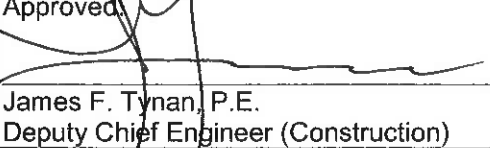


SUPERSEDED BY EB 15-031 EFFECTIVE 9/28/15		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 08-025
Title: STANDARD SPECIFICATIONS SECTION 629 - PETROLEUM STORAGE TANK CLOSURE			
Distribution: ☐ Manufacturers (18) ☒ Local Govt. (31) ☒ Agencies (32)		Approved:  James F. Tynan, P.E. Deputy Chief Engineer (Construction) Date <u>7-22-08</u>	

ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective beginning with projects submitted for the letting of 01/08/09.
- This Issuance does not supersede any other issuance.
- The revisions issued with this EI will be incorporated into a future update of the Standard Specifications.

PURPOSE: This EI issues a new Standard Specification Section 629 – *Petroleum Storage Tank Closure*.

TECHNICAL INFORMATION:

- The current Standard Specification Section 202 does not contain sufficiently detailed requirements for environmental protections and recordkeeping. The new section was developed to include current requirements.
 - This EI is being issued concurrently with EI 08-026 *Design Guidance – Petroleum Storage Tank Closure*.
 - §202-3.04, §202-4.03, and §202-5.04 of the Standard Specifications are deleted.
 The following contract pay item is disapproved:
 - 202.05xx Disposal of Petroleum Storage Tanks (various size ranges)
- The following new contract pay items are approved:
- 629.01 Removal/Disposal of Liquids
 - 629.02xx Tank Closure (various size ranges)
 - 629.03 Endpoint Sample Collection and Analysis
- There are no anticipated cost impacts due to the revised specifications.

IMPLEMENTATION: Main Office Design Quality Assurance Bureau will insert the attached standard specification shelf note into contract proposals beginning with projects submitted for the letting of 01/08/09.

TRANSMITTED MATERIALS: This EI transmits a standard specification shelf note for Section 629 *Petroleum Storage Tank Closure*. Both Metric and U.S. Customary shelf notes are attached.

CONTACT: Direct questions regarding this issuance to Carl Kochersberger via email at ckochersberger@dot.state.ny.us or at (518) 485-9161, or to the Hazardous Waste/Groundwater Section of the Environmental Science Bureau (ESB), Office of Environment, at (518) 457-5672.

PETROLEUM STORAGE TANK CLOSURE

Make the following changes to the Standard Specifications dated May 4, 2006:

Page 151 **Delete** §202-3.04 and **Replace** it with the following:
202-3.04 (Vacant)

Page 154 **Delete** §202-4.03 and **Replace** it with the following:
202-4.03 (Vacant)

Page 155 **Delete** §202-5.04 and **Replace** it with the following:
202-5.04 (Vacant)

Page 155 **Delete** contract pay item:
202.05xx Disposal of Petroleum Storage Tanks (various size ranges) Each

Page 596 **Delete** the current Section 629 (Vacant) and **Replace** it with the following:

SECTION 629 – PETROLEUM STORAGE TANK CLOSURE

629-1 DESCRIPTION

629-1.01 General. This work shall consist of emptying, purging/inerting, cleaning, removing, and disposing of petroleum storage tanks; endpoint sample collection and analysis; and proper documentation of the work in accordance with the contract documents and as directed by the Engineer.

629-2 MATERIALS (Not Specified)

629-3 CONSTRUCTION DETAILS

629-3.01 General. All petroleum storage tanks shall be closed in accordance with the requirements of the NYS Department of Environmental Conservation (NYSDEC), as well as local fire and police agencies. NYSDEC shall be notified prior to the initiation of tank closure activities. For instances where tanks that have not been identified during the design process are discovered during construction, NYSDEC shall be notified as soon as possible after discovery of the tank(s). If evidence of a petroleum spill that was not previously reported is discovered during construction, the contractor shall call the NYSDEC Spills Hotline at 1 (800) 457-7362, within two hours of discovering the spill.

