SECTION 629 PETROLEUM STORAGE TANK CLOSURE

I. GENERAL
Petroleum storage tank closure involves emptying, purging/inerting, cleaning, removal and disposal of petroleum storage tanks; potential removal of contaminated soil; endpoint sample collection and analysis (if determined to be necessary); proper documentation of the work; and the submission of a tank closure report to NYSDEC. Incomplete tank closure often results in additional work and expense, particularly when closure must be obtained well after construction has been complete.

If a previously-unreported petroleum spill is discovered during construction, the contractor shall call the NYSDEC Spills Hotline (1-800-457-7362) within two hours of discovery of the spill.

II. SAFETY AND HEALTH
29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, (HAZWOPER) requires that all persons directly involved in tank closure activities have 40-hour HAZWOPER training, updated annually with an 8-hour refresher, and at least one person on site is required to have supervisor training as per 29 CFR 1910.120(E)(4). Tank closure activities require a Project Safety and Health Plan (PSHP) that complies with both §107-05B. and 29 CFR 1910.120(b)(4).

III. MONITORING:
All tank closures will involve tank atmosphere monitoring. The atmosphere in the tank must be continually monitored for levels of explosive gas and oxygen. If contaminated soil is present; there is a potential for nuisance petroleum odors; or if the work is being performed in close proximity to residences, schools, or other sensitive receptors the work requires field organic vapor monitoring in accordance with §205-3.03.

IV. TANK PURGING/INERTING
The atmosphere within the tank must be made inert (incapable of supporting combustion); otherwise the possibility of a violent explosion exists. The tank may be made inert by removing the fuel and/or oxygen sides of the “fire triangle” (Fig. 1, above). The third side (ignition source) should be minimized to the greatest extent possible before tank removal work can begin. Fuel vapors and oxygen are to be purged out of the tank by using dry ice, carbon dioxide or nitrogen. Positive ventilation is another option available to the contractor, providing that the engineer has given prior written approval. The positive ventilation option can be dangerous if it is performed improperly, and is not suited for dense urban areas.

When purging/inerting the tank, it is imperative that the tank’s vents be positioned at the top of the tank (the “12 o’clock position”). If the vents are not located at the 12 o’clock position, the portion of the tank located above the vents may contain an explosive atmosphere, even after purging/inerting has been performed.
V. ENDPOINT SAMPLE COLLECTION/LABORATORY ANALYSIS

Endpoint samples from the sidewalls and base of the tank pit are generally necessary in order to confirm the presence or absence of contamination from the tank, to confirm that contaminated soils have been satisfactorily removed, or to document the level of contamination that was left in place (e.g., because contamination extended beyond the limits of State-owned ROW, beyond project limits, because of structural concerns, etc.) Samples should not be collected until the intended limits of excavation have been reached.

Safety is paramount in the collection of endpoint samples. Sample collectors must exercise caution when entering the tank pit (which requires the Engineer's authorization) or when standing next to the tank pit to collect samples with a shovel. The preferred method for collecting Endpoint samples is to direct the backhoe/excavator operator to pull soil from the sample location, place the bucket so that it rests on the ground, and allow the collector to sample from soil within the bucket.

In order to select the appropriate laboratory analyses for endpoint samples, the current/former tank contents must be determined. To the extent practical, this determination should be made during design and the appropriate analyses should be specified in the contract documents. In instances when the appropriate analyses have not been determined during design, a determination can be made in the field, preferably through consultation with on-site NYSDEC personnel. If NYSDEC personnel are not present, the endpoint samples should be analyzed according to the #2 fuel oil/diesel tank parameters.

Samples should be collected into laboratory provided glassware using dedicated latex or nitrile gloves to prevent cross contamination. After the sample jars are sealed, they should be placed into re-sealable plastic bags, keeping samples exhibiting signs of obvious contamination in separate bags from those exhibiting no signs of contamination. The samples should then be stored in a cooler with ice and delivered to a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory in accordance with sample hold-times and laboratory chain of custody procedures. Obtain a copy of the completed chain-of-custody form before the samples are taken off-site for delivery to the laboratory.

