TANK-SYSTEM SITE ASSESSMENT

A GUIDE TO THE ASSESSMENT AND REPORTING OF SUSPECTED OR OBVIOUS RELEASES FROM UNDERGROUND AND ABOVEGROUND STORAGE TANK SYSTEMS

FOREWORD

A thorough assessment of underground and aboveground storage tank systems is crucial for the protection of public health and the groundwater and surface waters of the State of Wisconsin. The purpose of this publication is to explain the expectations and requirements of Wisconsin Administrative Code ATCP 93 Flammable, Combustible and Hazardous Liquids and the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) for assessing and reporting suspected or obvious releases, as well as system leaks from underground and aboveground storage tank systems.

Responsibility for maintaining this tank-system site assessment publication for chapter ATCP 93 (formerly chapter Comm 10 and SPS 310*)* storage tank regulations lies with the DATCP Bureau of Weights and Measures. Many of the analytical standards and much of the protocol has been established by the Department of Natural Resources (DNR) via NR 700 and Wisconsin Statute 292.11. This publication supersedes previous site assessment guidance documents (Site Assessments for Underground Storage Tanks, Technical Guidance) previously issued by the DNR or the Department of Commerce.

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CONTENTS

1. INTRODUCTION

Wisconsin Administrative Code dating back to 1932 has required that specific procedures be conducted to close or remove underground petroleum product storage tanks that are abandoned or no longer in use. Prior to August 1971, Chapter IND 8.25 required that Underground Storage Tanks (USTs) be closed by removing all liquids from the tank and piping, disconnecting all lines and system components, and either closing the tank in place by filling with water or a solid inert material, or removing the tank and associated equipment from the site. Between August 1971 and December 22, 1988, closure in place with a solid inert material was still allowed; however, filling with water was prohibited. Closure in place was prohibited all together after December 22, 1988, with only a few exceptions found in Wis. Admin. Code § ATCP 93.560(2)(e).

1.1 PURPOSE OF THIS PUBLICATION

This publication specifies technical procedures and prescribes reporting requirements that are acceptable to the Department of Agriculture, Trade and Consumer Protection (DATCP) for complying with assessment and release reporting requirements in chapter ATCP 93, Wis. Admin. chapters NR 700-799, and State Statute 292.11. There are a large number, and wide variety of underground and aboveground storage tank-system configurations found in Wisconsin. If you encounter a situation not covered in this publication or, if you have questions about any aspect of the details contained in this document, contact DATCPInstallClosure@wisconsin.gov.

1.2 WHAT IS A TANK-SYSTEM SITE ASSESSMENT (TSSA)?

A TSSA is not:

- An ASTM Phase I or II Environmental Site Assessment (E1527, E1903).
- A Site Investigation.
- Limited to a complete underground storage tank-system (UST) closure.

The following terminology, “Site Assessment,” “Tank Closure Assessment” and “Site Investigation,” are just a few examples of language that has commonly been used to describe underground storage tank-system site assessments, especially UST closures. These terms have also been used interchangeably to describe comprehensive site investigations (SI), Phase I and II environmental site assessments (ESA) as well as tank closure assessments.

In order to provide some clarity, DATCP will use the following terminology: “Tank-System Site Assessment” or TSSA. It is hoped that this terminology will eliminate any confusion regarding the DATCP’s expectations for assessments of UST and Aboveground Storage Tanks (ASTs) (with exceptions for ASTs, see Wis. Admin. Code § ATCP 93.465) systems.

In this publication, TSSA means the process by which the DATCP expects tank-system owners or operators to determine if their tank system or any component of that system has leaked and if so, has there been a release of hazardous substances into soil, groundwater, and/or surface waters of the State of Wisconsin.

This process includes all of the following:

1. Identification of field conditions that suggest that a release has taken place – examples include, petroleum-stained soils and/or petroleum odors; pitting, holes, or cracks in tank-system components; observable leaks; elevated in-field soil gas readings (photo ionization detector (PID) or flame ionization detector (FID)) or the detection of free product in the closure excavation(s) or tank-bed monitoring well/sump or free product on nearby surface waters.

2. Collection of soil samples for laboratory analysis of petroleum products or other hazardous substances, as prescribed later in this document.
3. Reporting of field observations and sampling results in a format prescribed by the DATCP.

In general, TSSAs are to be performed at the time a UST or AST, or some component thereof, is to be taken out of service (closure) or replaced, or when a product release is suspected or has obviously occurred. The term "Tank-System Site Assessor" refers to individuals who maintain a Tank-System Site Assessor certification per the requirements of Wis. Admin. Code § ATCP 93.240(15). This certification authorizes these individuals to perform TSSAs or to supervise others that may perform TSSAs.

1.3 PURPOSE AND NEED FOR THE TSSA

The purpose of the TSSA is to document whether a release from a UST or AST system has occurred and, if so, from which part of the system it originated and why it occurred [i.e. the source(s) and cause(s)]. In general, a "release" is any discharge, including spilling, leaking, pumping, pouring, emitting, emptying, leaching, dumping, or disposal of a flammable or combustible liquid or a federally regulated hazardous substance into soils, groundwater, and/or surface water [Wis. Admin. Code § ATCP 93.050 (103)].

There are three situations when a TSSA must be performed with exceptions:

1. Suspected or obvious release
2. Tank-system closure (There are exceptions. See APPLICABILITY section.)
3. In-place closure of federally regulated tank systems

For a suspected release, a TSSA must be performed if any component of a tank system is found not to be tight.

The primary activities that can reveal a suspected or obvious release, which then triggers the need for a TSSA, include, but are not limited to, the following:

- Tank-system upgrade
- Tank-system closure
- Tank-system change in service to store a non-regulated substance
- Tank-system repair
- Tank-system inspection
- Conditions indicating a release

"Tank-system closure" is a procedure by which an entire tank system is evaluated and permanently rendered safe from contributing to human danger, fire, explosion, and environmental contamination. A "suspected" release [Wis. Admin. Code § ATCP 93.050 (113)] occurs where (1) there is an indication of a release, but there is no environmental evidence; or (2) there is environmental evidence, but the source is unknown. An "obvious" release [Wis. Admin. Code § ATCP 93.050 (76)] occurs where there is both environmental evidence and a known source. The only situation where a TSSA is required when there is neither a suspected nor an obvious release is during a complete "Tank-System Closure" (see Exceptions).

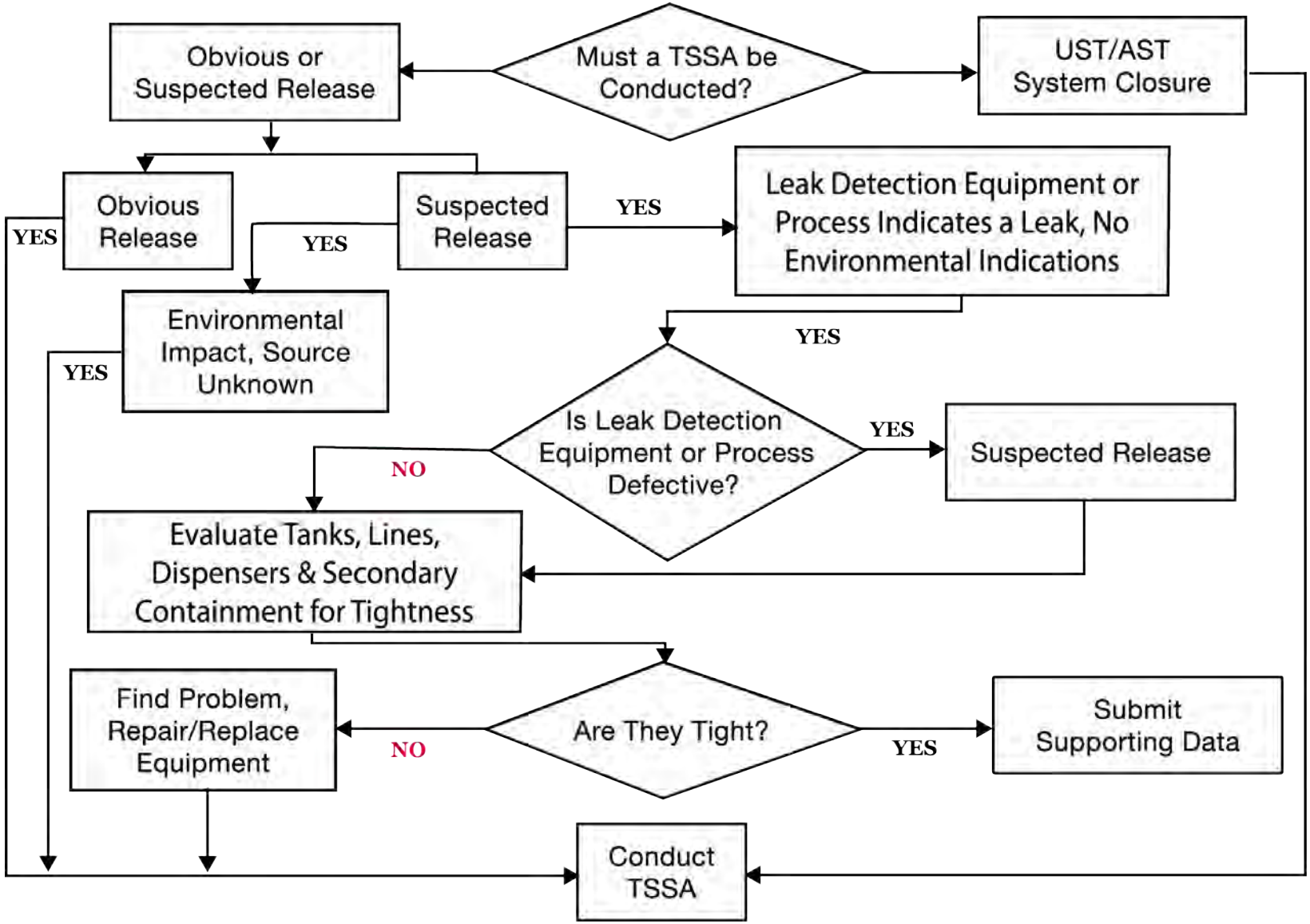


Figure 1. Process for determining if a TSSA must be performed.

1.4 WHO SHOULD USE THIS PUBLICATION?

Environmental professionals seeking DATCP release assessment and reporting information, such as registered Tank Specialty Firms, Tank-System Site Assessors, and Tank-System Removers and Cleaners. This publication also helps owners and operators, as well as their environmental consultant, to understand and oversee release-assessment activities conducted at their storage tank sites, should it become necessary.

2. PROGRAM OVERVIEW AND APPLICABILITY

DATCP's Bureau of Weights and Measures is responsible for the administration and regulation of UST and AST systems in Wisconsin. This is accomplished through the administrative and technical standards contained in Wisconsin Administrative Code chapter ATCP 93. The Bureau's administrative and regulatory functions include:

- Technical code and standards consultation for chapter ATCP 93.
- Permitting and registration of aboveground and underground flammable, combustible and hazardous liquid storage tank systems.
- Retail service station inspection and petroleum product testing.
- Maintenance of a statewide aboveground and underground storage tank database.
- Review of system design plans for storage or dispensing system installation, modification or upgrade.
- Credential administration for individuals working in specialties requiring certification.
- Administration of the ATCP 93 program.

2.1 APPLICABILITY

In general, ATCP 93 requires that a TSSA be performed at the time a storage tank system or some component thereof is to be upgraded, repaired, or is to undergo a change in service to store a non-regulated substance, *and* there is a suspected or obvious release. A TSSA is also required when a tank system or some component thereof is to be removed from service. In this situation, there may be no suspected or obvious release initially.[1]

A TSSA is not required for the following tank systems, components thereof, or procedures unless there is a suspected or obvious release:

1. Tanks located at a private residence or on a farm premises, which have a capacity of less than 1,100 gallons, and which store fuel for dispensing into motorized vehicles.
2. The closure of double wall pipe when modification or upgrading is conducted on a system that will remain in operation, unless the piping is to be abandoned or closed in-place.
3. Aboveground storage tanks or underground piping that have been placed in secondary containment complying with section Wis. Admin. Code § ATCP 93.420 (2) (d), (e) or (g) for their entire operational life.
4. Loading racks or transfer areas that have been placed in secondary containment complying with section Wis. Admin. Code § ATCP 93.420 (5) for their entire operational life.

5. Tanks which have a capacity of less than 4,000 gallons and which stored heating oil for consumptive use on the premises where stored.
6. Aboveground storage tanks with a capacity less than 5,000 gallons.

Conditions are variable and typically complex at sites where an environmental investigation and cleanup is ongoing or has taken place and the DATCP closure is conditional. Conditional DATCP closures typically allow for some level of contamination to remain in place (often referred to as residual contamination). The need for a TSSA at these sites will be determined on a case-by-case basis due to their complex nature. DATCP must be contacted prior to performing any activities at these sites (DATCPInstallClosure@wisconsin.gov).

Note: *ATCP 93 allows closure in-place only in a limited number of situations. Written permission must be obtained from the DATCP.*

[1] The definition of a "tank system" in ATCP 93 includes all associated piping. A separate assessment is required for other system components if they are removed from service or upgraded at a time different from that of the UST.

3. CERTIFICATION REQUIREMENTS AND ENFORCEMENT FOR TANK-SYSTEM SITE ASSESSORS

Wis. Admin. Code § ATCP 93.240(15)(a)1 states that no person may conduct a TSSA required under chapter ATCP 93 unless that person holds a certification issued by DATCP as a certified Tank-System Site Assessor.

Wis. Admin. Code § ATCP 92.240(15)(a)2 further declares that tank-system site assessments are not to be performed by a person, even though they might be certified, with a personal or monetary interest in the facility or whose employer has a personal or monetary interest in the facility.

Penalties for violations of chapter ATCP 93 will be assessed in accordance with Wis. Stat. § 168.26[2].

Information on contractor certifications may be obtained online under DATCP's Service Companies and Technicians resource page.

[2] "Any person who violates this section or any rule or order adopted under this section shall forfeit not less than $10 or more than $5,000 for each violation. Each violation of this section or any rule or order under this section constitutes a separate offense and each day of continued violation is a separate offense." (Section 40 CFR)

4. TSSA PROCEDURES

4.1 PRE-ASSESSMENT STEPS

Check Local Ordinances
Always check for a local ordinance that may govern tank-system closures. ATCP 93 specifies minimum statewide standards, but local governments may have requirements that are more restrictive.

4.2 SUSPECTED AND OBVIOUS RELEASES

According to chapter ATCP 93, a suspected release occurs where (1) there is an indication of a release, but there is no environmental evidence; or (2) there is environmental evidence of a release, but the source is unknown. An obvious release is one in which there is both environmental evidence and a known source.

The USEPA is allowed to assess fines of up to $5,000 or more for each tank for each day of violation.

EVIDENCE

Suspected Release
A suspected release means either of the following:

- There is indication that a tank system or dispensing system has a leak, such as inventory losses; observable free product or evidence of free product in secondary containment at dispensers, submersible pumps or spill buckets; petroleum odors; unexplained presence of water in a tank; or activation of a leak detection alarm system, but there is no observable environmental evidence of a release.
- There is observable environmental evidence of a release, such as soil discoloration or free product, but the source is unknown.

A release is considered suspected when one or more of the following occur:

- A tank system exhibits unusual operating conditions (for example, erratic dispenser behavior, loss of product, or the appearance of water in the tank or sump containment).
- Release detection monitoring triggers an alarm, or otherwise indicates a problem.
- There is direct visual or olfactory observation of released product into the environment – for example, a sheen is visible on surface water; product or vapors are found in a utility conduit; free-phase liquid is discovered in observation wells, the tank bed, or in other portions of the storage tank system; or analytical results of samples collected during a TSSA or routine real estate transfer assessment (Phase II ESA) reveal the presence of petroleum contamination, but the contaminant source is unknown.
- Inventory verification records indicate an unexplained loss of tank contents.

Obvious Release
An obvious release means there is an indication of a release, and there is both (1) environmental evidence, such as soil discoloration, observable free product, or odors, and (2) a known source such as a tank or piping with cracks, holes or rust plugs, or leaking joints.

A release is considered obvious when both of the following conditions exist:

- Environmental contamination is present, and
- The source of the contamination is known.

Examples of obvious releases include finding environmental contamination during the investigation of a suspected release, identifying the unknown source of a previously discovered release, or confirming a tank-system failure that resulted in the release of product.

ACTION REQUIRED

Suspected Release

Assessment activities should consist of making visual and olfactory observations; taking photos of impacted soils, free-phase liquid, and trench and tank-bed excavations (all side walls and floor); evaluating for vapors using a field vapor-sampling device, such as a PID or FID; and conducting environmental sampling. Sampling procedures are presented in the next section.

Note: *If you find environmental contamination at any step in the assessment of a suspected release, or if you determine the source of a previously discovered release, then the suspected release becomes an obvious release. More on obvious releases follows.*

Obvious Release

Unless directed otherwise by DATCP, owners and operators must report obvious releases to the DNR immediately. Refer to Wis. Admin. Code § ATCP 93.585(2) for further details.