Excavation shall be performed in accordance with Section 206 *Trench, Culvert and Structure Excavation*. Segregation and stockpiling of contaminated soils shall be performed in accordance with Section 205 *Contaminated Soil*. If specified in the contract documents, or at the request of the Department in instances where tanks are not discovered until after construction has begun, the Contractor shall provide field organic vapor monitoring in accordance with §205-3.03 *Field Organic Vapor Monitoring* in the following instances: 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 Contractor shall provide a schedule for tank closure activities to the Engineer a minimum of 35 calendar days prior to commencing work, except for when previously unidentified tanks are discovered during construction and the work will take place in less than 35 calendar days. In such instances, the Contractor shall notify the Engineer immediately upon discovery of the tank(s). The Department will notify appropriate NYSDEC personnel at least 30 calendar days prior to tank closure activities, except for when previously unidentified tanks are discovered as described above. In such instances, the Department will notify NYSDEC as soon as possible after discovery of the tank(s).

PETROLEUM STORAGE TANK CLOSURE

629-3.02 Removal/Disposal of Liquids from Petroleum Storage Tanks. Before the removal of any tank begins, it shall first be rendered free of product and water. All liquids shall be disposed of in accordance with §107-10 *Managing Surplus Material and Waste*. Product shall be managed with a preference toward recycling or beneficial reuse when such options are available. Liquids shall be transported to the disposal/recycling facility only by appropriately permitted haulers. During the removal operation (including cutting the tank open to remove product, if necessary) the following restrictions shall apply:

1. The work area shall be secured by, at a minimum, erecting a 1.2m construction fence to create an 8m controlled access perimeter around the tank pit and posting signs stating "Authorized Personnel Only" or equivalent. This perimeter shall be maintained until the tank has been disposed of and the tank pit has been backfilled.
2. All open-flame and spark producing equipment within the area shall be shut down.
3. All electrical and internal combustion equipment, unless it is designed to be "explosion proof" or "intrinsically safe", shall be removed from the work area.
4. Only "non-sparking" tools shall be used.
5. Static electricity shall be controlled.
6. Smoking shall be prohibited in the work area.

629-3.03 Petroleum Storage Tank Closure. Tank closures shall consist of all of the following components, unless specifically noted in the contract documents.

A. Project Safety and Health. The Contractor shall ensure that all personnel directly involved in tank closure activities have been trained in conformance with the requirements of 29 CFR 1910.120 and 1926.65 (referred to hereafter as 1910.120). There shall be at least one person on site who has supervisor training as per 29 CFR 1910.120(E)(4) during all tank closure activities. The Project Safety and Health Plan (PSHP) required by §107-05B shall also meet the requirements of 29 CFR 1910.120 (b) (4).

B. Tank Atmosphere Monitoring. The contractor shall use a combustible gas indicator (CGI) or an explosion meter and an oxygen meter to monitor the tank atmosphere.

C. Tank Purging/Inerting. The Contractor shall make the tank atmosphere safe by purging the flammable vapors from the confined space to below 5% of the lower explosive limit (LEL) and, unless positive ventilation is used, the oxygen level is below 7%. Care shall be exercised to ensure that purging/inerting is completed before proceeding with tank cleaning and cutting. The Contractor shall purge/inert the tank atmosphere by using one of the following methods:

1. Dry Ice. The Contractor shall add dry ice (1 kg per 500 liters of tank capacity) into the tank. The dry ice shall be crushed and distributed evenly over the greatest possible area of the tank interior. As the dry ice vaporizes flammable vapors will flow out of the tank, therefore, the Contractor shall observe all safety precautions regarding flammable vapors.

2. Carbon Dioxide. The Contractor shall add carbon dioxide gas directly into the tank to purge flammable vapors. A minimum of one, fully charged, 35 kg cylinder of carbon dioxide gas per 7,500 liters of tank volume shall be used. Care shall be exercised to prevent buildup of any static charge. The nozzle shall be bonded or grounded and the gas introduced slowly to reduce static.

3. Nitrogen. The Contractor shall add nitrogen gas directly into the tank to purge flammable vapors. Vapors within the storage tank must be displaced with an amount of nitrogen gas equal to or greater than the volume of the tank atmosphere. Care shall be exercised to prevent buildup of any static charge. The nozzle shall be bonded or grounded and the gas introduced slowly to reduce static.

