valves.	
0506	<u>Dispensers and nozzles</u> (Task)	3%
	Verify that dispensers are installed properly.	
0507	<u>Emergency Shut-Off</u> (Task)	3%
	Verify that emergency shut-off switch is installed where required.	

06 (KSA) PIPING SYSTEMS (Content Area) 21%

0601	<u>Product Pipe Installation</u> (Task)	3%
	Verify correct installation of tank suction lines, fiberglass and flexible piping, fittings, valves and pressurized piping including leak detection.	
0602	<u>Gravity-Flow Systems</u> (Task)	3%
	Install equipment which is required for gravity-flow systems.	
0603	<u>Atmospheric Vent Piping</u> (Task)	3%
	Verify correct sizing and installation of tank vent piping.	
0604	<u>Emergency Vent System</u> (Task)	3%
	Verify that emergency vents are provided and that vent pipe size is adequate.	
0605	<u>Piping System Corrosion Protection</u> (Task)	3%
	Verify that corrosion protection systems are installed properly and not damaged.	
0606	<u>Vapor Recovery</u> (Task)	3%
	Verify correct installation of Stage I and/or Stage II vapor recovery system when required.	
0607	<u>Testing of Piping Systems</u> (Task)	3%
	Conduct pressure test on pipe.	

07 (KSA) HEALTH AND SAFETY (Content Area)		14%
0701	<u>Control of Vapors and Sources of Ignition</u> (Task) Identify and control concentrations of flammable or combustible vapors before repairing, decommissioning or tank and pipe tightness testing. Use breathing support devices when necessary. Remove sources of ignition.	3%
0702	<u>Excavation Safety</u> (Task) When working around excavations, verify that excavation walls are sloped properly for soil conditions, that excavations provide adequate space for workers and means of exit and that excavations are properly fenced or barricaded for protection of the public.	2%
0703	<u>Grounding & Bonding of Tank and Equipment</u> (Task) Verify grounding of tank and equipment to minimize the possibility of sparks from static electricity or other differences in electrical potential.	2%
0704	<u>Personal Safety and Personal Safety Equipment</u> (Task) Observe safety precautions and use personal safety equipment necessary for the work, including the use of protective clothing, safety lines and other recommended equipment. Verify that appropriate explosion-proof tools and equipment are used when explosive vapors are possible.	3%
0705	<u>Health and Safety Regulations</u> (Task) Prepare and post a site safety plan when required by applicable OSHA and state health and safety regulations. Verify that the site safety plan identifies potential hazards and describes safety requirements, emergency procedures and other relevant information. Coordinate safety planning with contractor and others responsible for safety planning.	2%
0706	<u>Tank Purging, Inerting and Cleaning</u> (Task) When retrofitting systems, verify that product and any free liquid is removed from the tank and piping. Verify that hazardous vapors are removed from tank. Reduce the level of oxygen concentration in the tank needed to support combustion. Verify proper cleaning of tanks and piping. Verify that all removed waste is disposed of properly.	2%