5. SAMPLING

5.1 GENERAL CONSIDERATIONS

QUALITY AND REPRESENTATIVE SAMPLES

The importance of collecting samples that are representative of the site conditions and compounds stored in the tank, both recent and historical, cannot be overstated. Since flammable, combustible or federally regulated hazardous substances consist largely of volatile organic compounds (VOCs), special care in collecting samples is required. Soil samples collected during the TSSA process must be analyzed in accordance with the following (see table below):

Table 1. What to Sample for with Sampling Parameters.

WHAT TO SAMPLE FOR						
SAMPLE PARAMETER	MATRIX					
	GASOLINE	*DIESEL*	*WASTE OIL*	*KEROSENE*	*FUEL OIL*	*OTHER/ UNKNOWN* [3]
VOC			**X**			X
PVOC	**X**	**X**		**X**	**X**	
NAPHTHALENE	X	X	X	X	X	

[3] *For Chlorinated compounds common to dry cleaner solvents refer to EPA Method 8260B Volatile Organic Compounds (VOC) via GC/MS*

COMPOSITING

Because compositing of samples in the field does not yield sample results that are representative of site conditions, sample compositing is not allowed for release determination. Only discrete grab samples are acceptable for this purpose.

WHEN AND WHERE TO COLLECT SOIL SAMPLES[4]

In general, one must always collect samples from native soil. If necessary, all backfill materials must be removed from an excavation prior to sampling to ensure that native soil is sampled. Samples must be collected from both the floor (when conditions permit) and sidewalls of an excavation; more specifically, from native soil that remains in the floor or sidewalls of the excavation and which appears to be the most contaminated or the most likely to be contaminated. All samples must be collected from a minimum depth of 12 inches into the floor or sidewall as soon as possible after the native soil is exposed to the atmosphere. This procedure will minimize loss of contaminants through volatilization into the atmosphere. Compositing of samples (including sampling of the backfill) is not permitted. Each sample that is collected must be analyzed separately.

Note: *DATCP does not consider water in an excavation to be relevant to the release determination process at this point; therefore, water sampling is not required during the TSSA process.*

If a backhoe is used to collect soil samples, the above sampling criteria must still be followed. Immediately upon removal from the excavation, discrete grab samples must be collected from 12 inches into the unexposed soil in the backhoe bucket.

In selecting sample types, locations, and analytical testing methods, consider the nature of the stored substance, the type of initial release detection alarm or cause for suspicion, the composition of the native soils, depth to groundwater, and any other factors appropriate for identifying the presence and source of a release. Because a tank system can fail at any point,

the entire system – fill port, transition containment sumps, tanks, piping runs, secondary containment sumps for submersible pumps or dispensers, and dispensers must be assessed.

Always give preference to collecting discrete grab samples of soil in areas where:

- There are obvious (visual, olfactory, or field-instrument) indications that contamination is present, or
- There are no obvious indications of a release – collect samples from locations where releases are most likely to occur, e.g. from submersible pump containment units, from areas of corrosion on USTs, ASTs, spill buckets and piping; from system joints and from dispensers and transition containment units. All can and have failed due to corrosion, cracks, failed sump entry fittings and installation complications.

Examples of typical sample locations at a facility are shown in Figure 2.

[4] Sample locations given in this publication are primarily for UST systems; however, the same general selection methodology can be used for routine AST system removals and routine environmental site assessments (ESAs). Always give priority to sampling in areas displaying obvious visual, olfactory, or field-instrument indications of contamination.

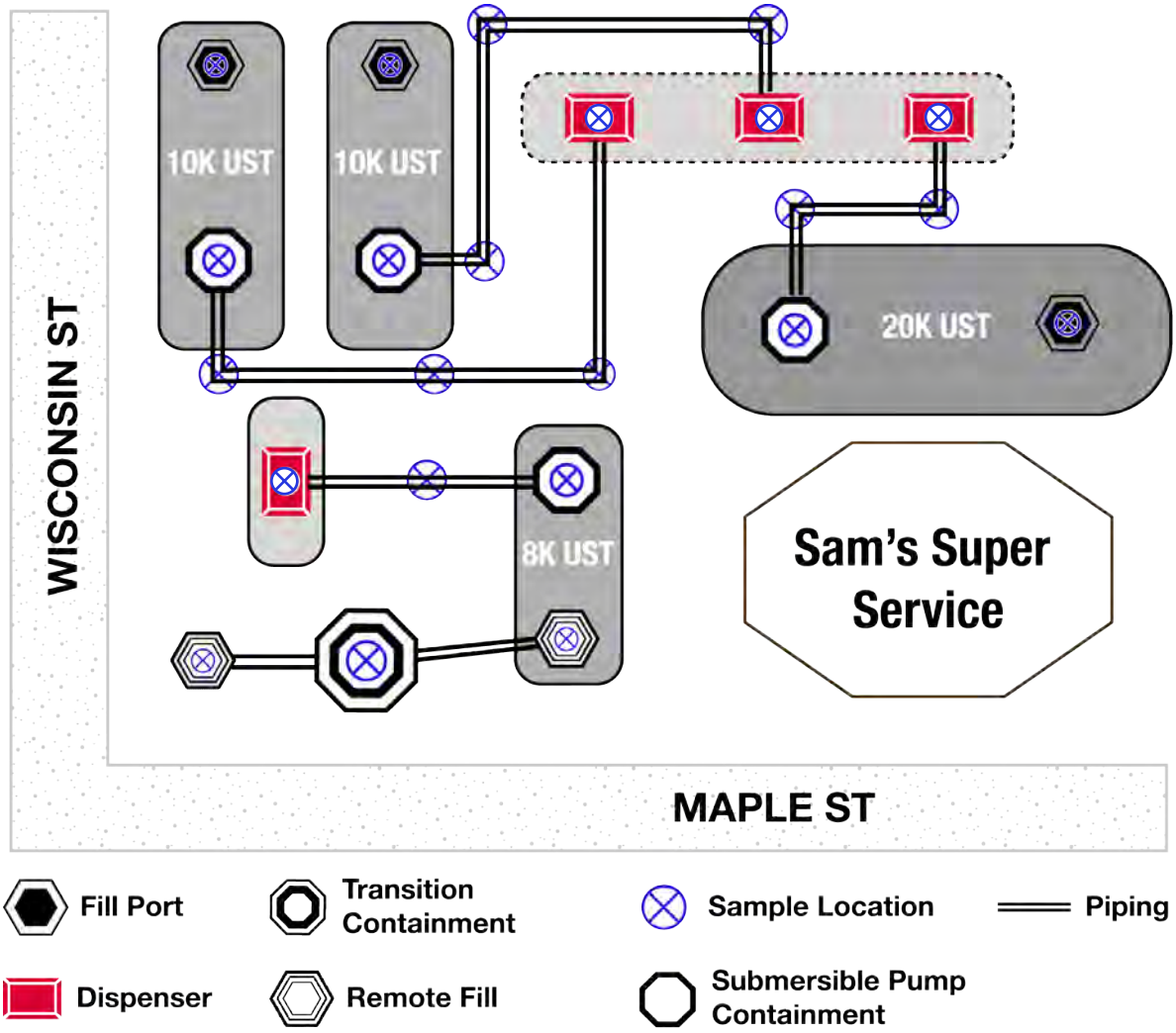


Figure 2. Examples of typical sample locations at a facility.

5.2 GENERAL DESCRIPTION OF TANK-BED SAMPLING

FLOOR

Tank-bed sample locations depend upon the size (length & diameter) of the UST(s), the number of tanks at the facility, their proximity and orientation to one another, and whether there are encumbrances present such as perched water, shallow groundwater, shallow bedrock, or a concrete slab. Selection of sample locations will also depend upon site conditions as well as use history.

SIDEWALL SAMPLING

Samples of native soil are to be collected, at a minimum, from 12 inches into the wall of the tank-bed. There must be at least one sidewall sample collected from each tank-bed wall and every ten-feet of horizontal wall, or portion thereof (e.g. for an excavation with ten foot long walls at least one sample must be collected from each wall; for an excavation with 17 foot long excavation walls at least two samples must be collected from each wall of the excavation).

Use the following sample-collection protocols:

- Collect samples from the most obvious, most heavily contaminated soil – to the least obvious, least contaminated soil.
- If there are no areas of obvious contamination, then collect native soil from areas to which a release is most likely to migrate and occur (e.g., in line with the fill port, the submersible pump containment and piping connections).
- Type of soil and geology (more importantly the porosity and permeability) should also be taken into consideration.

Photographs of the site, the excavated tank-bed (to include floor and all sidewalls), piping and dispenser trenching, as well as examples of both contaminated and uncontaminated areas, must be taken. Indicate on these images where samples were collected and submit them along with parts A and B of this document.

See the following general diagrams for guidance in determining where to collect sidewall and floor samples.

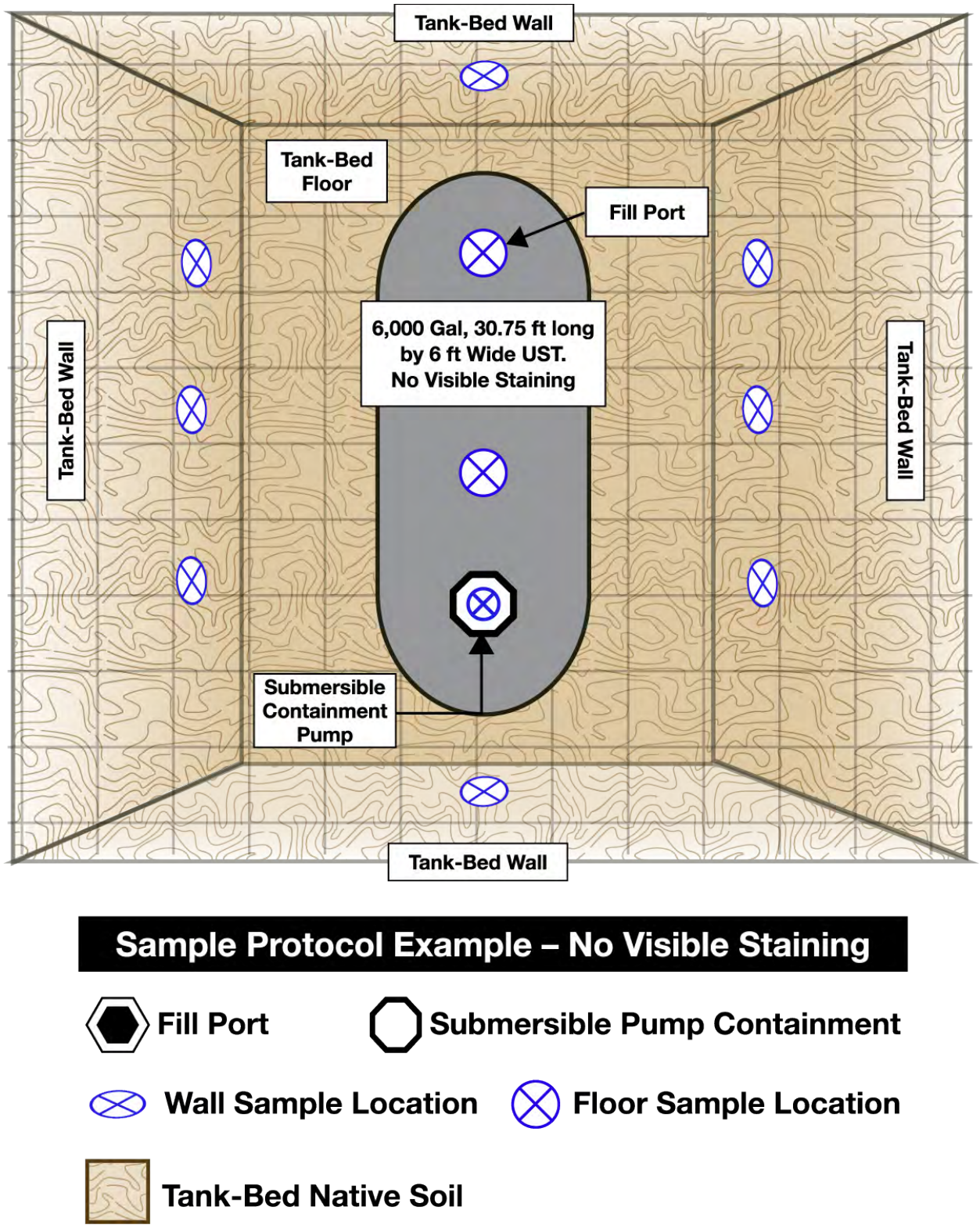


Figure 3. Tank bed sampling protocol example for a UST with no visible staining present.

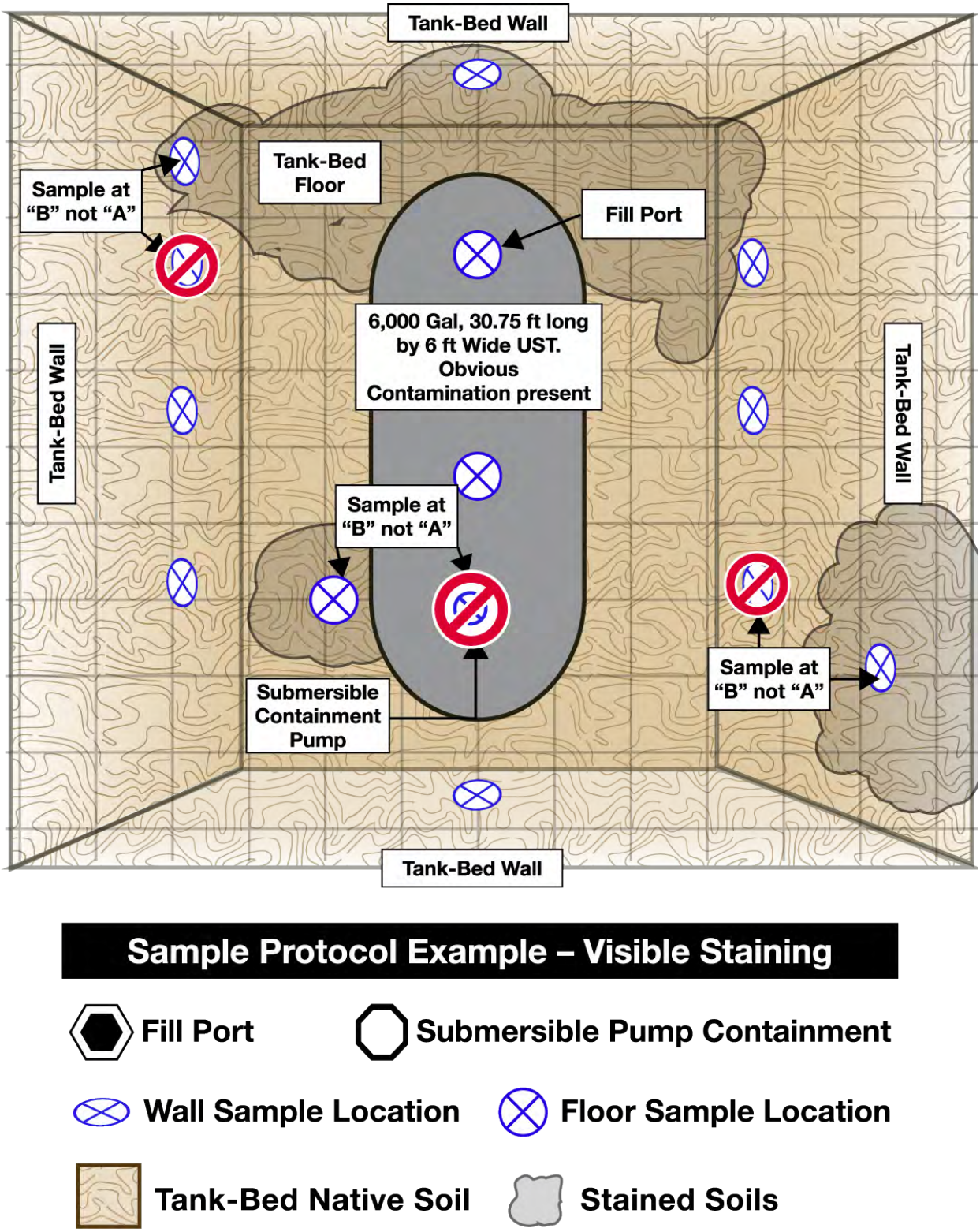
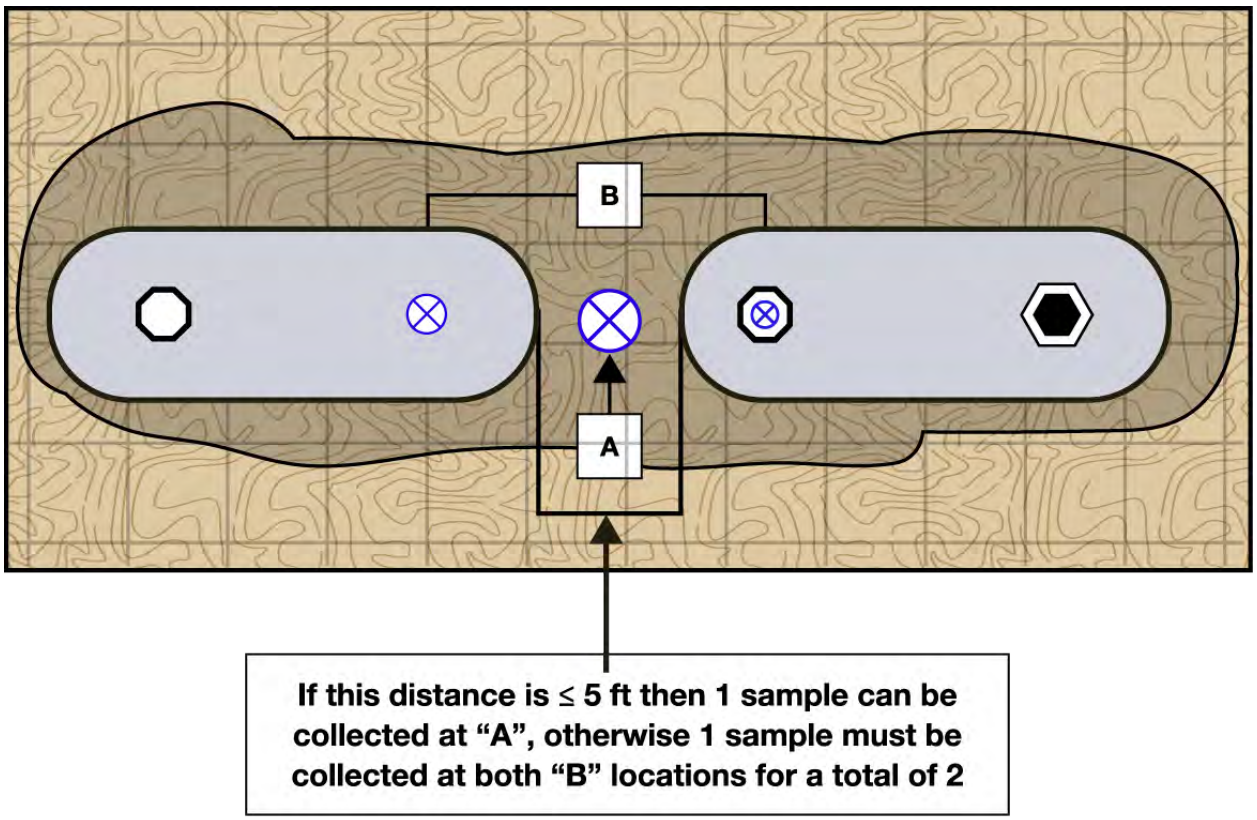


Figure 4. Sampling protocol example for a UST with visible staining present.