PETROLEUM STORAGE TANK CLOSURE

4. Positive Ventilation. With prior written approval from the Engineer, the Contractor may use positive ventilation to purge flammable vapors from a tank using an air eductor. If performed improperly, this can be a very dangerous procedure and is not recommended for on-site purging of flammable vapors especially in high density urban areas.

D. Tank Removal. Regardless of the method selected to purge/inert the tank atmosphere, removal work shall not start until the readings from the CGI or explosion meter indicate that a safe and non-explosive tank atmosphere has been achieved as evidenced by readings less than 5% of the LEL at all elevations within the tank and if dry ice, carbon dioxide, or nitrogen are used to purge/inert the tank, readings from the oxygen meter indicate that an atmosphere of less than 7% oxygen is present throughout the tank. Removal work shall be progressed diligently without interruption until its completion. The CGI or explosion meter shall be used to take subsequent readings continuously as work is progressing. If any reading indicates an atmosphere with greater than 10% of the LEL is present, or the LEL is rising steadily, work shall cease and purging/inerting shall be repeated. Tank-related piping and connecting lines shall either be disconnected and removed or securely capped and plugged.

The tank shall be removed from the tank pit and placed on 0.15 mm, minimum plastic sheeting with the vents aligned at the top of the tank (the 12 o'clock position). The tank shall be blocked or chocked in order to prevent rolling.

Contaminated soil, if present in or around the tank, shall be handled and managed in accordance with provisions found in Section 205 *Contaminated Soil*.

E. Tank Interior Cleaning and Tank Cutting. Immediately after the tank has been removed from the ground and a safe atmosphere is confirmed, the tank shall be cut open with non-sparking equipment. Two large holes shall be made in the tank to allow for cross ventilation. The tank shall then be fully ventilated until the CGI or explosion meter indicates an atmosphere with less than 5% of the LEL and an oxygen concentration between 19.5% and 21.5% is present. All remaining sludge and residue shall be removed by vacuuming, non-flammable solvent washing, or sweeping with dry absorbents. The Contractor shall permit only trained and properly equipped personnel to enter the tank. Permit-required confined space entry procedures in accordance with 29 CFR 1910.120 shall be used for all tank entries. All product, product-soaked sorbents, cleaning solvents, and water generated by the operation, shall be transported by a hauler permitted under 6 NYCRR 364 and, disposed of in accordance with the waste disposal regulations of the receiving state.

In instances where there is insufficient work area available to safely perform tank interior cleaning and cutting on-site, the Engineer may permit the Contractor to move the tank to an alternative location for interior cleaning and cutting. Uncleaned tanks shall be transported only by transporters permitted under 6 NYCRR 364. Prior to transporting an uncleaned tank, all holes shall be plugged and the tank shall be placarded according to USDOT regulation 49 CFR 172.500. The tank shall be vented by means of a 3 mm hole in one of the plugs. The tank shall be securely fastened to the transporting vehicle, and oriented so that the plug with the hole in it is uppermost on the tank.

F. Documentation. Tank closure activities shall be documented both in written format and photographically. The Contractor shall document the number of tanks, tank capacities, tank types (i.e., steel, fiberglass, etc.) and conditions (i.e., sound, corroded but intact, leaking, etc.), products stored in tanks, soil conditions, presence/absence of field indications of soil/groundwater contamination, tank removal, and all subsequent tank closure activities until the tank has been loaded and secured for transportation off-site. The Engineer shall also be provided with copies of any chain-of-custody forms, laboratory reports, and documentation of the final disposition of the tank and any contaminated soil that was removed. When tank closure activities have been completed, the Department will submit a Tank Closure Report which includes all relevant documentation, including laboratory reports and tank disposal documents, to NYSDEC.

PETROLEUM STORAGE TANK CLOSURE

G. Tank Exterior Cleaning and Tank Disposal. All tanks shall be cleaned of all soil, residue and product clinging to their exterior surfaces prior to being transported off-site. All contaminated soil, product, cleaning solvents, and water generated by the operation, shall be transported by a transporter permitted under 6 NYCRR 364 and, disposed of in accordance with §107-10 *Managing Surplus Material and Waste*. A tank that has been rendered free of product and cleaned is considered scrap, and shall be recycled or disposed of by the Contractor.

