



POLLUTANT STORAGE CONTRACTORS GENERAL TRADE KNOWLEDGE EXAMINATION CONTENT INFORMATION

Revised March 2009

The General Trade Knowledge examination will be administered in one session on the morning of the first day of the examination administration. It will consist of 80 equally weighted questions.

The examination will have questions relating to the following content areas and necessary knowledge for each area includes:

- reading and interpreting plans and specifications
- reading and interpreting codes
- basic mathematics (addition, subtraction, multiplication, division, calculations of area and volume, fractions, decimals, percentages, calculating the sides of triangles, square roots, powers of numbers, and solving simple algebraic equations for unknown variables)

You should be prepared to respond to examination questions on any of the content areas listed. Questions asked and content areas tested on previous examinations should not be assumed to be the only possible questions to be asked or content areas to be tested on this examination.

The percentage of questions shown for each content area may vary by as much as plus or minus three (3) percent. Please refer to the Candidate Information Brochure and the Reference List for additional information.

Content Area A **7%** **Pre-Installation and Site Preparation**

1. Drawing plans

- knowledge of symbols
- knowledge of abbreviations
- knowledge of terminology
- knowledge of site dimensions
- knowledge of scale dimensions
- knowledge of soil types

2. Performing a pre-installation inspection and test of all tanks

- knowledge of checking for required parts of tank
- ability to check for holes, dents, and scrapes on tanks
- knowledge of low pressure air-testing

3. Determining location of excavations

- knowledge of invert elevations
- knowledge of basic surveying and layout

4. Determining burial depths and slopes

- knowledge of excavation
- knowledge of surveying/leveling techniques
- ability to determine the need for shoring based on soil type

5. Determining ground water conditions

- knowledge of procedures for high water (dewatering)

Content Area B **5%** **Material Handling**

1. Handling and filling tanks with various forms of petroleum products

- knowledge of spillage
- knowledge of cleanup
- knowledge of safety precautions
- knowledge of State and Federal transportation laws relating to dangerous substances
- knowledge of filling attachments

2. Handling and filling tanks with pesticides

- knowledge of spillage
- knowledge of cleanup
- knowledge of safety requirements
- knowledge of attachments
- knowledge of meters

3. Handling and filling tanks with ammonia

- knowledge of spillage
- knowledge of cleanup
- knowledge of safety requirements
- knowledge of attachments
- knowledge of meters

4. Handling and filling tanks with chlorine

knowledge of spillage
knowledge of cleanup
knowledge of safety requirements

5. Handling and filling tanks with other industrial chemicals

knowledge of spillage
knowledge of cleanup
knowledge of safety precautions
knowledge of attachments
knowledge of meters

**Content Area C
Excavating**

10%

1. Coordinating and directing soil preparation and testing soil and ground water for petroleum products

knowledge of surveying requirements
knowledge of backhoes
knowledge of trenchers
knowledge of cranes and rigging
knowledge of soils
knowledge of identifying polluted soils
knowledge of where to take soil samples
knowledge of compaction tests
knowledge of leveling requirements
knowledge of removal of debris from excavation
knowledge of bedding
knowledge of backfill materials
knowledge of chocks
knowledge of foreign materials left in tank and piping excavations

2. Performing dewatering

knowledge of pump requirements
knowledge of soils
knowledge of permeation
knowledge of supports and anchorage

3. Installing sheet pilings

knowledge of proper materials
knowledge of supports and placements
knowledge of soils
knowledge of layout (tank dimensions, distances from cofferdam walls for safe tank installation)
knowledge of "wet hole" tank installation method
knowledge of trenching and excavations
knowledge of requirements to have an engineer approve plans for sites beyond certain depths

4. Securing excavation sites

knowledge of OSHA

**Content Area D
Supports and Anchorage**

7%

1. Installing deadmen anchors

knowledge of concrete form work
knowledge of reinforcing steel
knowledge of form work
knowledge of cables and hold-down straps

2. Installing hold-down pads

knowledge of concrete form work
knowledge of reinforcing steel
knowledge of properties of concrete including proper mixing
knowledge of placement
knowledge of drying time
knowledge of cables and hold-down straps

3. Installing reinforcing concrete

knowledge of concrete
knowledge of rebar
knowledge of requirements for slabs given anticipated load and use

4. Performing backfill compaction

knowledge of moisture tests
knowledge of tampers and compactors
knowledge of levels and surveying equipment

5. Checking for required surface elevation

knowledge of surveying equipment and levels

6. Installing concrete isolation and contraction joints

knowledge of properties of concrete
knowledge of when joints are needed
knowledge of form work

**Content Area E
Backfill**

10%

1. Adding ballast

knowledge of when to add ballast
knowledge of level of ballast
knowledge of partial filling