RECOMMENDED SAMPLING LOCATIONS

The following diagrams illustrate the recommended sampling locations for tanks of various sizes and number, and various types of encumbrances. The sample locations that are shown between tanks are for tanks which are spaced no more than five feet apart (The Five-Foot Rule). For wider spacing between tanks, the number of samples increases to two and each



sample is to be collected adjacent to its respective tank.

Figure 5. The Five-Foot Rule.

FLOOR SAMPLING WITH NO ENCUMBRANCES

Samples of native soil are to be collected from approximately one foot into the floor of the tank bed (see diagrams below for details).

Table 2. Requirements for Tank Bed Sampling with a Single Tank Present.

Single Tank	
Length of Tank	*Minimum Number of Soil Samples Per Tank*
≤ 5 feet	1 sample under middle of tank.
> 5 feet up to and including 20 feet	2 samples: • 1 under each end of the tank, in-line with the fill port and submersible pump containment.
>20 feet	3 samples: • 1 under each end of tank, and • 1 from beneath the mid- region of the tank.

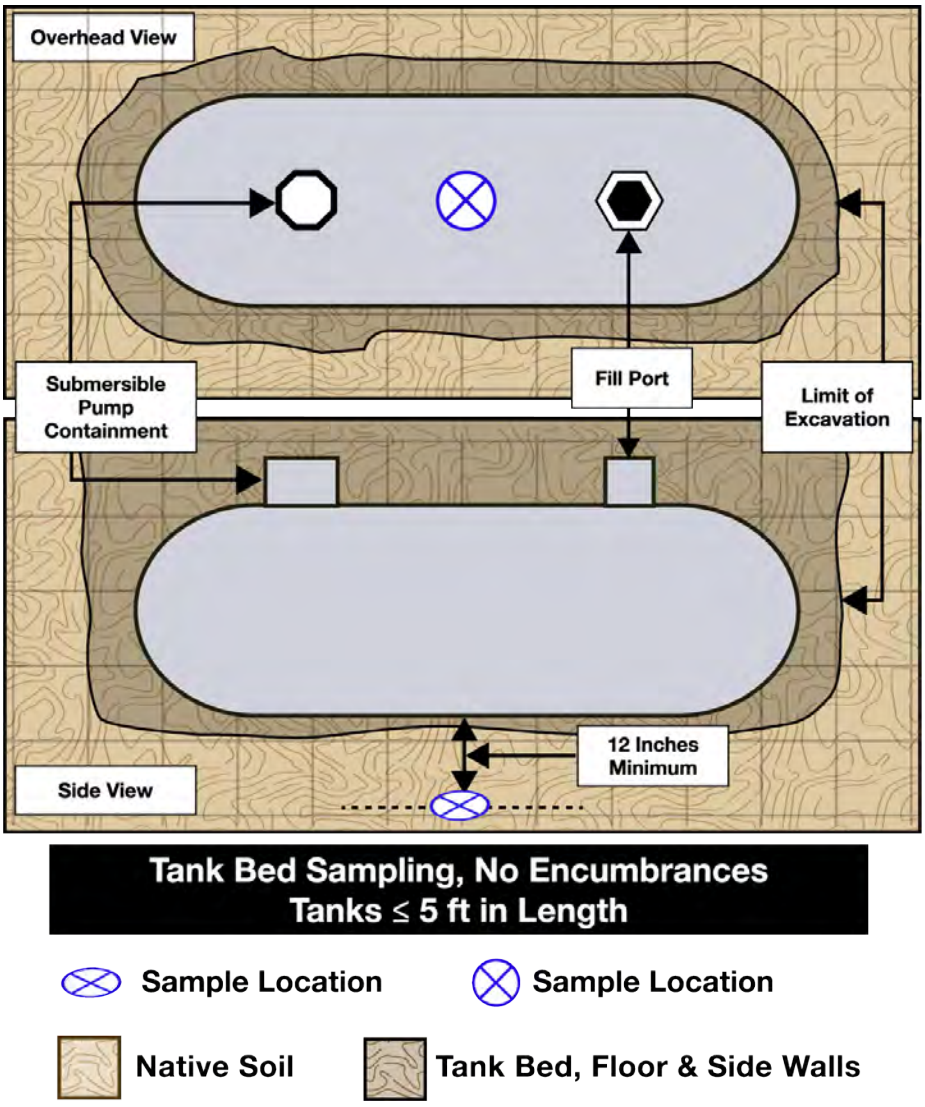


Figure 6a. Tank bed sampling for a single tank, with no encumbrances.

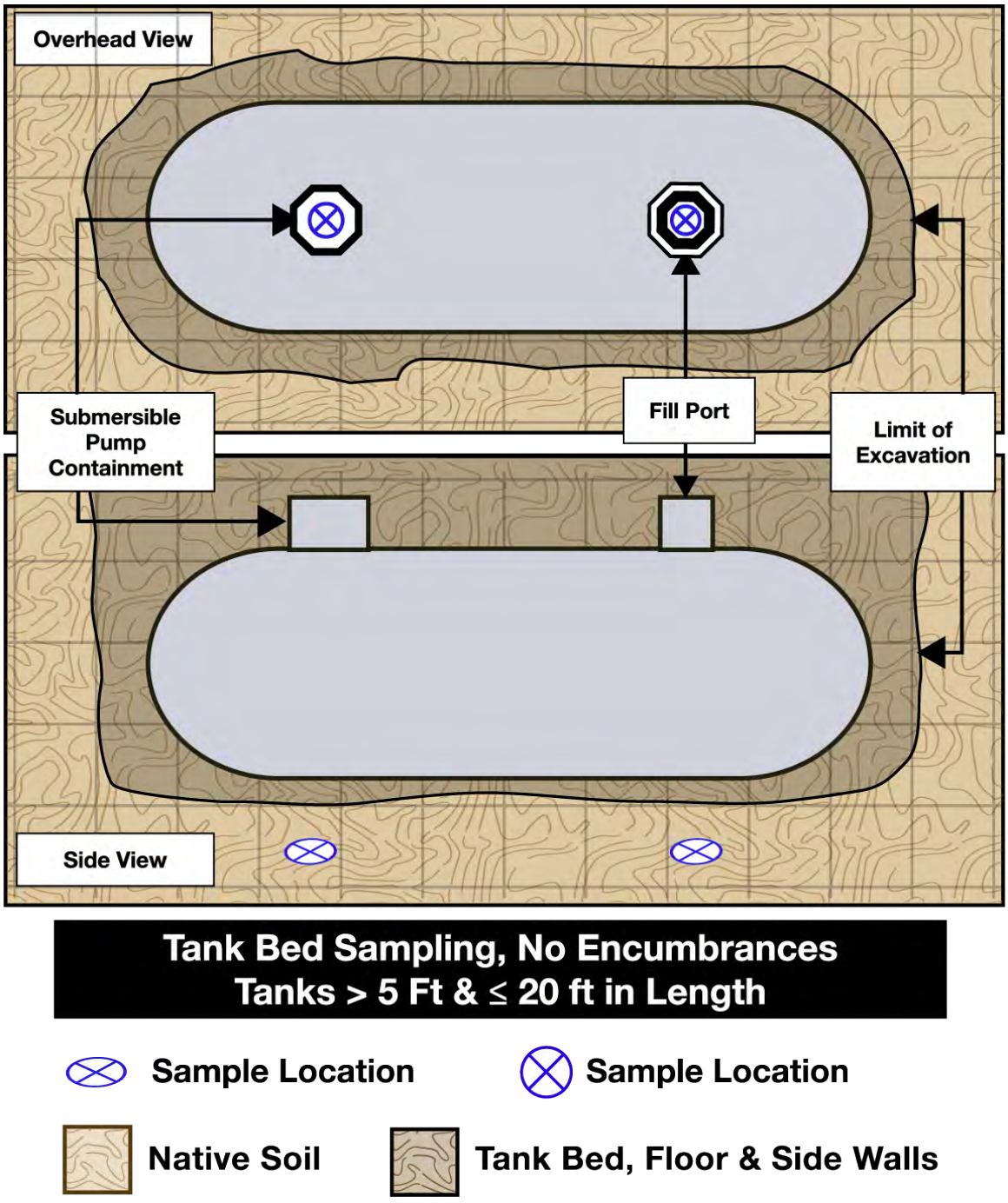


Figure 6b. Tank bed sampling for a single tank greater than five feet and less than or equal to 20 feet in length, with no encumbrances.

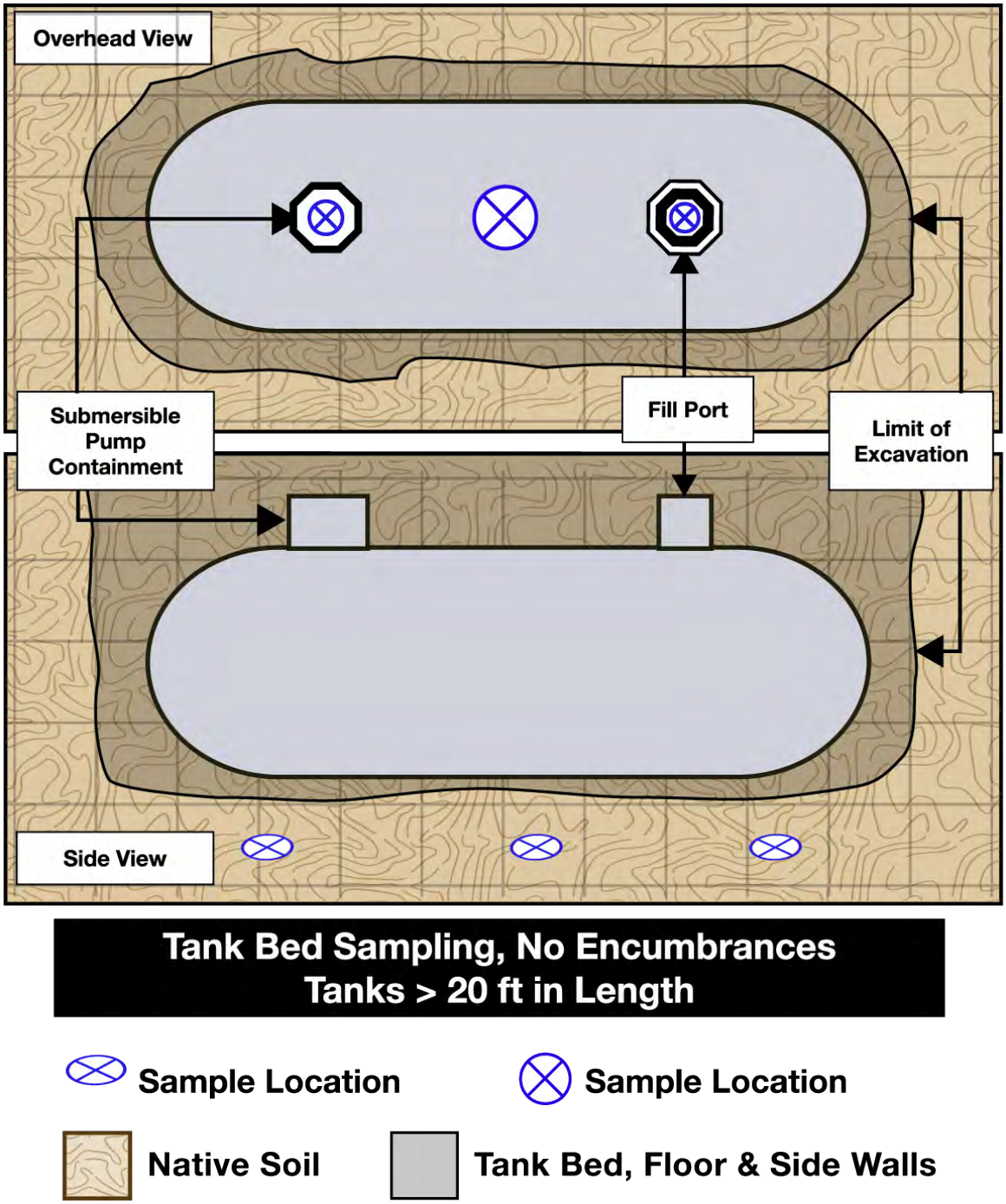


Figure 6c. Tank bed sampling for a single tank greater than 20 feet in length, with no encumbrances.

Table 3. Requirements for Tank Bed Sampling with Multiple Tanks Present.

Multiple Tanks	
Length of Tank	*Minimum Number of Soil Samples Per Tank Bed*
≤ 10 feet	6 samples: • 2 between each tank – 1 in line with the submersible pump containment and • 1 in line with the fill port; • 1 off the side of each of the outermost tanks – mid-region of the tank.
>10 feet	9 samples: • 2 off the side of the outermost tanks o 1 in line with the submersible pump containment o 1 in line with the fill port • 2 between each tank o 1 in line with the submersible pump containment o 1 in line with the fill port o 1 beneath the center of the innermost tank(s)

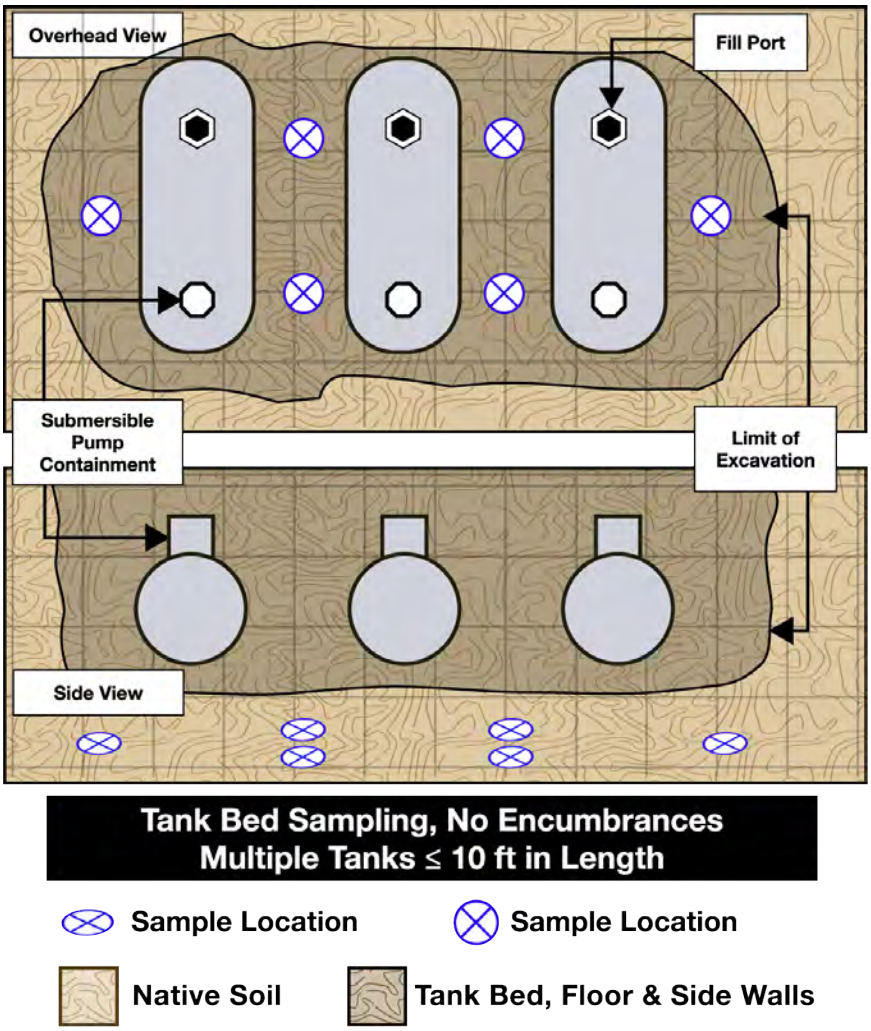


Figure 7a. Tank bed sampling for multiple tanks less than or equal to ten feet in length, with no encumbrances.