H. Backfilling. After the completion of endpoint sampling and documentation activities which require the tank pit to remain open, the Contractor shall backfill any resulting holes and trenches with suitable material.

629-3.04 Endpoint Sample Collection and Analysis. NYSDEC personnel, if present during tank closure activities, may advise the Engineer that endpoint samples are not required in order to obtain tank closure. If NYSDEC personnel are not on-site during tank closure, or if NYSDEC personnel are on site and suggest that endpoint samples will be required in order to obtain tank closure, endpoint samples shall be collected as follows:

After contaminated soil, if present, is removed to the extent practicable, a person, whose qualifications have been submitted in accordance with §205-3.01 B. 3. *Sampling Plan*, shall collect a total of five composite samples from the tank pit. A composite sample is defined as a sample composited from individual grab samples collected on an areal or cross sectional basis. Each composite sample shall be made up of equal volumes of grab samples collected in an identical manner. One composite sample shall be collected from each of the side walls at a distance approximately one third up from the bottom of the pit and one composite sample shall be collected from the bottom of the pit. Samples shall be collected into properly labeled laboratory provided glassware, which shall then be placed into re-sealable plastic bags and stored in a cooler with ice. The contractor shall deliver the samples, in accordance with appropriate chain-of-custody procedures and sample hold-times, to a NYS Department of Health Environmental Laboratory Approval Program (ELAP) Certified laboratory for the following analyses:

A. Gasoline Tanks: Submit samples for analysis of volatile organic compounds (VOCs) by USEPA Method 8021 (STARS list compounds + MTBE).

B. #2 Fuel Oil/Diesel Tanks: Submit samples for analysis of VOCs by USEPA Method 8021 (STARS list compounds + MTBE) and for analysis of polycyclic aromatic hydrocarbons (PAHs), also referred to as base/neutrals (B/N's), by USEPA Method 8270.

C. Waste Oil Tanks: Submit samples for analysis of VOCs by USEPA Method 8260 + MTBE, semi-volatile organic compounds (SVOCs) by USEPA Method 8270, RCRA Metals by USEPA Methods 6010 and 7471, and for polychlorinated biphenyls (PCBs) using USEPA Method 8082.

D. Tanks Containing Other Products: Submit samples for analyses specified in the contract documents. For previously unidentified tanks containing products other than gasoline, #2 fuel-oil/diesel, or waste oil that are discovered during construction, the Contractor shall contact NYSDEC for the appropriate analytical methods.

The Contractor shall provide the Engineer with a copy of the completed chain-of-custody form before the samples are taken off-site for delivery to the laboratory, and a copy of the laboratory report within 14 calendar days of sample collection.

629-4 METHOD OF MEASUREMENT

629-4.01 General. (Vacant)

PETROLEUM STORAGE TANK CLOSURE

629-4.02 Removal/Disposal of Liquids from Petroleum Storage Tanks. The quantity of removed/disposed of liquids to be measured for payment will be in liters, measured to the nearest whole liter. The Contractor shall provide disposal receipts from an approved facility that accepts the material to verify the quantity disposed.

629-4.03 Petroleum Storage Tank Closure. The quantity of tanks closed to be measured for payment will be the number of tanks within the indicated size range closed.

629-4.04 Endpoint Sample Collection and Analysis. The quantity to be measured for payment will be the number of samples collected and analyzed according to the specified methods.

629-5 BASIS OF PAYMENT.

629-5.01 General. Soil Handling, Field Organic Vapor Monitoring other than within the tank atmosphere, and removing and disposing of contaminated soil, except soil contaminated during the tank removal operations, will be paid for separately.

629-5.02 Removal/Disposal of Liquids from Petroleum Storage Tanks. The unit bid price shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work, including laboratory analyses required for the proper disposal of the liquids. The maximum amount of payment will be the unit bid price multiplied by the capacity of the tank.

629-5.03 Petroleum Storage Tank Closure. The unit bid price shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work, not including excavation and backfill.