VI. NOTIFICATION OF NYSDEC

NYSDEC field personnel are often able to provide advice as to whether or not endpoint samples are necessary, or when significantly contaminated soil has been satisfactorily removed; therefore, every reasonable effort should be made to encourage NYSDEC to be on-site during tank removal activities. Appropriate NYSDEC personnel should be notified at least thirty (30) days prior to tank closure activities. For instances where tanks that are not identified during the design process are discovered during construction, NYSDEC should be called as soon as possible after discovery of the tank(s).

VII. DOCUMENTATION

All tank closure activities must be documented in order to demonstrate that the tank closure was conducted properly, and that all essential components of tank closure were performed. Complete a Tank Closure Form for each tank that is encountered during construction, and photograph each stage of closure activities. For each tank that is closed, the Department will submit a completed tank closure form, photographs, copies of analytical results, and documentation detailing the disposition of any removed tanks and contaminated soil to NYSDEC in order to obtain "official closure." Incomplete documentation may result in additional work being required to obtain official closure and cause significant construction delays.

VIII. BACKFILLING

A significant portion of documentation activities require the tank pit to be open, therefore it is critical that the Engineer authorizes backfilling of the tank pit only after those documentation activities have been completed.

EXHIBITS

A Sample Tank Closure Form
TANK CLOSURE FORM

CONTRACT INFORMATION

D #: D123456  Contractor Name: I. M. Builder

Site Address: 798 Route 123

City/Town: Albany  County: ALBANY

TANK INFORMATION

Tank #: 001

Depth to Top of Tank: 4.0 Feet

Depth to Invert (bottom) of tank: 10.0 Feet

Tank Capacity: 5,000 Gallons

Tank Type: □ Steel  X Fiberglass - Reinforced Plastic  □ Other

Product: □ Gasoline □ #2 Fuel Oil / Diesel □ Waste Oil □ Other

Volume of Product Removed from Tank: 300 Gallons

Volume of Water Removed from Tank: 700 Gallons

Liquid Disposal Facility: Liquids R Us, Troy, NY

Condition of Tank: □ Sound □ Corroded / Damaged but Intact  X Not Intact

Method used to inert Tank: □ Dry Ice □ CO₂ Gas □ N₂ Gas □ Positive Ventilation

Make / Model of Explosion Meter / CGI Used: Rae Systems Q Rae Plus Oxygen Meter / CGI

Make / Model of O₂ Meter Used: Rae Systems Q Rae Plus Oxygen Meter / CGI

Inspector's Signature:  Date Prepared: December 08, 2008
TANK CLOSURE FORM

REMOVAL INFORMATION

Was there a Leak / Spill?  [X] Yes  [ ] No

If Yes, Provide NYSDEC Spill #:  0812345

If Yes, How Much Soil was Removed?:  250  [X] CY  [ ] Ton

Soil Disposal Facility:  The Dirt Merchant, Schenectady, NY

Was Groundwater (GW) Encountered?  [X] Yes  [ ] No

If Yes, Provide Depth to GW:  7.0  Feet

If Yes, and There Was a Spill / Leak, Did Groundwater Appear Contaminated?:  [X] Yes  [ ] No

Were NYSDEC Personnel On-Site During Tank Closure?:  [X] Yes  [ ] No

Name(s) of NYSDEC Field Personnel:  ______________________  Tom Conservation

Were Endpoint Samples Collected?:  [X] Yes  [ ] No

Analytical Parameters Requested (Check All That Apply):

- [X] VOCs (8021 STARS List)
- [ ] VOCs (8260 Full List)
- [X] PAHs / BNs (8270)
- [ ] SVOCs / BNAs (8270)
- [ ] RCRA Metals
- [ ] PCBs (8082)
- [ ] Other

Laboratory:  ______________________  Retriever Labs

ELAP Certification #:  ______________________  12345

Was Tank Cleaned On Site Prior to Disposal?:  [X] Yes  [ ] No

If No, Name of Permitted Hauler Transporting Tank:

Was Wastewater, Waste Solvent or Other Regulated Waste Generated During Cleaning?:  [X] Yes  [ ] No

If Yes, Disposal Facility:  Liquids R Us, Troy, NY

Ultimate Disposition of Tank:  ______________________  Bob's Scrap Yard, E. Greenbush, NY

(Name of Facility / Firm)