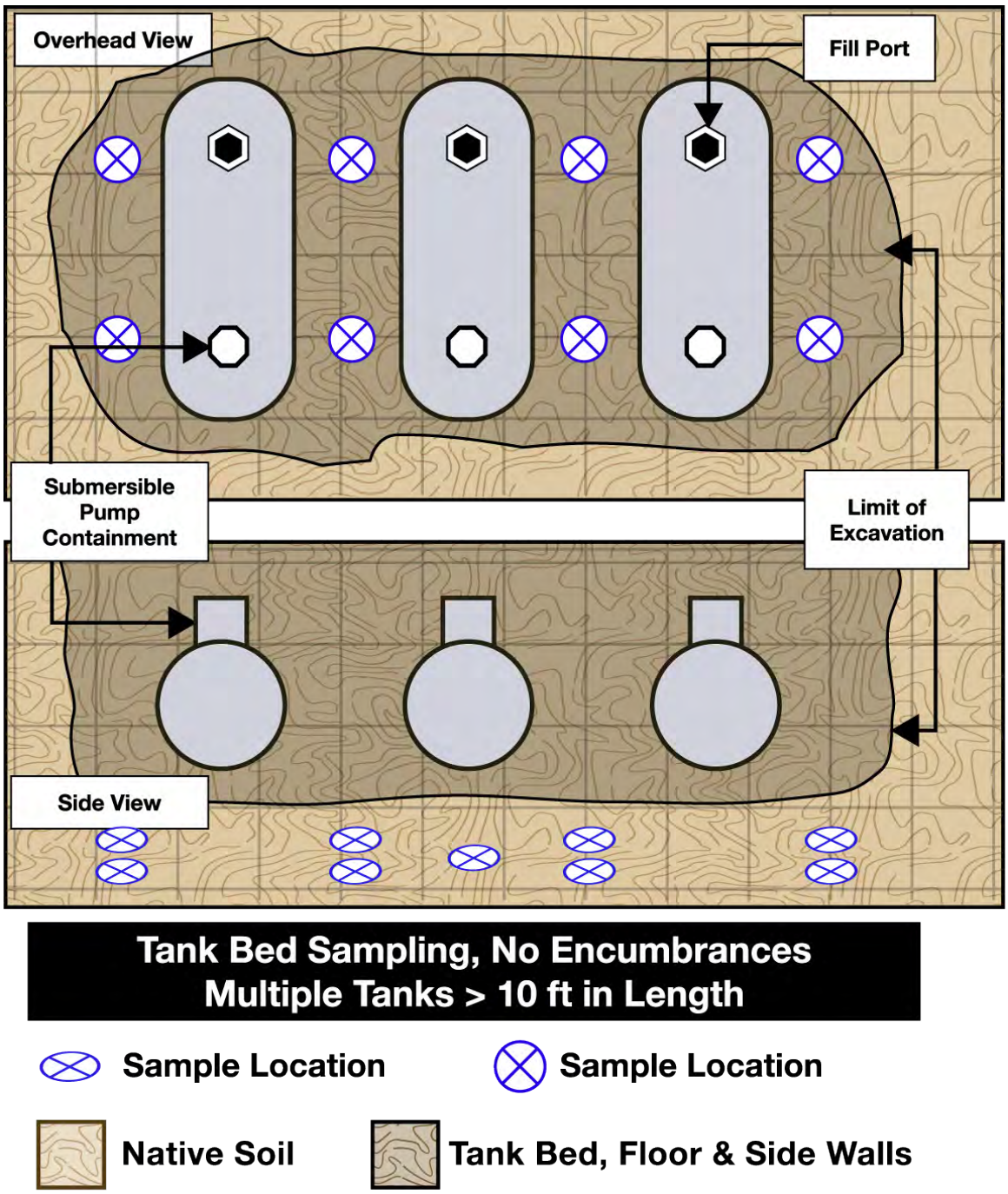


Figure 7b. Tank bed sampling for multiple tanks greater than ten feet in length, with no encumbrances

BEDROCK IS PRESENT

Every effort should be made to collect samples from native material (soil and/or weathered bedrock) from both the floor and walls of the tank bed. However, if the floor of the tank bed consists only of competent bedrock (i.e., there is no native material on top of the competent bedrock) then all samples will have to be collected from the sidewalls of the tank bed. These samples must be collected from a point that is at least 12 inches into the sidewall and as close to the soil-bedrock interface as possible.

If the exposed bedrock is weathered and friable or if there is some native soil on top of the bedrock, first try to obtain samples of native material from both the floor and walls of the tank bed material. Include in the TSSA report the depth below ground surface from which samples were collected, and describe the composition of the sample and condition of the bedrock (geology, degree and extent of weathering, and the number, orientation, width and length of any bedrock fractures that are present).

Table 4. Requirements for Tank Bed Sampling with a Single Tank, and Bedrock Present.

Single Tank	
Length of Tank	*Minimum Number of Soil Samples Per Tank*
≤ 10 feet	4 samples: • 1 at end of each tank and • 1 off each side of the tank – mid-region
>10 feet	6 samples: • 2 off each side of the tank o 1 in line with the submersible pump containment o 1 in line with the fill port o (If the fill port is within 3 feet of the end of the tank, collect the 2 side fill port samples from the mid-region of the tank) • 1 off each end of the tank

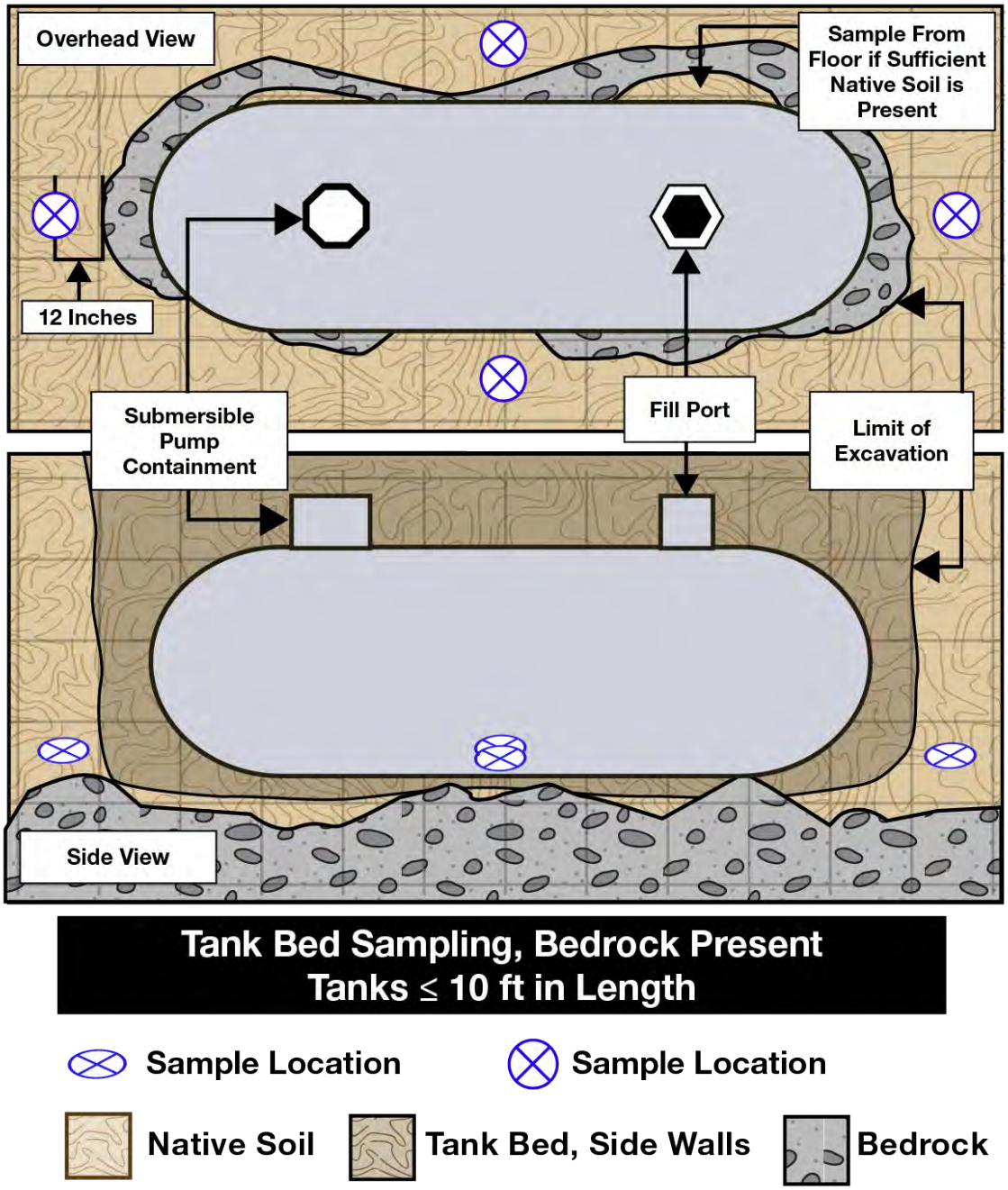


Figure 8a. Tank bed sampling for a single tank less than or equal to ten feet in length, with bedrock present.

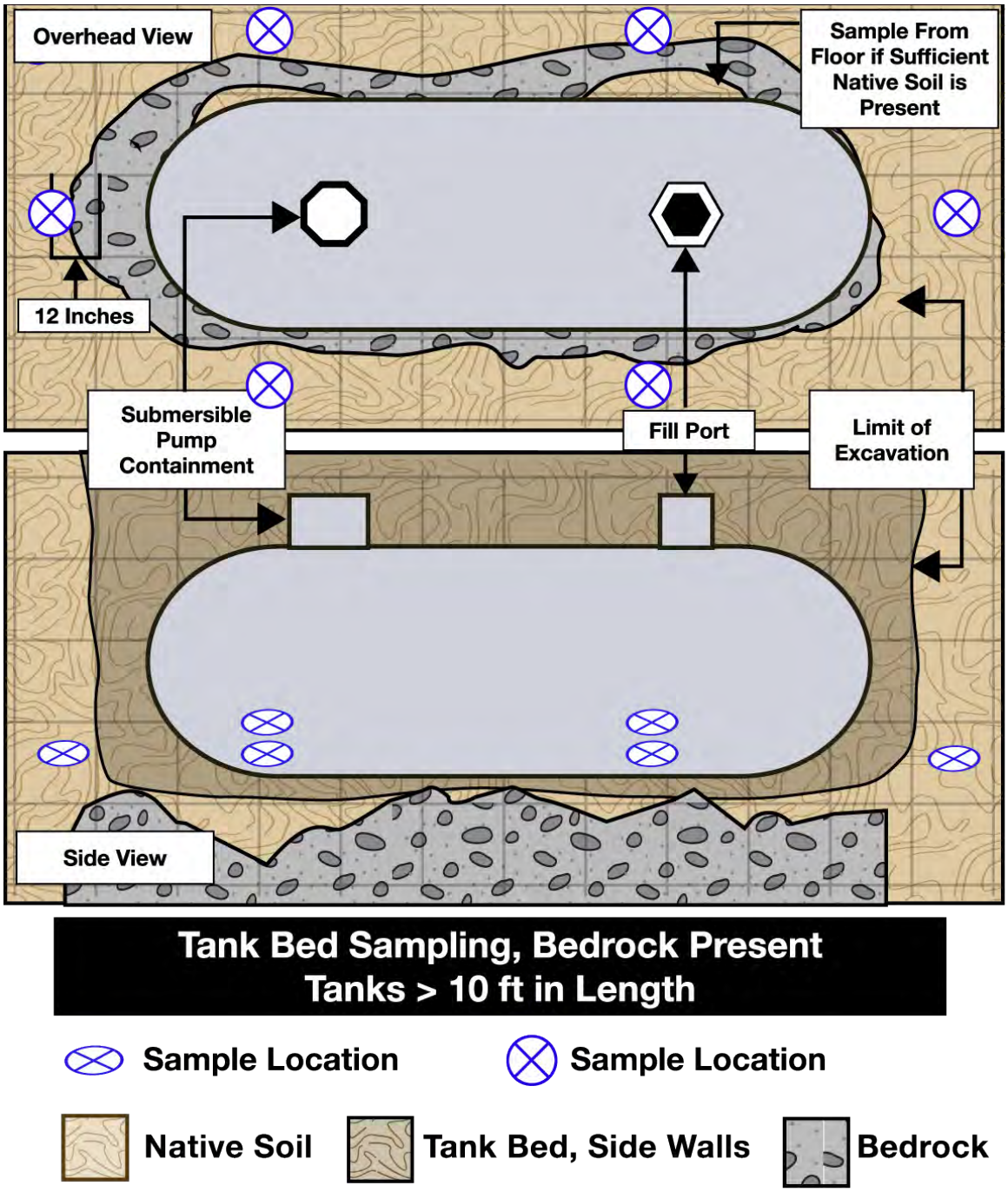


Figure 8b. Tank bed sampling for a single tank greater than ten feet in length, with bedrock present.

Table 5. Requirements for Tank Bed Sampling with Multiple Tanks and Bedrock Present.

Multiple Tanks	
Length of Tank	*Minimum Number of Soil Samples Per Tank Bed*
≤ 10 feet	6 samples: • 1 off the side of each of the outermost tanks • mid-region of the tank and • 2 in line with each gap between tanks.
>10 feet	10 samples: • 2 off the side of each of the outermost tanks o 1 in line with the pump containment o 1 in line with the fill port o (If the fill port is within 3 feet of the end of the tank, then collect the side fill port samples from the mid-region of the tank.) • 3 in the gap between each set of tanks o 1 mid-region o 1 at each end of the tanks

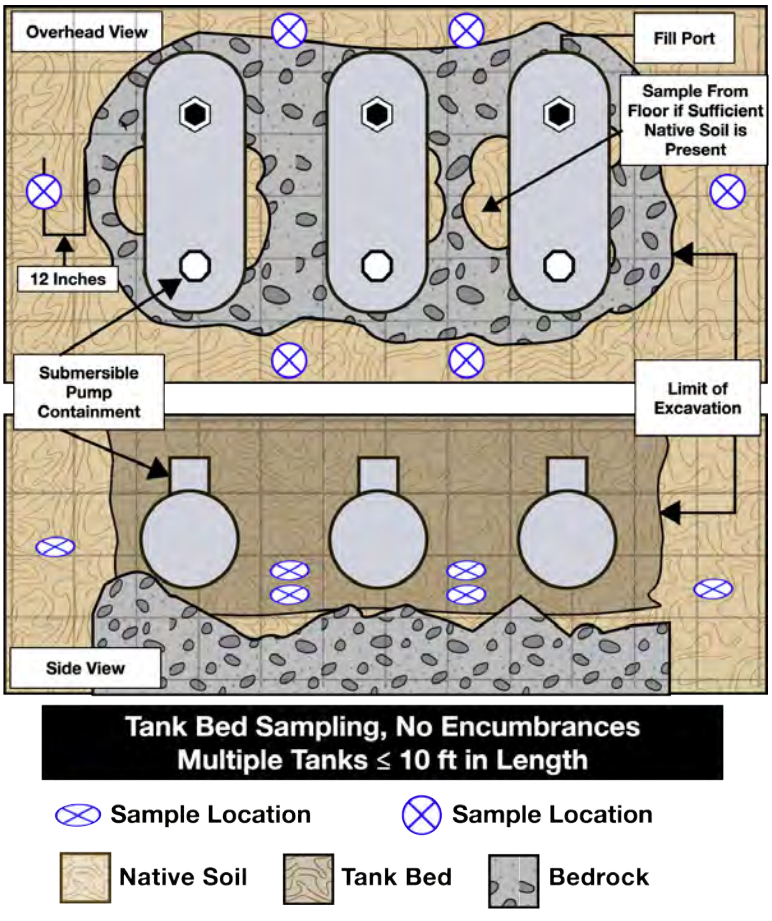


Figure 9a. Tank bed sampling for multiple tanks less than or equal to ten feet in length, with bedrock present.