Progress payments of 50% of the price bid will be paid after the tank removal has been completed, a completed Form HC 629 *Tank Closure Form* and, if endpoint samples were required, a completed chain of custody form showing that the samples were delivered to the laboratory. The remaining percentage will be paid after the Department has received from the Contractor all remaining documentation necessary for the Department to submit a complete Tank Closure Report to NYSDEC, including: invoices confirming the final disposition of: the tank, any liquids removed from the tank, any wastes generated during tank cleaning, and any contaminated soil that was removed; and, if endpoint samples were required, a final laboratory report.

629-5.04 Endpoint Sample Collection and Analysis. The unit bid price shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work. Payment will be made after all analytical data has been received by the Department, and a Department representative has reviewed the data to verify that it is correct.

Payment will be made under:

Item No.	Item	Pay Unit
629.01	Removal/Disposal of Liquids from Petroleum Tanks	Liter
629.02xx	Petroleum Storage Tank Closure (various size ranges)	Each
629.0301	Endpoint Sample Collection and Analysis (Gasoline Parameters)	Each
629.0302	Endpoint Sample Collection and Analysis (Diesel/#2 Fuel Oil Parameters)	Each
629.0303	Endpoint Sample Collection and Analysis (Waste Oil Parameters)	Each
629.0304	Endpoint Sample Collection and Analysis (Other Product Parameters)	Each
NOTE:	xx -see Pay Item Catalog or Proposal for complete description.	

PETROLEUM STORAGE TANK CLOSURE

Make the following changes to the Standard Specifications dated May 1, 2008:

Page 151 **Delete** §202-3.04 and **Replace** it with the following:
202-3.04 (Vacant)

Page 154 **Delete** §202-4.03 and **Replace** it with the following:
202-4.03 (Vacant)

Page 155 **Delete** §202-5.04 and **Replace** it with the following:
202-5.04 (Vacant)

Page 155 **Delete** contract pay item:
202.05xx Disposal of Petroleum Storage Tanks (various size ranges) Each

Page 614 **Delete** the current Section 629 (Vacant) and **Replace** it with the following:

SECTION 629 – PETROLEUM STORAGE TANK CLOSURE

629-1 DESCRIPTION

629-1.01 General. This work shall consist of emptying, purging/inerting, cleaning, removing, and disposing of petroleum storage tanks; endpoint sample collection and analysis; and proper documentation of the work in accordance with the contract documents and as directed by the Engineer.

629-2 MATERIALS (Not Specified)

629-3 CONSTRUCTION DETAILS

629-3.01 General. All petroleum storage tanks shall be closed in accordance with the requirements of the NYS Department of Environmental Conservation (NYSDEC), as well as local fire and police agencies. NYSDEC shall be notified prior to the initiation of tank closure activities. For instances where tanks that have not been identified during the design process are discovered during construction, NYSDEC shall be notified as soon as possible after discovery of the tank(s). If evidence of a petroleum spill that was not previously reported is discovered during construction, the contractor shall call the NYSDEC Spills Hotline at 1 (800) 457-7362, within two hours of discovering the spill.

Excavation shall be performed in accordance with Section 206 *Trench, Culvert and Structure Excavation*. Segregation and stockpiling of contaminated soils shall be performed in accordance with Section 205 *Contaminated Soil*. If specified in the contract documents, or at the request of the Department in instances where tanks are not discovered until after construction has begun, the Contractor shall provide field organic vapor monitoring in accordance with §205-3.03 *Field Organic Vapor Monitoring* in the following instances: 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 Contractor shall provide a schedule for tank closure activities to the Engineer a minimum of 35 calendar days prior to commencing work, except for when previously unidentified tanks are discovered during construction and the work will take place in less than 35 calendar days. In such instances, the Contractor shall notify the Engineer immediately upon discovery of the tank(s). The Department will notify appropriate NYSDEC personnel at least 30 calendar days prior to tank closure activities, except for when previously unidentified tanks are discovered as described above. In such instances, the Department will notify NYSDEC as soon as possible after discovery of the tank(s).