- 2. Installing backfill materials for tanks**
 knowledge of appropriate backfill material
 knowledge of removal of debris
 knowledge of ballasting
 knowledge of backfill material
 knowledge of backfill for nonmetallic tanks
 knowledge of pea gravel
 knowledge of crushed rock or gravel
 knowledge of compaction
 - 3. Measuring tank deflection**
 knowledge of determining deflection
 knowledge of causes of deflection
 knowledge of limit of acceptable maximum deflection
 - 4. Installing filter fabric and other backfill migration preventers**
 knowledge of installation requirements
 knowledge of determining unstable soils
 knowledge of determining appropriate fabrics
- Content Area F** **12%**
Tank Installation
- 1. Unloading, lifting and lowering tanks**
 knowledge of lining requirements
 knowledge of cables and chains
 knowledge of spreader bars
 knowledge of hoisting equipment and sufficient capacity
 knowledge of proper storage
 - 2. Installing cathodically protected steel tanks**
 knowledge of corrosion
 (dissimilar metals)
 knowledge of pressure testing requirements
 knowledge of pressure relief devices
 knowledge of gauges
 knowledge of potential damage to tank
 knowledge of thread protectors
 knowledge of plugs
 - 3. Installing fiber-reinforced plastic tanks**
 knowledge of hazards and potential damage
 knowledge of inspections
 knowledge of appropriate backfill materials
 knowledge of appropriate placement for multiple tanks in one excavation

- 4. Installing fiberglass-clad steel tanks**
 knowledge of hazards and potential damage
 knowledge of inspections
 knowledge of appropriate backfill materials
- 5. Installing double wall steel tanks**
 knowledge of hazards and potential damage
 knowledge of inspections
 knowledge of appropriate backfill materials
- 6. Installing double wall fiberglass tanks**
 knowledge of hazards and potential damage
 knowledge of inspections
 knowledge of appropriate backfill materials
- 7. Pressure testing tanks**
 knowledge of air pressure requirements
 knowledge of leak detection
 knowledge of plugs
 knowledge of removing and disposing of thread protectors
 knowledge of hazards and potential damage to tank while testing
 knowledge of pressure gauges
 knowledge of pressure relief devices
 knowledge of results of over-pressurization
 knowledge of compressors
- 8. Pressurizing interstice (annular space between tank walls)**
 knowledge of compressors
 knowledge of using two gauges
 knowledge of leak detection
 knowledge of result of pressurizing
 knowledge of vacuum gauges
- 9. Installing emergency generator tanks**
 knowledge of piping
 knowledge of valves
 knowledge of transfer pumps
 knowledge of day tanks
 knowledge of float switches

Content Area G
Piping, Valves and Fittings

14%

1. Laying out and constructing trenches

knowledge of trenches
knowledge of backhoes
knowledge of pipe layout
knowledge of appropriate widths for different pipes
knowledge of surveying techniques and requirements

2. Laying out pipes, valves, fittings and related components

knowledge of types of equipment
knowledge of when to use equipment
knowledge of variation in equipment
knowledge of swing joints
knowledge of elbows
knowledge of nipples
knowledge of properties of equipment (corrosive resistance)

3. Compacting soil around piping

knowledge of soil testing requirements
knowledge of depth requirements
knowledge of compaction equipment
knowledge of correct moisture content
knowledge of percent compaction

4. Determining appropriate pipe sealant

knowledge of types of sealants
knowledge of conditions for applications
knowledge of preparation
knowledge of application requirements
knowledge of drying requirements

5. Complying with piping plans and specs

knowledge of symbols
knowledge of abbreviations
knowledge of terminology
knowledge of site dimensioning

6. Installing submersible pumps and leak detectors

knowledge of types of pumps
knowledge of capacity of pumps
knowledge of installation requirements

7. Performing a tightness test for pipes

knowledge of compressors
knowledge of operating pressures systems
knowledge of soaping
knowledge of hydrostatic testing
knowledge of reading pressure gauges
knowledge of pipe fitting

8. Determining product and vent pipe slopes

knowledge of vapor and liquid traps
knowledge of surveying instruments and levels

9. Installing double-walled and flexible piping

knowledge of sealant requirements
knowledge of tightness testing
knowledge of trenching
knowledge of bedding requirements
knowledge of sizing pipes
knowledge of level and surveying requirements

10. Installing fiberglass piping

knowledge of trenching
knowledge of appropriate sizes of trenches
knowledge of tightness testing bedding
knowledge of sealants
knowledge of backfilling
knowledge of compaction
knowledge of levels and surveying

11. Installing dispensers and pumps

knowledge of fittings
knowledge of valves
knowledge of types of valves

12. Installing shear and anchor valves and properly anchoring

knowledge of types of anchors and when to use
knowledge of alignment of anchors
knowledge of concrete
knowledge of anchor bolts
knowledge of reinforcing requirements
knowledge of thrust blocks

13. Determining size and capacity of vents

knowledge of vent sizing
knowledge of vent requirements

Content Area H 5%
Above Tank Covering

- 1. Covering tanks with asphalt or concrete**
 - knowledge of site preparation
 - knowledge of concrete mixture requirements
 - knowledge of proper conditions for installing concrete
 - knowledge of asphalt (properties, application, and site preparation)
 - knowledge of finishing
 - knowledge of reinforcing
- 2. Calculating support and buoyancy counteraction**
 - knowledge of soil conditions
 - knowledge of determining depth of burial - from top of tank to finished grade
 - knowledge of weight of materials
 - knowledge of calculating reflected tank area
 - knowledge of determining space occupied by materials and tank