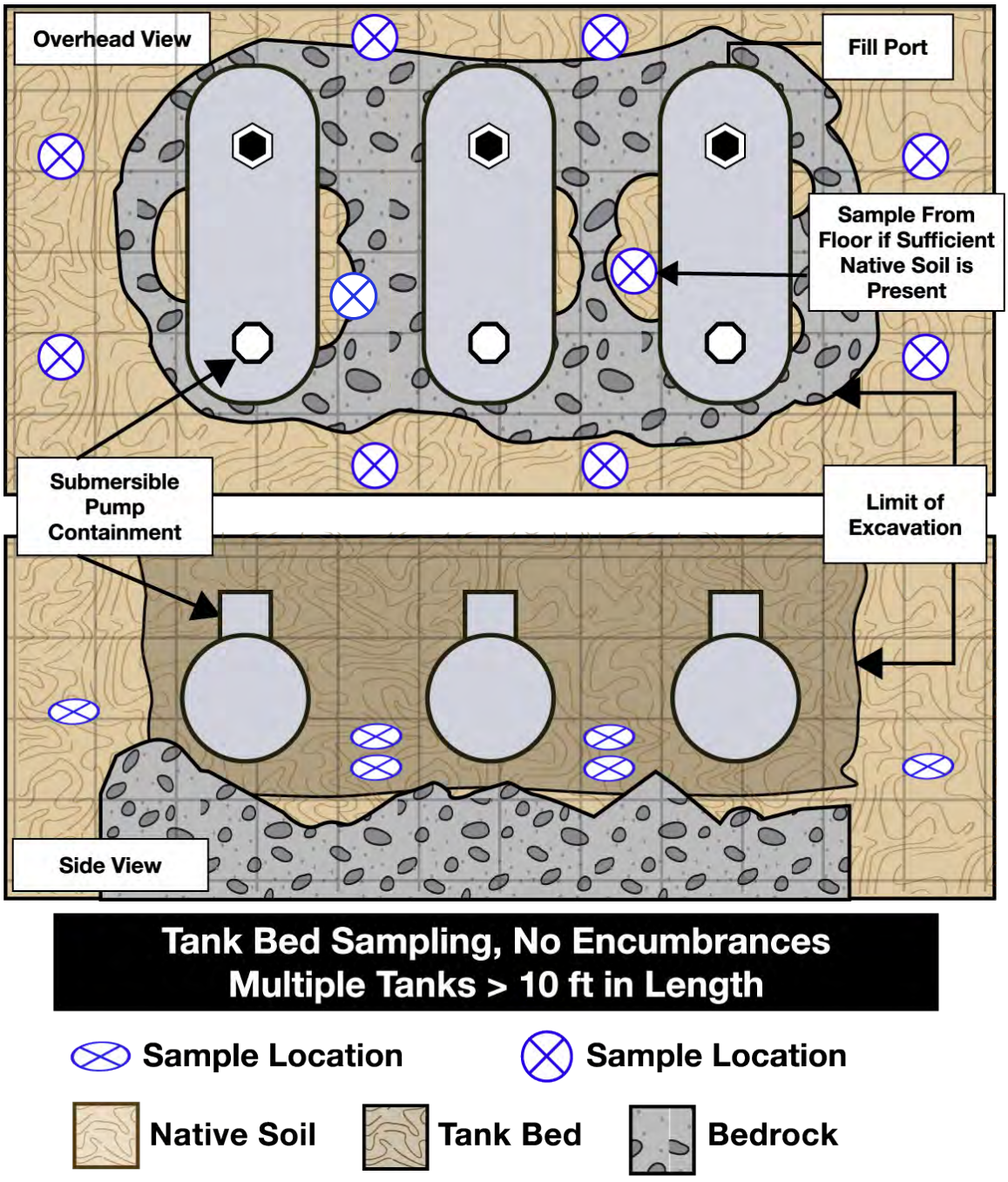


Figure 9b. Tank bed sampling for multiple tanks greater than ten feet in length, with bedrock present.

CONCRETE PADS OR "DEADMAN ANCHORS" ARE PRESENT

Samples of native soils are to be collected at the edges of the slab or anchor, at locations based on the number and length of the tanks (see diagrams below).

Table 6. Requirements for Tank Bed Sampling with a Single Tank and Concrete Pads or "Deadman" Anchors Present.

Single Tank	
Length of Tank	*Minimum Number of Soil Samples Per Tank*
≤ 10 feet	4 samples: • 1 at end of each tank • 1 off both sides of each tank – mid-region.
>10 feet	6 samples: • 2 off each side of the tank o 1 in line with the submersible pump containment o 1 in line with the fill port o (If the fill port is within 3 feet of the end of the tank, collect the 2 side fill port samples from the mid-region of the tank) • 1 off each end of the tank

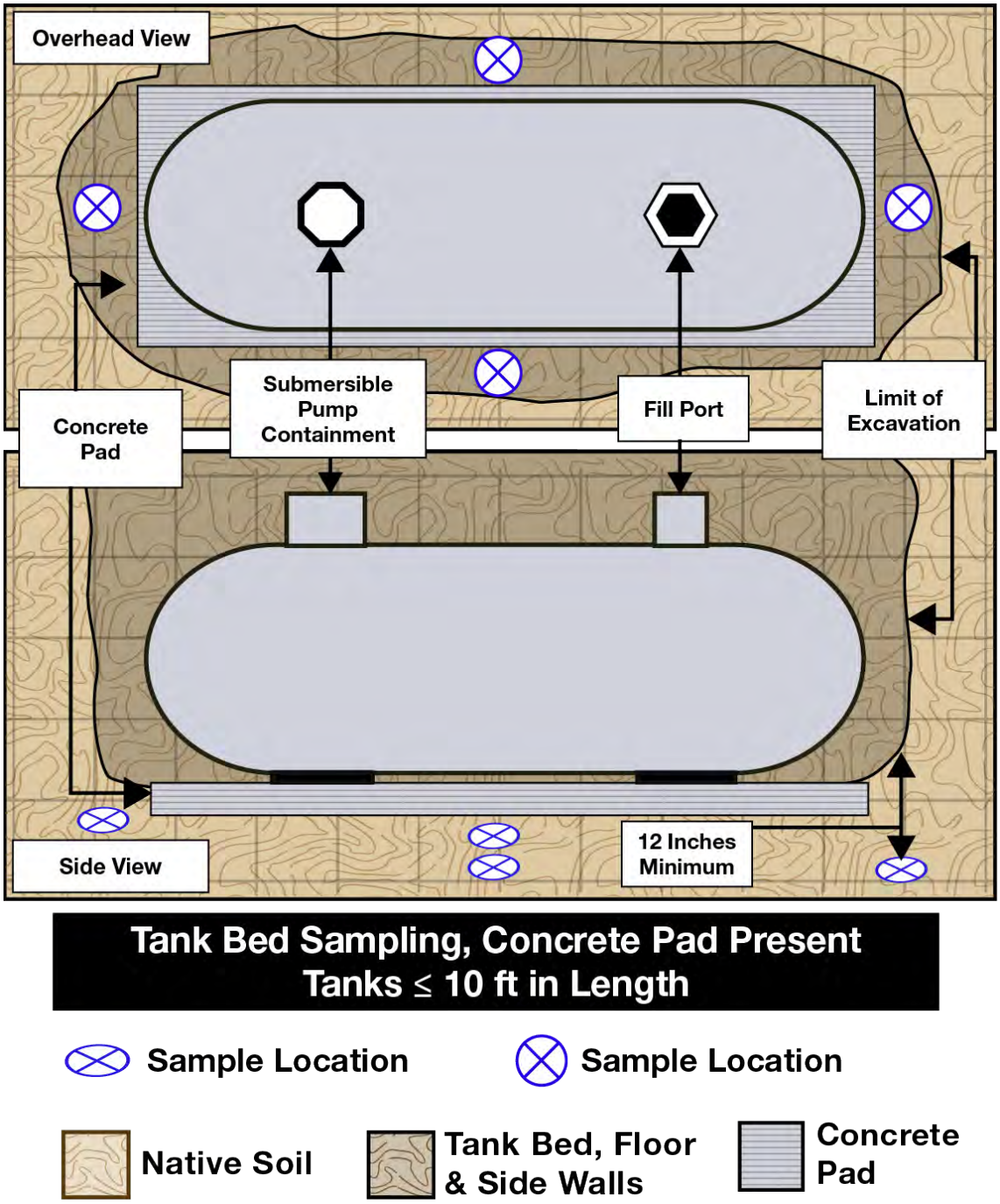


Figure 10a. Tank bed sampling for a single tank less than or equal to ten feet in length, with concrete or "Deadman" anchors present.

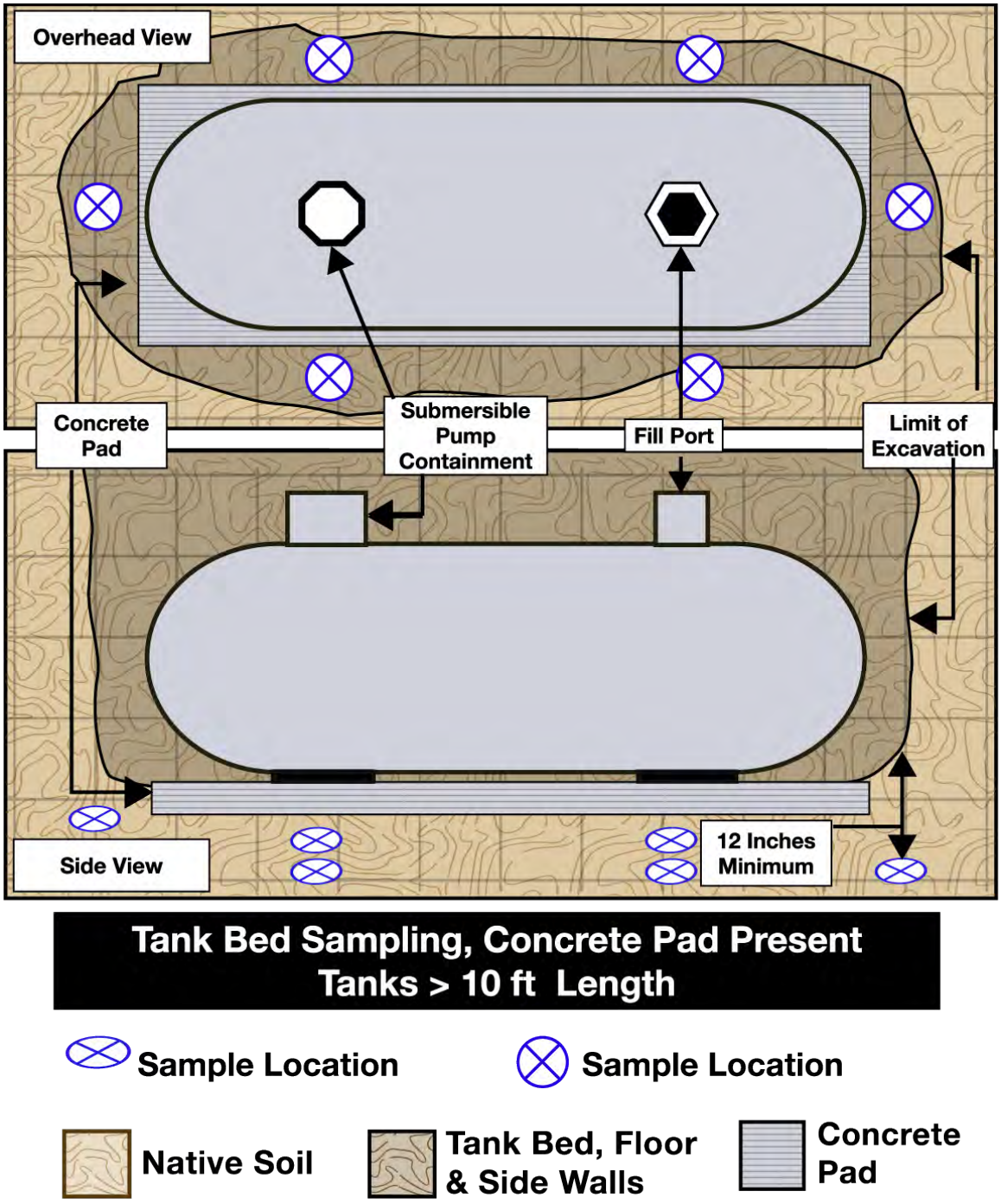


Figure 10b. Tank bed sampling for a single tank greater than ten feet in length, with concrete or "Deadman" anchors present.

Table 7. Requirements for Tank Bed Sampling with Multiple Tanks and Concrete Pads or "Deadman" Anchors Present.

Multiple Tanks	
Length of Tank	*Minimum Number of Soil Samples Per Tank Bed*
≤ 10 feet	6 samples: • 1 at the end of each set of tanks in line with the gap between each set of tanks; and • 1 off the side of each of the outermost tanks – mid-region of the tank
>10 feet	10 samples: • 2 off the sides of the outermost tanks o 1 in line with the submersible pump containment o 1 in line with the fill port (If the fill port is within 3 feet of the end of the tank, then collect the side fill port samples from the mid-region of the tank.) • 1 at the end of each tank

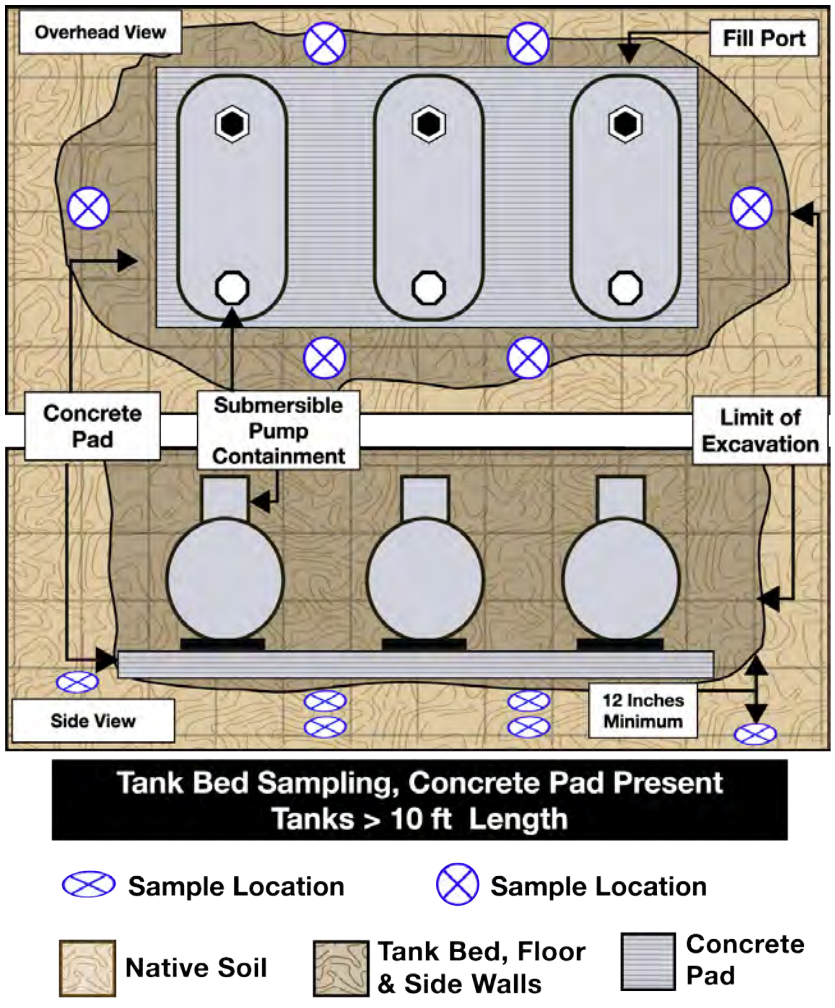


Figure 11a. Tank bed sampling for multiple tanks less than or equal to ten feet in length, with concrete or "Deadman" anchors present.