PETROLEUM STORAGE TANK CLOSURE

629-3.02 Removal/Disposal of Liquids from Petroleum Storage Tanks. Before the removal of any tank begins, it shall first be rendered free of product and water. All liquids shall be disposed of in accordance with §107-10 *Managing Surplus Material and Waste*. Product shall be managed with a preference toward recycling or beneficial reuse when such options are available. Liquids shall be transported to the disposal/recycling facility only by appropriately permitted haulers. During the removal operation (including cutting the tank open to remove product, if necessary) the following restrictions shall apply:

1. The work area shall be secured by, at a minimum, erecting a 4 foot construction fence to create an 25 foot controlled access perimeter around the tank pit and posting signs stating "Authorized Personnel Only" or equivalent. This perimeter shall be maintained until the tank has been disposed of and the tank pit has been backfilled.
2. All open-flame and spark producing equipment within the area shall be shut down.
3. All electrical and internal combustion equipment, unless it is designed to be "explosion proof" or "intrinsically safe", shall be removed from the work area.
4. Only "non-sparking" tools shall be used.
5. Static electricity shall be controlled.
6. Smoking shall be prohibited in the work area.

629-3.03 Petroleum Storage Tank Closure. Tank closures shall consist of all of the following components, unless specifically noted in the contract documents.

A. Project Safety and Health. The Contractor shall ensure that all personnel directly involved in tank closure activities have been trained in conformance with the requirements of 29 CFR 1910.120 and 1926.65 (referred to hereafter as 1910.120). There shall be at least one person on site who has supervisor training as per 29 CFR 1910.120(E)(4) during all tank closure activities. The Project Safety and Health Plan (PSHP) required by §107-05B shall also meet the requirements of 29 CFR 1910.120 (b) (4).

B. Tank Atmosphere Monitoring. The contractor shall use a combustible gas indicator (CGI) or an explosion meter and an oxygen meter to monitor the tank atmosphere.

C. Tank Purging/Inerting. The Contractor shall make the tank atmosphere safe by purging the flammable vapors from the confined space to below 5% of the lower explosive limit (LEL) and, unless positive ventilation is used, the oxygen level is below 7%. Care shall be exercised to ensure that purging/inerting is completed before proceeding with tank cleaning and cutting. The Contractor shall purge/inert the tank atmosphere by using one of the following methods:

1. Dry Ice. The Contractor shall add dry ice (1.5 lb per 100 gallons of tank capacity) into the tank. The dry ice shall be crushed and distributed evenly over the greatest possible area of the tank interior. As the dry ice vaporizes flammable vapors will flow out of the tank, therefore, the Contractor shall observe all safety precautions regarding flammable vapors.

2. Carbon Dioxide. The Contractor shall add carbon dioxide gas directly into the tank to purge flammable vapors. A minimum of one, fully charged, 75 lb cylinder of carbon dioxide gas per 2,000 gallons of tank volume shall be used. Care shall be exercised to prevent buildup of any static charge. The nozzle shall be bonded or grounded and the gas introduced slowly to reduce static.

3. Nitrogen. The Contractor shall add nitrogen gas directly into the tank to purge flammable vapors. Vapors within the storage tank must be displaced with an amount of nitrogen gas equal to or greater than the volume of the tank atmosphere. Care shall be exercised to prevent buildup of any static charge. The nozzle shall be bonded or grounded and the gas introduced slowly to reduce static.

PETROLEUM STORAGE TANK CLOSURE

4. Positive Ventilation. With prior written approval from the Engineer, the Contractor may use positive ventilation to purge flammable vapors from a tank using an air eductor. If performed improperly, this can be a very dangerous procedure and is not recommended for on-site purging of flammable vapors especially in high density urban areas.

D. Tank Removal. Regardless of the method selected to purge/inert the tank atmosphere, removal work shall not start until the readings from the CGI or explosion meter indicate that a safe and non-explosive tank atmosphere has been achieved as evidenced by readings less than 5% of the LEL at all elevations within the tank and if dry ice, carbon dioxide, or nitrogen are used to purge/inert the tank, readings from the oxygen meter indicate that an atmosphere of less than 7% oxygen is present throughout the tank. Removal work shall be progressed diligently without interruption until its completion. The CGI or explosion meter shall be used to take subsequent readings continuously as work is progressing. If any reading indicates an atmosphere with greater than 10% of the LEL is present, or the LEL is rising steadily, work shall cease and purging/inerting shall be repeated. Tank-related piping and connecting lines shall either be disconnected and removed or securely capped and plugged.