Content Area I 10%
Leak Detection

- 1. Installing continuous monitoring systems**
 - knowledge of gauging systems
 - knowledge of interstice monitoring
 - knowledge of line pressure monitoring
 - knowledge of observation venting
- 2. Maintaining tank and trench geotextile liners**
 - knowledge of proper installation
 - knowledge of penetration fittings
 - knowledge of adhesive materials
 - knowledge of backfill materials
 - knowledge of sub-base requirements
 - knowledge of layout
 - knowledge of compacting
 - knowledge of seaming liner pieces
- 3. Installing overfill protection devices**
 - knowledge of fill pipe enclosure
 - knowledge of vent float valve
 - knowledge of inventory control procedures
 - knowledge of "outage charts"
 - knowledge of restricted venting

- 4. Installing gauging systems**
 - knowledge of appropriate types of valves
 - knowledge of fittings and components
 - knowledge of air gauges
- 5. Installing interstice monitoring**
 - knowledge of types of sensors
 - knowledge of monitoring liquid reservoir and riser
 - knowledge of manual testing of interstice
- 6. Installing line pressure monitoring systems**
 - knowledge of submersible pumps
 - knowledge of piping and corrosion control requirements
- 7. Understanding requirements for monitoring wells**
 - knowledge of who can install them (well driller)
 - knowledge of appropriate construction methods
 - knowledge of proper abandonment of monitoring wells
- 8. Developing ground water monitoring plans**
 - knowledge of D.E.P. plan approval process
- 9. Performing tank and line tests**
 - knowledge of manufacturer's equipment
 - knowledge of manufacturer's procedures
 - knowledge of complete and partial full test
 - knowledge of air in line and purging
 - knowledge of isolation points, sub pumps, and shear valves
 - knowledge of proper testing equipment

Content Area J 5%
Cathodic Protection Systems

- 1. Maintaining and repairing cathodic protection systems**
knowledge of what is required
knowledge of when it is required
- 2. Maintaining and repairing pre-engineered protection systems**
knowledge of when it is needed
knowledge of how to install it
- 3. Using dielectric fittings**
knowledge of product compatibility
knowledge of operating or test pressures
- 4. Using galvanic anodes**
knowledge of when they are needed
knowledge of how to install them
- 5. Maintaining and repairing impressed current systems**
knowledge of when they are needed
knowledge of how to install them
- 6. Using field-applied coatings**
knowledge of when it is needed
knowledge of how to apply them
- 7. Inspecting anodes and cathodic protection systems**
knowledge of proper testing authority and methods
knowledge of monthly and yearly inspections of monitors
- 8. Maintaining metal cathodic protected pipes**
knowledge of trenching
knowledge of bedding
knowledge of tightness testing
knowledge of sealants
knowledge of appropriate sizes
knowledge of levels and surveying equipment

Content Area K 10%
Tank Removal and Abandonment

- 1. Testing soil and water for adequate pollutant removal**
knowledge of where to take sample and size of sample required
knowledge of filling tanks with inert solids
- 2. Disconnecting equipment and piping**
knowledge of safety requirements
knowledge of excavation
- 3. Testing for adequate removal of pollutant materials in tanks and lines**
knowledge of safety requirements
knowledge of how and when to test
- 4. Removing tanks**
knowledge of excavation
knowledge of cranes, hoists and rigging
knowledge of transportation requirements
- 5. Filling tanks with an inert solid**
knowledge of acceptable fill materials
knowledge of eliminating voids when filling
- 6. Disposing of pollutants**
knowledge of local, State, and Federal laws and regulations relating to transportation and disposal
knowledge of excavation and backfill
knowledge of soil testing
- 7. Cutting and cleaning tanks**
knowledge of testing equipment (how and when to use)
knowledge of safety requirements
knowledge of confined space entry
knowledge of methods for cutting
- 8. Methods for disposing of tanks**
knowledge of transporting tanks
knowledge of cutting methods

**Content Area L
Equipment**

5%

1. Using personal protection equipment

knowledge of OSHA guidelines
knowledge of when to use
knowledge of type to use

2. Installing warning signs and barricades

knowledge of Florida Dept. of Transportation
guidelines
knowledge of Federal transportation guidelines
knowledge of warning sign requirements
knowledge of regulatory signs
knowledge of warning sign requirements
knowledge of barricades and channel devices
and requirements
knowledge of marking requirements
knowledge of lighting devices
knowledge of control of traffic through work
areas
knowledge of expressways and limited access
facilities

3. Wearing eye and face protection

knowledge of OSHA guidelines

4. Using respiratory protection

knowledge of toxic fumes
knowledge of when and how to use

5. Digging with backhoes, trenchers and tractors

knowledge of lifting capacities
knowledge of safety requirements
knowledge of road requirements

6. Using overhead hoists and cranes

knowledge of lifting capacities
knowledge of rigging requirements

7. Ensuring adequate ventilation

knowledge of safety requirements
knowledge of when necessary

8. Using chlorine and hydrocarbon gas leak detection devices

knowledge of when and how to use