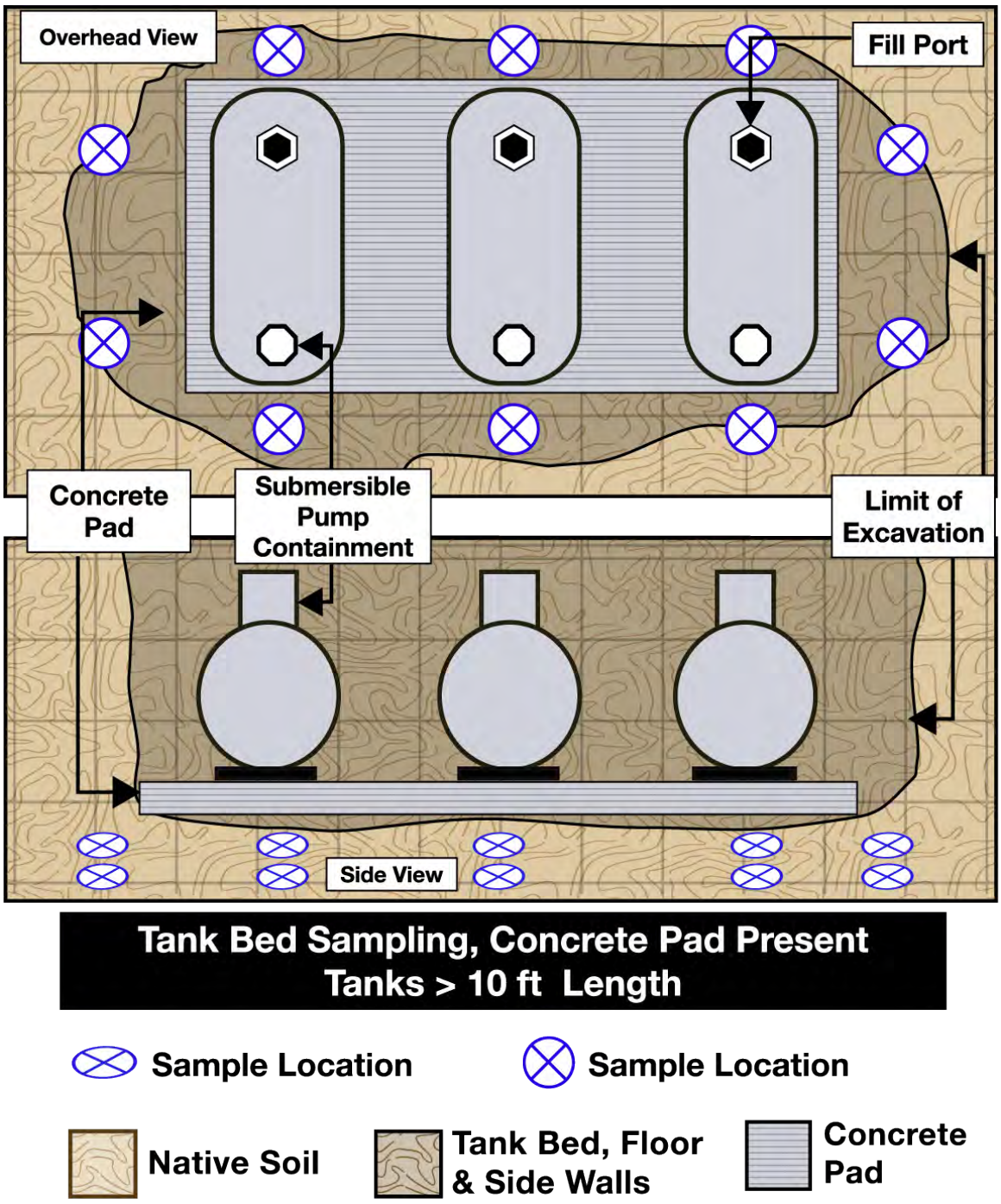


Figure 11b. Tank bed sampling for multiple tanks greater than ten feet in length, with concrete or "Deadman" anchors present.

GROUNDWATER IS PRESENT

If water is present in the tank bed, collect soil samples from immediately above the soil-water interface, one foot into the sidewall, in numbers according to the diagrams below. Note in the TSSA report the depth below ground surface from which the sidewall samples were collected.

Table 8. Requirements for Tank Bed Sampling with a Single Tank and Groundwater Present.

Single Tank	
Length of Tank	*Minimum Number of Soil Samples Per Tank*
≤ 10 feet	4 samples at the soil-water interface: • 1 at end of each tank • 1 on each side of tank, mid-region
>10 feet	6 samples at the soil-water interface: • 1 at each end of tank • 2 on each side of tank o 1 in line with the fill port o 1 in line with submersible pump containment (If the fill port is within 3 feet of the end of the tank, then collect the 2 side fill port samples from the mid-region of the tank.)

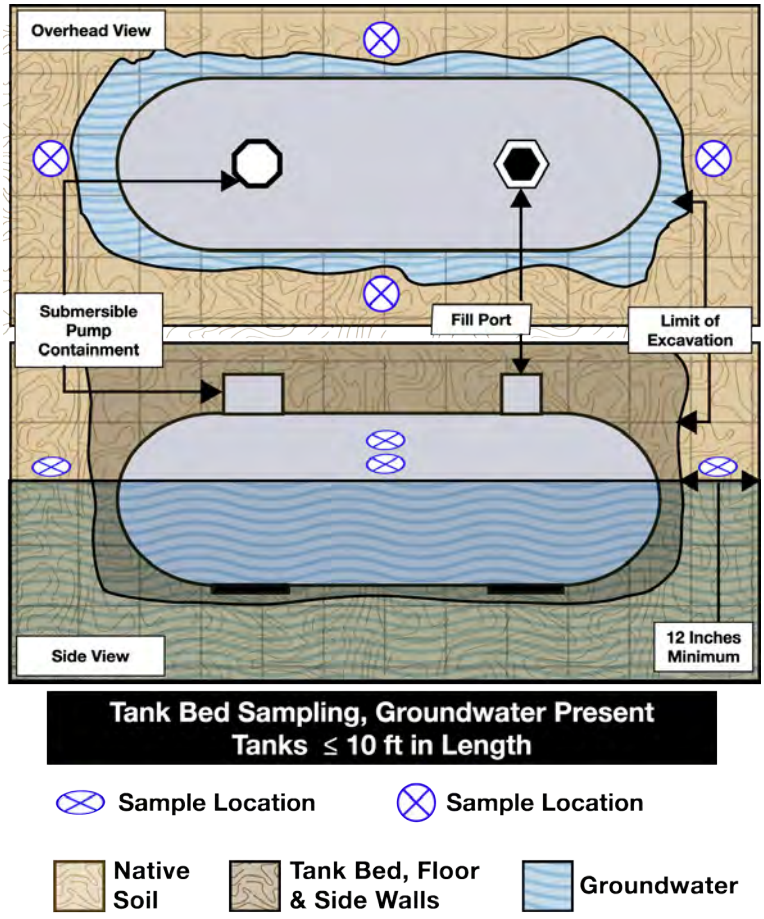


Figure 12a. Tank bed sampling for a single tank less than or equal to ten feet in length, with groundwater present.

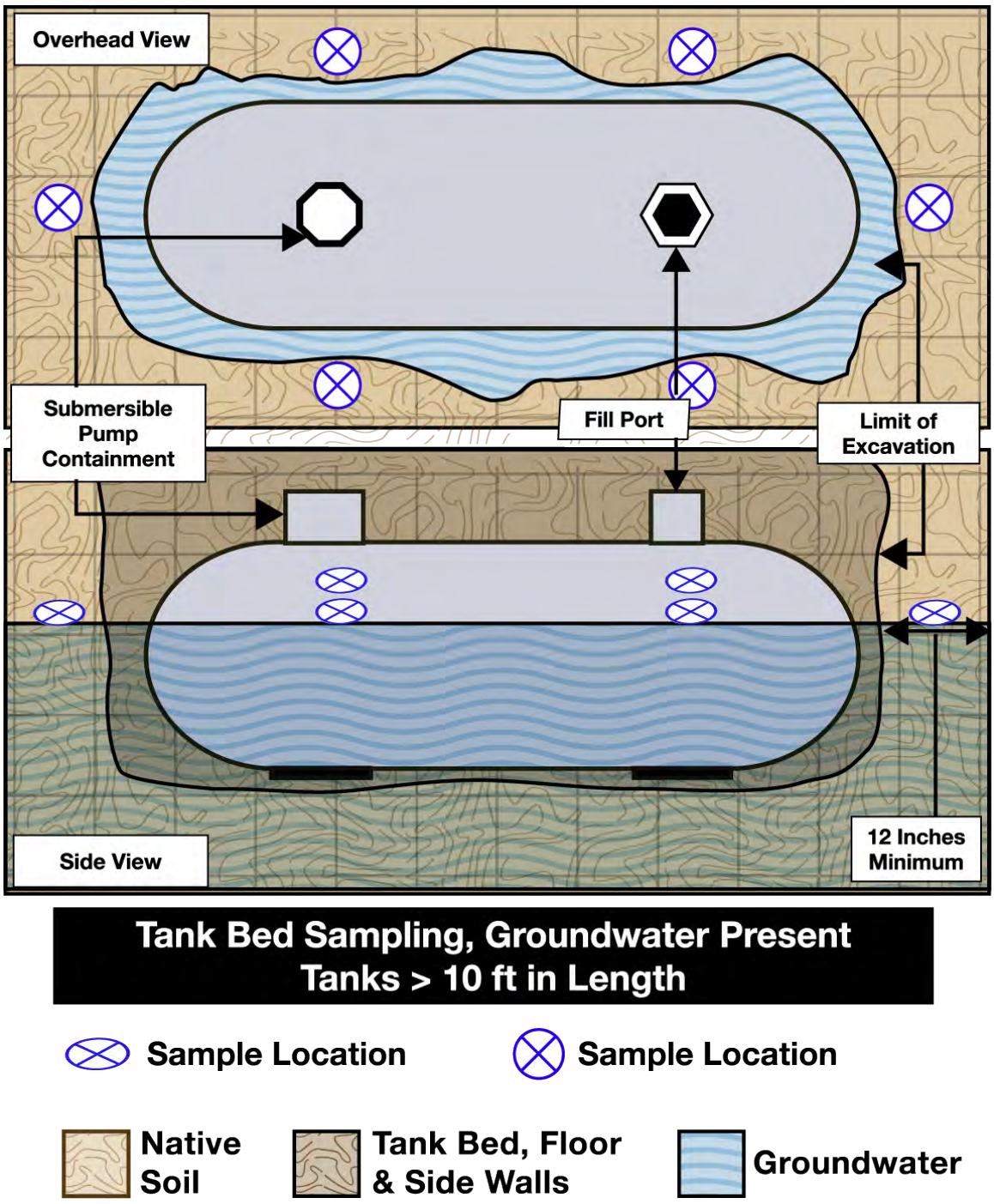


Figure 12b. Tank bed sampling for a single tank greater than ten feet in length, with groundwater present.

Table 9. Requirements for Tank Bed Sampling with Multiple Tanks and Groundwater Present.

Multiple Tanks	
Length of Tank	*Minimum Number of Soil Samples Per Tank Bed*
≤ 10 feet	6 samples at the soil-water interface: • 1 in the gap between each set of tanks at the end of each tank • 1 off the side of each of the outermost tanks, mid-region of the tank
>10 feet	8 samples at the soil-water interface: • 1 in the gap between each set of tanks at the end of each tank • 2 on each side of each of the outermost tanks o 1 in line with the fill port o 1 in line with the submersible pump containment (If the fill port is within 3 feet of the end of the tank, then collect the 2 side fill port samples from the mid-region of the tank.)

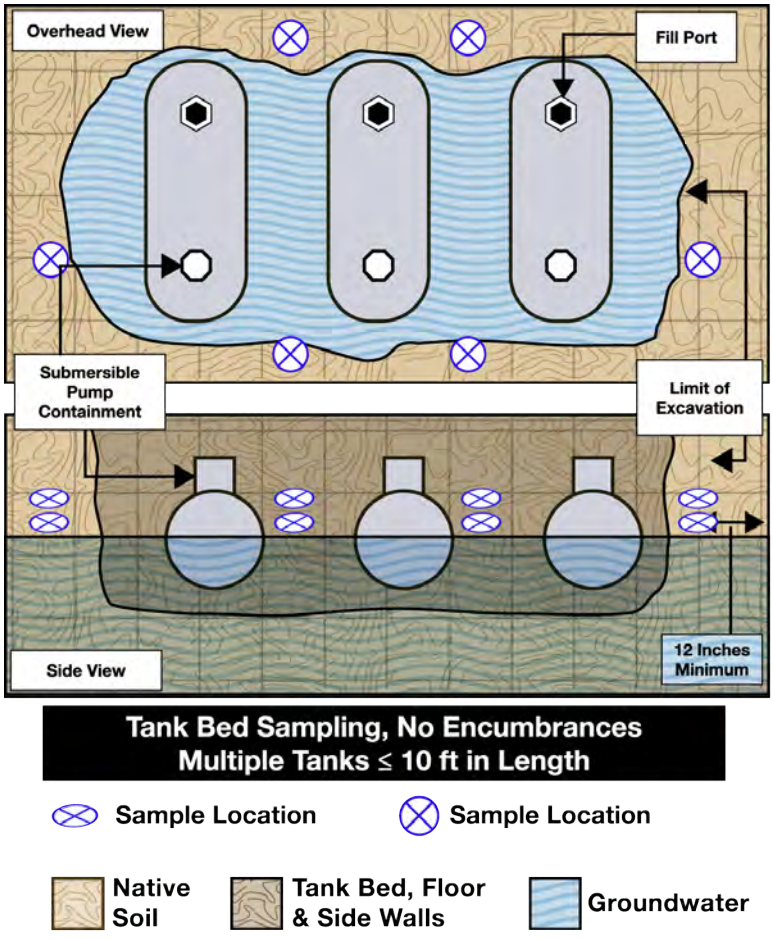


Figure 13a. Tank bed sampling for multiple tanks less than or equal to ten feet in length, with groundwater present.

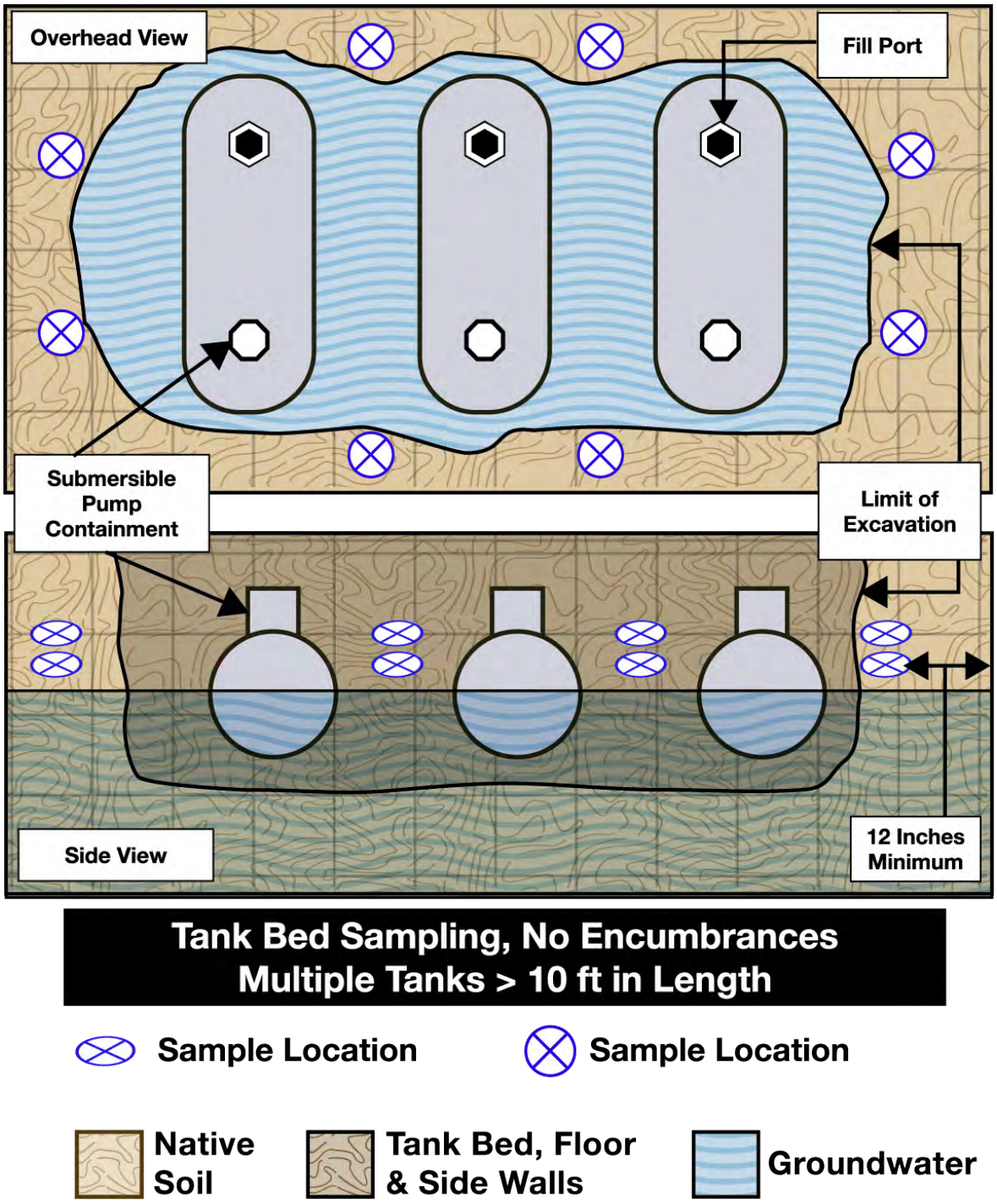


Figure 13b. Tank bed sampling for multiple tanks greater than ten feet in length, with groundwater present.

PIPING

Studies from various sources, including the EPA, have shown that piping is the second most common UST system leak source. Therefore, DATCP strongly recommends the use of as-built drawings, remote sensing techniques, or excavation to locate all piping prior to initiating sampling. Completely exposing the piping is recommended to better see where joints, bends, connectors, and areas of obvious contamination are located. When performing a UST system closure, all piping must be either removed from the ground or properly closed in-place (closure in place requires DATCP approval). Collect grab samples of native soil from beneath the piping, approximately 12 inches below the base of the trench floor. Locations such as elbows (where the piping changes direction), connectors, joints, any corrosion holes, or other evidence of potential contamination, must be targeted for sampling.

In cases where none of the aforementioned sampling locations exist along a piping run, at least 1 native soil sample should be collected for every 20 feet of piping. For an assessment associated with a repair, sampling is typically needed only in the vicinity of the repair, unless there is evidence that suggests the impact of a release extends beyond the immediate vicinity of the repair.