The tank shall be removed from the tank pit and placed on 6 mil minimum plastic sheeting with the vents aligned at the top of the tank (the 12 o'clock position). The tank shall be blocked or chocked in order to prevent rolling.

Contaminated soil, if present in or around the tank, shall be handled and managed in accordance with provisions found in Section 205 *Contaminated Soil*.

E. Tank Interior Cleaning and Tank Cutting. Immediately after the tank has been removed from the ground and a safe atmosphere is confirmed, the tank shall be cut open with non-sparking equipment. Two large holes shall be made in the tank to allow for cross ventilation. The tank shall then be fully ventilated until the CGI or explosion meter indicates an atmosphere with less than 5% of the LEL and an oxygen concentration between 19.5% and 21.5% is present. All remaining sludge and residue shall be removed by vacuuming, non-flammable solvent washing, or sweeping with dry absorbents. The Contractor shall permit only trained and properly equipped personnel to enter the tank. Permit-required confined space entry procedures in accordance with 29 CFR 1910.120 shall be used for all tank entries. All product, product-soaked sorbents, cleaning solvents, and water generated by the operation, shall be transported by a hauler permitted under 6 NYCRR 364 and, disposed of in accordance with the waste disposal regulations of the receiving state.

In instances where there is insufficient work area available to safely perform tank interior cleaning and cutting on-site, the Engineer may permit the Contractor to move the tank to an alternative location for interior cleaning and cutting. Uncleaned tanks shall be transported only by transporters permitted under 6 NYCRR 364. Prior to transporting an uncleaned tank, all holes shall be plugged and the tank shall be placarded according to USDOT regulation 49 CFR 172.500. The tank shall be vented by means of a 1/8 inch hole in one of the plugs. The tank shall be securely fastened to the transporting vehicle, and oriented so that the plug with the hole in it is uppermost on the tank.

F. Documentation. Tank closure activities shall be documented both in written format and photographically. The Contractor shall document the number of tanks, tank capacities, tank types (i.e., steel, fiberglass, etc.) and conditions (i.e., sound, corroded but intact, leaking, etc.), products stored in tanks, soil conditions, presence/absence of field indications of soil/groundwater contamination, tank removal, and all subsequent tank closure activities until the tank has been loaded and secured for transportation off-site. The Engineer shall also be provided with copies of any chain-of-custody forms, laboratory reports, and documentation of the final disposition of the tank and any contaminated soil that was removed. When tank closure activities have been completed, the Department will submit a Tank Closure Report which includes all relevant documentation, including laboratory reports and tank disposal documents, to NYSDEC.

PETROLEUM STORAGE TANK CLOSURE

G. Tank Exterior Cleaning and Tank Disposal. All tanks shall be cleaned of all soil, residue and product clinging to their exterior surfaces prior to being transported off-site. All contaminated soil, product, cleaning solvents, and water generated by the operation, shall be transported by a transporter permitted under 6 NYCRR 364 and, disposed of in accordance with §107-10 *Managing Surplus Material and Waste*. A tank that has been rendered free of product and cleaned is considered scrap, and shall be recycled or disposed of by the Contractor.

H. Backfilling. After the completion of endpoint sampling and documentation activities which require the tank pit to remain open, the Contractor shall backfill any resulting holes and trenches with suitable material.

629-3.04 Endpoint Sample Collection and Analysis. NYSDEC personnel, if present during tank closure activities, may advise the Engineer that endpoint samples are not required in order to obtain tank closure. If NYSDEC personnel are not on-site during tank closure, or if NYSDEC personnel are on site and suggest that endpoint samples will be required in order to obtain tank closure, endpoint samples shall be collected as follows:

After contaminated soil, if present, is removed to the extent practicable, a person, whose qualifications have been submitted in accordance with §205-3.01 B. 3. *Sampling Plan*, shall collect a total of five composite samples from the tank pit. A composite sample is defined as a sample composited from individual grab samples collected on an areal or cross sectional basis. Each composite sample shall be made up of equal volumes of grab samples collected in an identical manner. One composite sample shall be collected from each of the side walls at a distance approximately one third up from the bottom of the pit and one composite sample shall be collected from the bottom of the pit. Samples shall be collected into properly labeled laboratory provided glassware, which shall then be placed into re-sealable plastic bags and stored in a cooler with ice. The contractor shall deliver the samples, in accordance with appropriate chain-of-custody procedures and sample hold-times, to a NYS Department of Health Environmental Laboratory Approval Program (ELAP) Certified laboratory for the following analyses:

A. Gasoline Tanks: Submit samples for analysis of volatile organic compounds (VOCs) by USEPA Method 8021 (STARS list compounds + MTBE).

B. #2 Fuel Oil/Diesel Tanks: Submit samples for analysis of VOCs by USEPA Method 8021 (STARS list compounds + MTBE) and for analysis of polycyclic aromatic hydrocarbons (PAHs), also referred to as base/neutrals (B/N's), by USEPA Method 8270.

C. Waste Oil Tanks: Submit samples for analysis of VOCs by USEPA Method 8260 + MTBE, semi-volatile organic compounds (SVOCs) by USEPA Method 8270, RCRA Metals by USEPA Methods 6010 and 7471, and for polychlorinated biphenyls (PCBs) using USEPA Method 8082.

D. Tanks Containing Other Products: Submit samples for analyses specified in the contract documents. For previously unidentified tanks containing products other than gasoline, #2 fuel-oil/diesel, or waste oil that are discovered during construction, the Contractor shall contact NYSDEC for the appropriate analytical methods.

The Contractor shall provide the Engineer with a copy of the completed chain-of-custody form before the samples are taken off-site for delivery to the laboratory, and a copy of the laboratory report within 14 calendar days of sample collection.

629-4 METHOD OF MEASUREMENT

629-4.01 General. (Vacant)

PETROLEUM STORAGE TANK CLOSURE

629-4.02 Removal/Disposal of Liquids from Petroleum Storage Tanks. The quantity of removed/disposed of liquids to be measured for payment will be in gallons, measured to the nearest whole gallon. The Contractor shall provide disposal receipts from an approved facility that accepts the material to verify the quantity disposed.

629-4.03 Petroleum Storage Tank Closure. The quantity of tanks closed to be measured for payment will be the number of tanks within the indicated size range closed.

629-4.04 Endpoint Sample Collection and Analysis. The quantity to be measured for payment will be the number of samples collected and analyzed according to the specified methods.

629-5 BASIS OF PAYMENT.

629-5.01 General. Soil Handling, Field Organic Vapor Monitoring other than within the tank atmosphere, and removing and disposing of contaminated soil, except soil contaminated during the tank removal operations, will be paid for separately.

629-5.02 Removal/Disposal of Liquids from Petroleum Storage Tanks. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work, including laboratory analyses required for the proper disposal of the liquids. The maximum amount of payment will be the unit bid price multiplied by the capacity of the tank.

629-5.03 Petroleum Storage Tank Closure. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work, not including excavation and backfill.

Progress payments of 50% of the unit price bid will be paid after the tank removal has been completed, a completed Form HC 629 *Tank Closure Form* and, if endpoint samples were required, a completed chain of custody form showing that the samples were delivered to the laboratory. The remaining percentage will be paid after the Department has received from the Contractor all remaining documentation necessary for the Department to submit a complete Tank Closure Report to NYSDEC, including: invoices confirming the final disposition of: the tank, any liquids removed from the tank, any wastes generated during tank cleaning, and any contaminated soil that was removed; and, if endpoint samples were required, a final laboratory report.

629-5.04 Endpoint Sample Collection and Analysis. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work. Payment will be made after all analytical data has been received by the Department, and a Department representative has reviewed the data to verify that it is correct.

Payment will be made under:

Item No.	Item	Pay Unit
629.01	Removal/Disposal of Liquids from Petroleum Tanks	Gallon
629.02xx	Petroleum Storage Tank Closure (various size ranges)	Each
629.0301	Endpoint Sample Collection and Analysis (Gasoline Parameters)	Each
629.0302	Endpoint Sample Collection and Analysis (Diesel/#2 Fuel Oil Parameters)	Each
629.0303	Endpoint Sample Collection and Analysis (Waste Oil Parameters)	Each
629.0304	Endpoint Sample Collection and Analysis (Other Product Parameters)	Each
NOTE:	xx -see Pay Item Catalog or Proposal for complete description.	