Note: *If the dispenser(s) are located over the tanks, and there is no remote fill port, then dispenser samples will satisfy piping run sample requirements. If a piping run contains more than one product line and the distance between two adjacent lines is less than or equal to five feet, only one sample need be collected from between the lines. Samples should be collected every 20 linear feet if there is no obvious contamination. The following diagrams show the locations of the required piping run samples.*

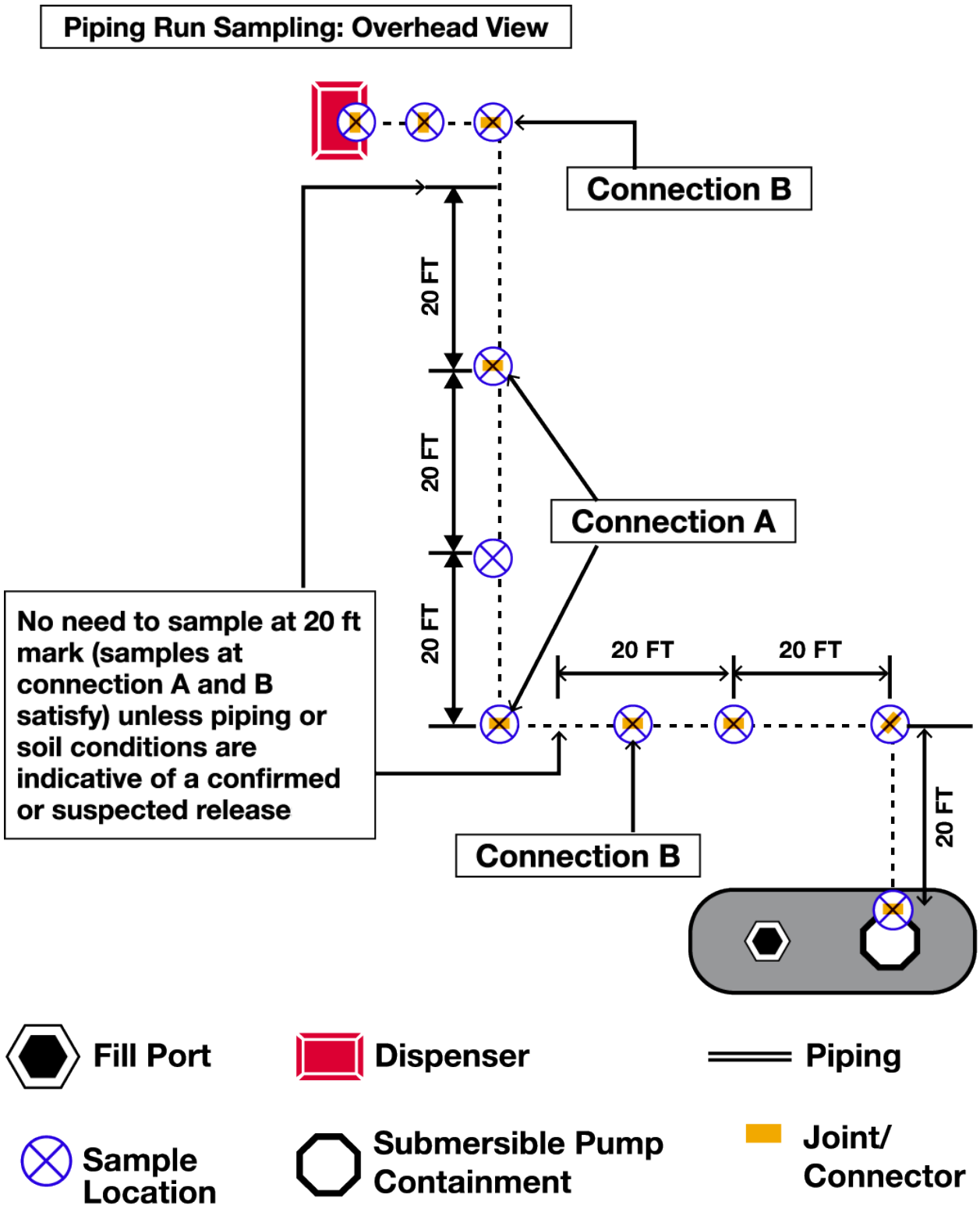


Figure 14a. Overhead view of sampling locations for a piping trench.

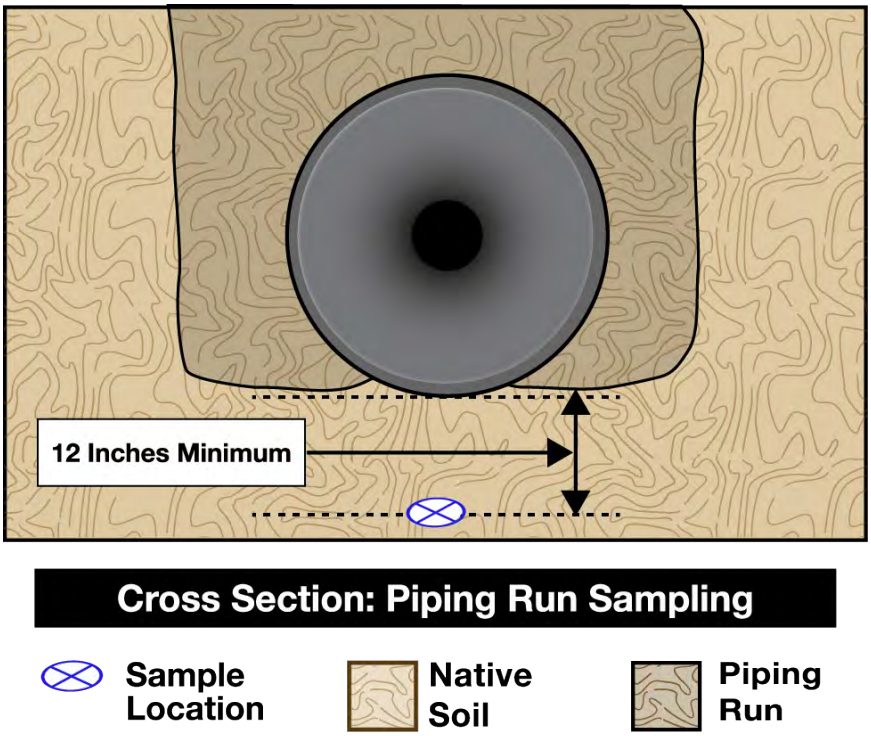


Figure 14b. Cross sectional view of sampling locations for a piping trench, with a single pipe.

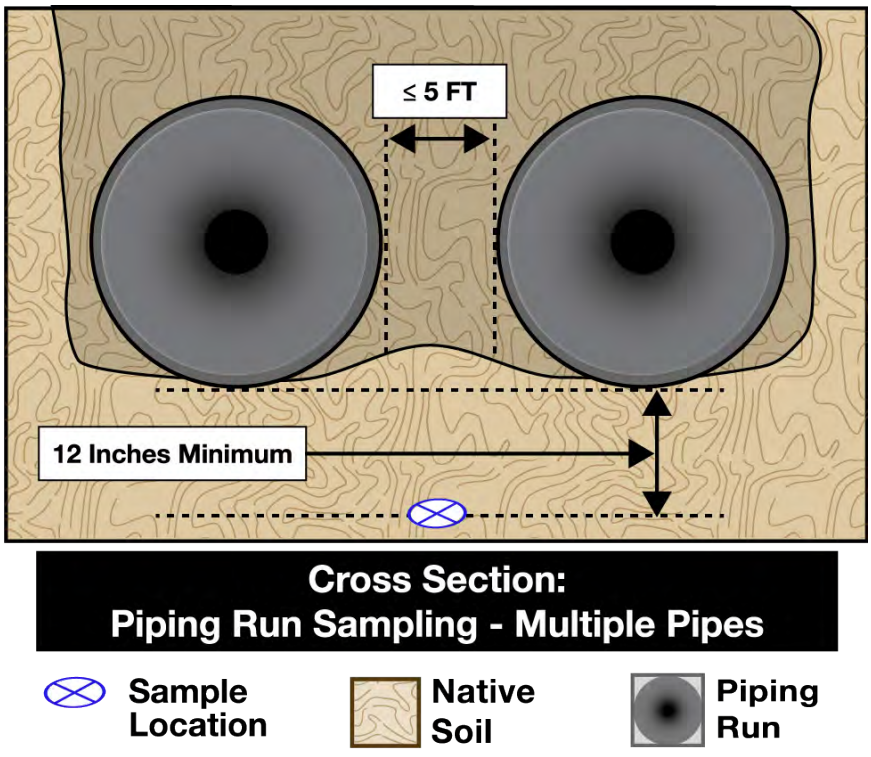


Figure 14c. Cross sectional view of sampling locations for a piping run, with multiple pipes in trench.

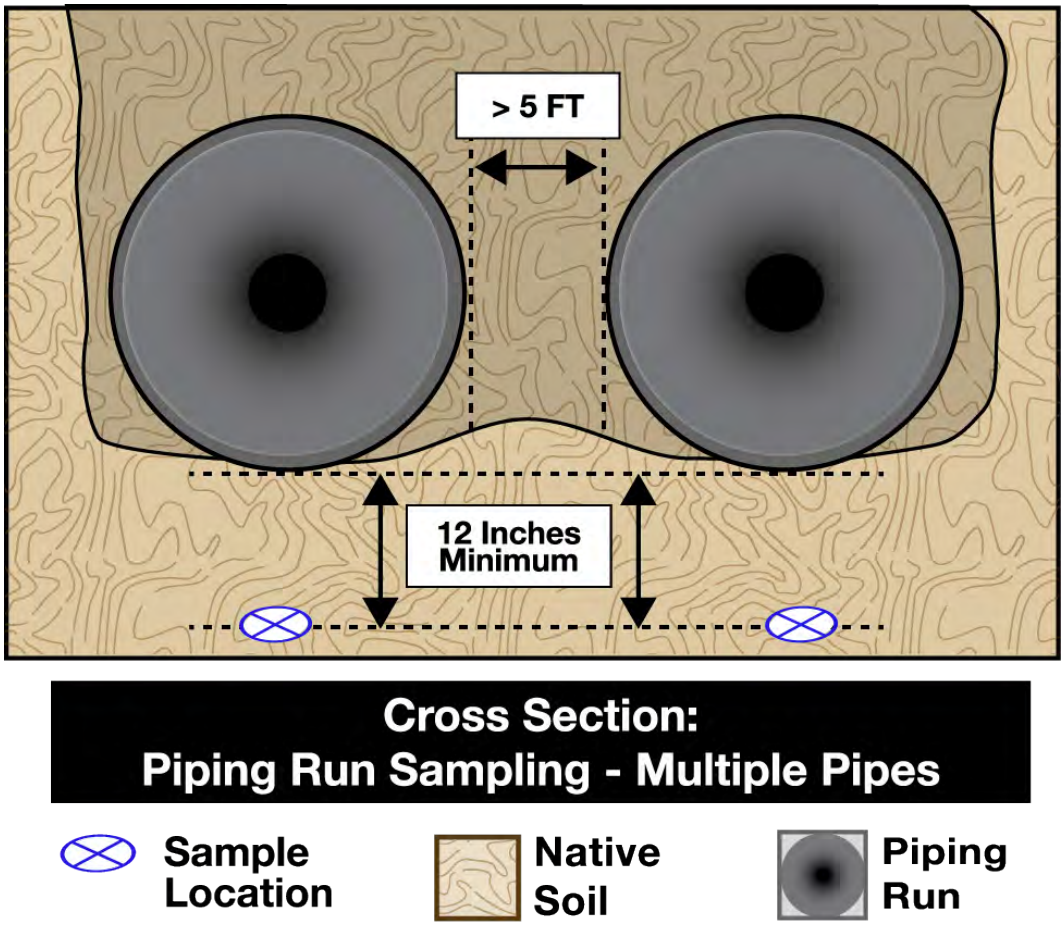


Figure 14d. Cross sectional view of sampling locations for a piping trench, with multiple pipes greater than five feet apart.

DISPENSERS

Take one discrete soil sample per dispenser. Collect samples of native soil from beneath the dispenser at a depth of at least 12 inches below the dispenser supply piping. If two dispensers are located within five feet of each other as measured from supply-side to supply-side, then only one boring midway between the supply-sides of the dispensers, will satisfy dispenser sampling requirements for both dispensers (Five Foot Rule).

Note: *If the dispenser(s) are located directly over the tanks, and there is no remote fill port, then dispenser samples will satisfy piping run sample requirements as well.*

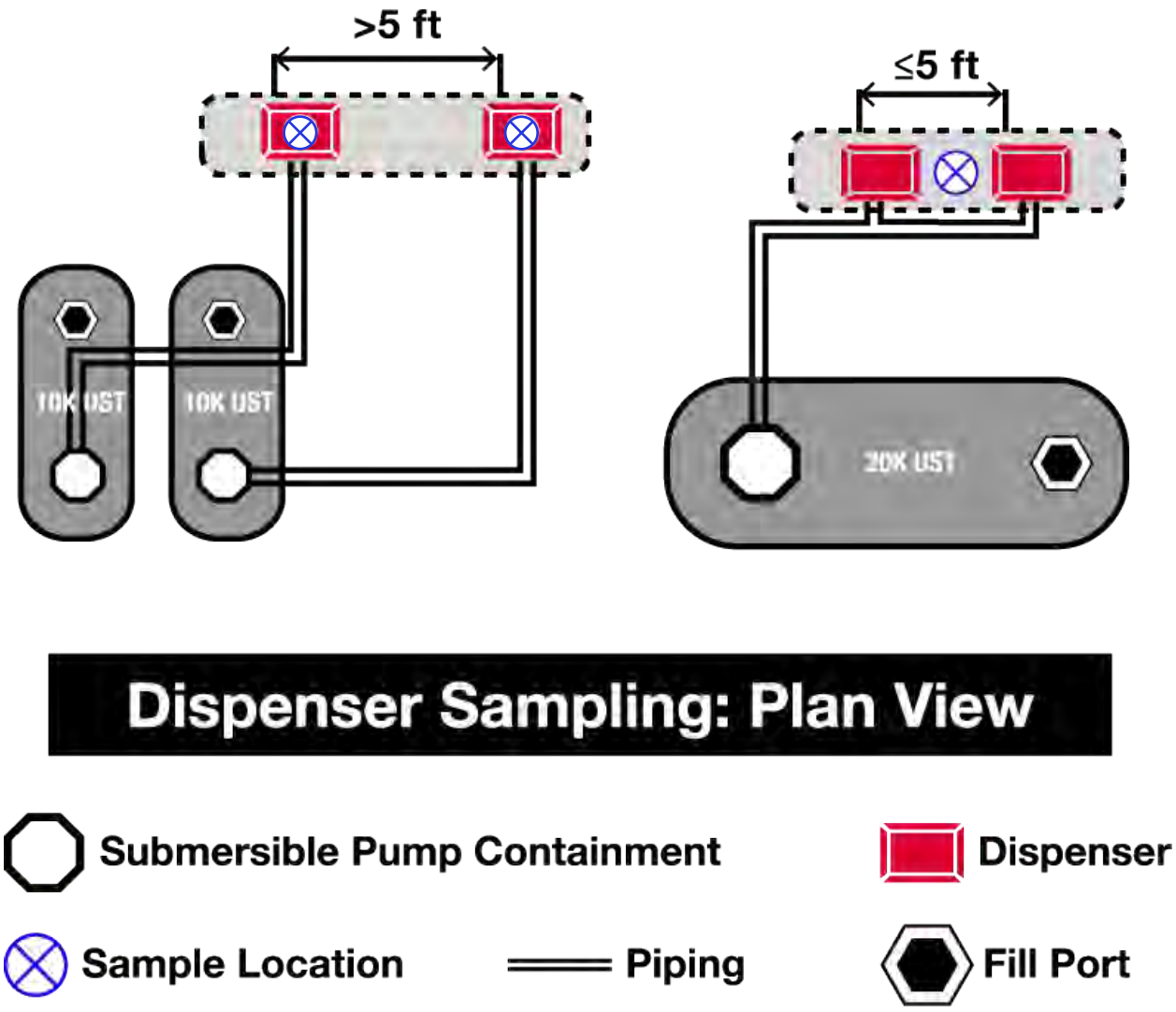
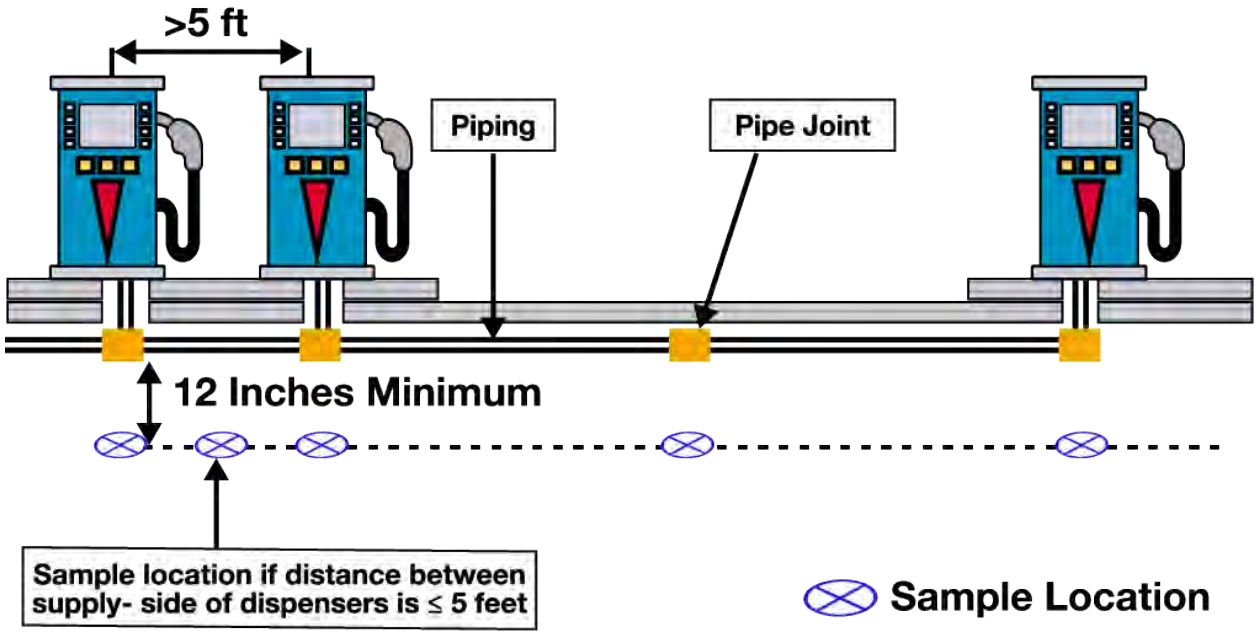


Figure 15. Overhead view of sampling locations when dispensers are present.



Dispenser Sampling: Cross-Sectional View

Figure 16. Cross sectional view of sampling locations when dispensers are present.

SUMPS AND SPILL BUCKETS

The objectives of this section are to explain when a release assessment should or should not be initiated for sumps and spill buckets. Wis. Admin. Code § ATCP 93.570 Conditions indicating a release; Wis. Admin. Code § ATCP 93.575 Tank system integrity assessment and Wis. Admin. Code § ATCP 93.580 Tank-system site assessment, all pose conditions and methodologies for determining whether or not a leak has become a release. The manner in which sump and spill bucket integrity issues (and ultimately compliance) are determined affects the course of action that must be taken. In relation to tank or dispenser sump and spill bucket integrity, the point of code reference is Wis. Admin. Code § ATCP 93.230(10) System maintenance. (a) All system equipment and components shall be maintained to function to the manufacturer's original specifications and shall be maintained to be leak-free.

As an example, neither the sump boot nor the spill bucket in the following photos are being maintained to manufacturer's specifications and subsequently are not being maintained "leak free."

Figure 17. Image of sump boot.

Figure 18. Image of spill bucket.

Factors that determine the extent of a sump or spill bucket release investigation are:

- Is there evidence of a malfunction or failure of the system leak detection equipment?
- Is there evidence that a leak or release occurred during, or as a consequence of, the malfunction or failure?
- Is there evidence that liquid reached the level of the sump breach?
- Is there visual observation of liquid level or staining?
- Is there peripheral or off-site evidence such as vapors or sheen on water?
- Is there evidence that the liquid is a regulated product?
- Is there residue, visual coloration or staining associated with the regulated product in the system?

If all of the sub-bullets above are 'No' there is no need to conduct a TSSA.

If any of the sub-bullets above are 'Yes,' then there are two assessment options:

- Treat the situation as a release and proceed to assess the surrounding soil and/or perform TSSA soil testing; or
- Conduct a tightness test on the sump or spill bucket prior to the repair.

If the test determines the sump or spill bucket is tight, the release investigation is satisfied and there is no need for TSSA sampling. If the test determines that the sump or spill bucket is not tight, then proceed to conduct TSSA soil testing.

Soil Sampling Guidance for a Tank Top Sump and/or a Spill Bucket

As stated in the previous section, DATCP will require that one soil sample be collected from each side of the tank adjacent to the submersible sump or spill bucket.

These samples are to be collected at a depth below ground surface equivalent to five feet beneath the bottom of the tank or at the first sign of contamination, whichever occurs first. The soil probe location should be within five feet of the tank sidewall at its maximum diameter. Greater distances and/or sampling from only one side may be warranted due to obstructions such as piping, other tanks, electrical conduits, etc. In such cases, the reporting shall include clear documentation indicating the limitation(s).

In situations of high groundwater or perched water, samples are to be collected immediately above the top of water.

For situations with pea gravel backfilled tank basins, obtain a native soil sample from the bottom of the basin at the same locations indicated above (i.e., analytical results for pea gravel are not appropriate).

Soil Sampling Guidance for a Dispenser Sump

Soil sampling for a dispenser sump is similar to the TSSA sampling for dispensers detailed in the previous section.

If design plans are not available, the pipe and electrical conduit entering the dispenser sump should give an indication of the pipe and conduit run outside the sump (i.e., determine how to avoid the piping runs when collecting a soil sample). If the sump wall penetration is toward the side of an island, collect one sample on the side of the sump where the suspected breach has occurred at a depth of 5 ft below the level of the suspected breach in the sump, or at the first sign of contamination, whichever occurs first. If the sump wall penetration is toward the end of an island, collect one sample on each side of the sump adjacent to the sump wall penetration.

Release Reporting to the DNR

A spill or release is required to be reported as described in the DNR web page "How to Report a Spill" (https://dnr.wisconsin.gov/topic/Spills/report.html). The DNR has stated their position that: "In order for the spill to not be reportable it would have to be cleaned up immediately after the release, not after the discovery. So if there is a slow leak to the subsurface it is technically reportable whether it is less than one gallon or not."

In the event a case is opened for the identified contamination, the case would be found online in the Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the Web (BOTW); go to dnr.wi.gov and search "BOTW." Use the BRRTS ID # found in the documentation provided by DNR. The site can also be found on the map view, Remediation and Redevelopment Sites Map (RRSM), by searching "RRSM."

Release Investigation Decision-Making Examples:

In both the photos below, staining indicates there has been some liquid in the sump previously. Both sumps are currently dry and staining is below the penetration. Because there is not strong evidence that liquid with petroleum reached the penetration holes, a release investigation is not required.

Figure 19. Image of unsealed penetration in containment and residue present.

Figure 20. Image of sump with product residue.

In the two photos below, liquid has reached the sump wall penetration. However, the liquid appears to be water that is not contaminated with petroleum, therefore a release investigation is not required.

Figure 21. Failed entry boots leading to water in the sump.

Figure 22. Failed entry boots allowing water into the sump.

The “check box” test of release investigation applicability:

Example #1

Question:	YES	NO
Is there evidence of a malfunction or failure of the system release detection equipment?		X
Is there evidence that a release occurred during or as a consequence of the malfunction or failure?		X
Is there evidence that liquid reached the level of the sump breach?	X	
Is there visual observation of liquid level or staining?	X	
Is there peripheral or off-site evidence such as vapors or sheen on water?		X
Is there evidence that the liquid contained a regulated product?		X
Is there residue, visual coloration or staining associated with a petroleum product?		X

Conclusion: A Release Investigation is Not Warranted

Figure 23. Water in the sump, integrity (find buckling along wall of sump).

Figure 24. Compromised sump indicating the sump is not “water tight.”

Example #2

Question:	YES	NO
Is there evidence of a malfunction or failure of the system release detection equipment?		X
Is there evidence that a release occurred during or as a consequence of the malfunction or failure?		X
Is there evidence that liquid reached the level of the sump breach?	X	
Is there visual observation of liquid level or staining?	X	
Is there peripheral or off-site evidence such as vapors or sheen on water?		X
Is there evidence that the liquid contained a regulated product?	X	
Is there residue, visual coloration or staining associated with a petroleum product?	X	

Conclusion: A Release Investigation is Warranted

6. SAMPLING LOCATIONS FOR TANK-SYSTEM CLOSURE IN-PLACE OR CHANGE IN SERVICE TO STORE A NON-REGULATED SUBSTANCE

You must follow the steps given in this document unless special circumstances do not allow these steps. For those circumstances, an alternative sampling plan must be submitted to the DATCP for approval at least 15 days prior to commencing field activities.

Tanks and piping closed in-place must be cleaned and filled with an inert, solid material, after receiving permission for the closure from DATCP. All tank and piping sludge removed during the cleaning process must be properly disposed of in accordance with all regulatory requirements (see Addendum 3).

If a suspected or obvious release is encountered during a change in service to store a non-regulated substance, the same notification and sampling requirements that apply to permanent closure in-place of a tank-system must be followed. Sampling must be conducted in the same manner as tank system closure in-place, and the interior of the tank must be properly cleaned. In addition, DATCP must be notified of the change in service.

TANK BED

Drills, hydraulic probes, and hand augers are acceptable tools for the locations depicted in the following diagrams. Each boring must be within three to five feet of the tank and angled in toward the midline of the tank-bed. The objective is to collect samples beneath and as close to the long midline of the tank as possible. Sample depth must be a minimum of two feet deeper than the bottom of the tank-bed for low permeability soils (clay or silt), and five feet deeper for high permeability soils (sand or gravel). Collect two samples from each boring. Collect one sample from the interval with the greatest visual, olfactory, or field-screening instrument indication of contamination; or if there is no indication, either immediately above the soil-water interface if water is encountered (see Figures 12a and 12b if groundwater is present), or between the tank midpoint and total depth. Collect a second sample at total depth. For an assessment associated with a repair, sampling is typically needed only in the immediate vicinity of the repair. Samples must be taken from native soil, not backfill.

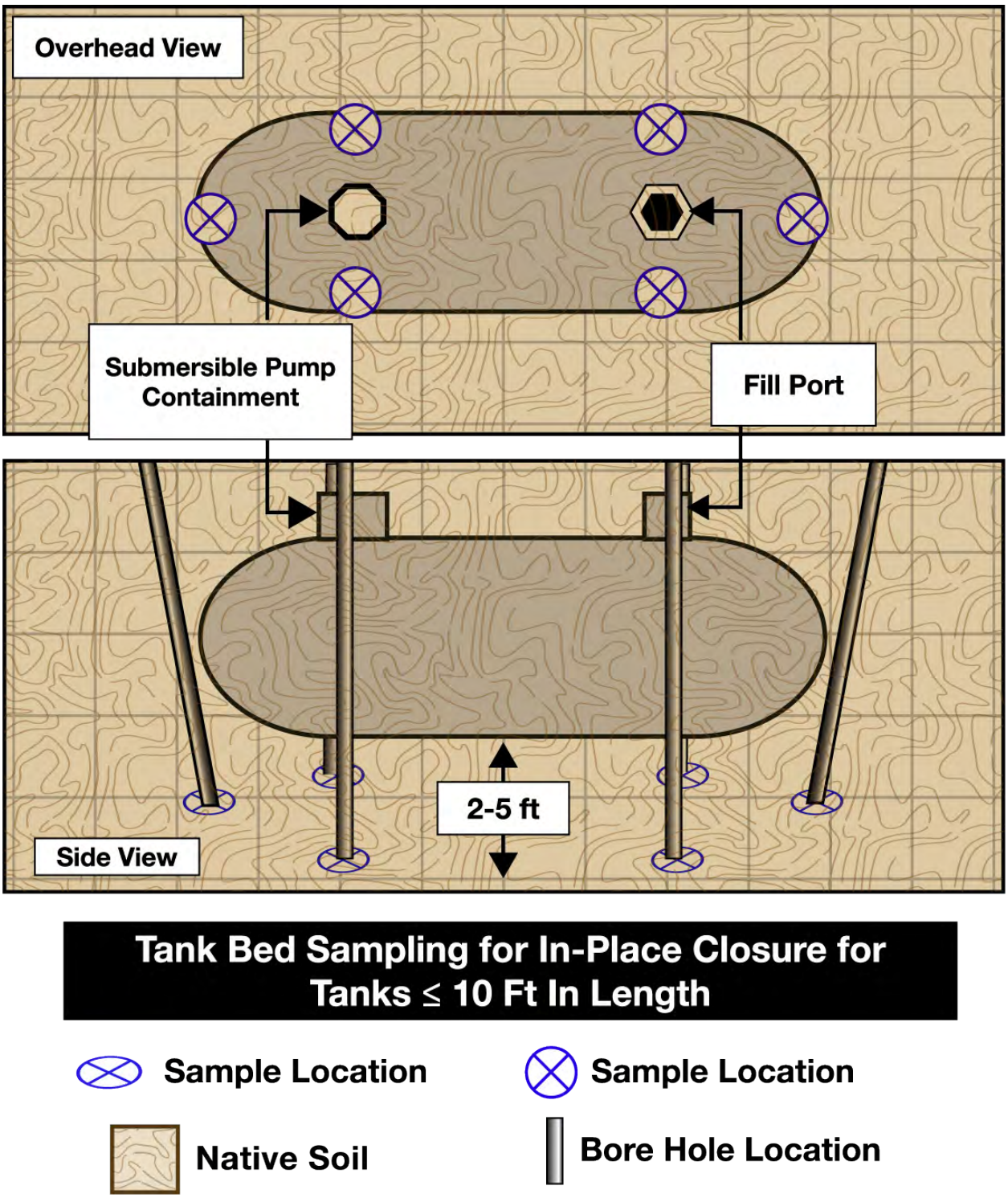


Figure 25a. Tank bed sampling for a single tank less than or equal to ten feet in length, for an in-place closure.

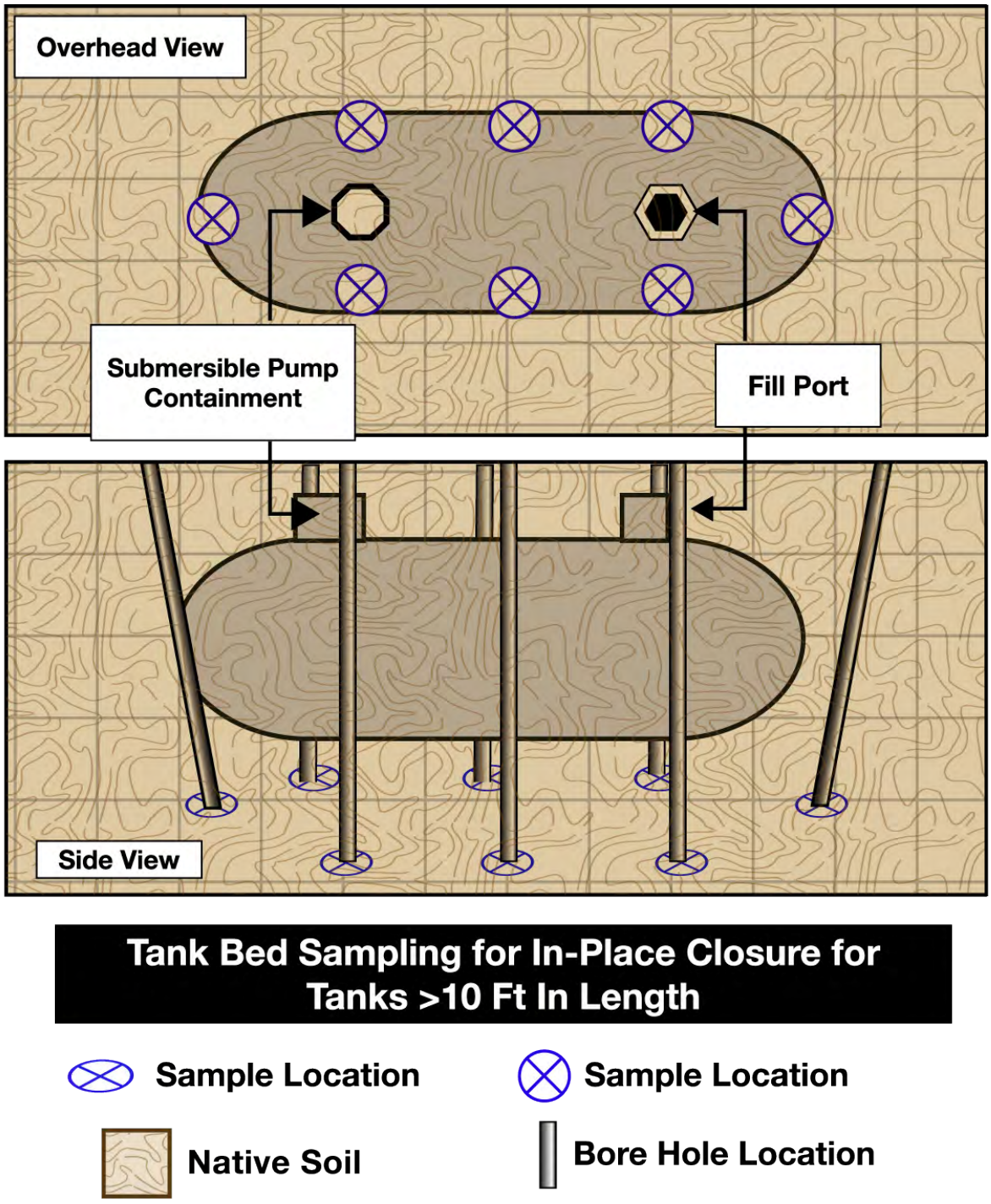
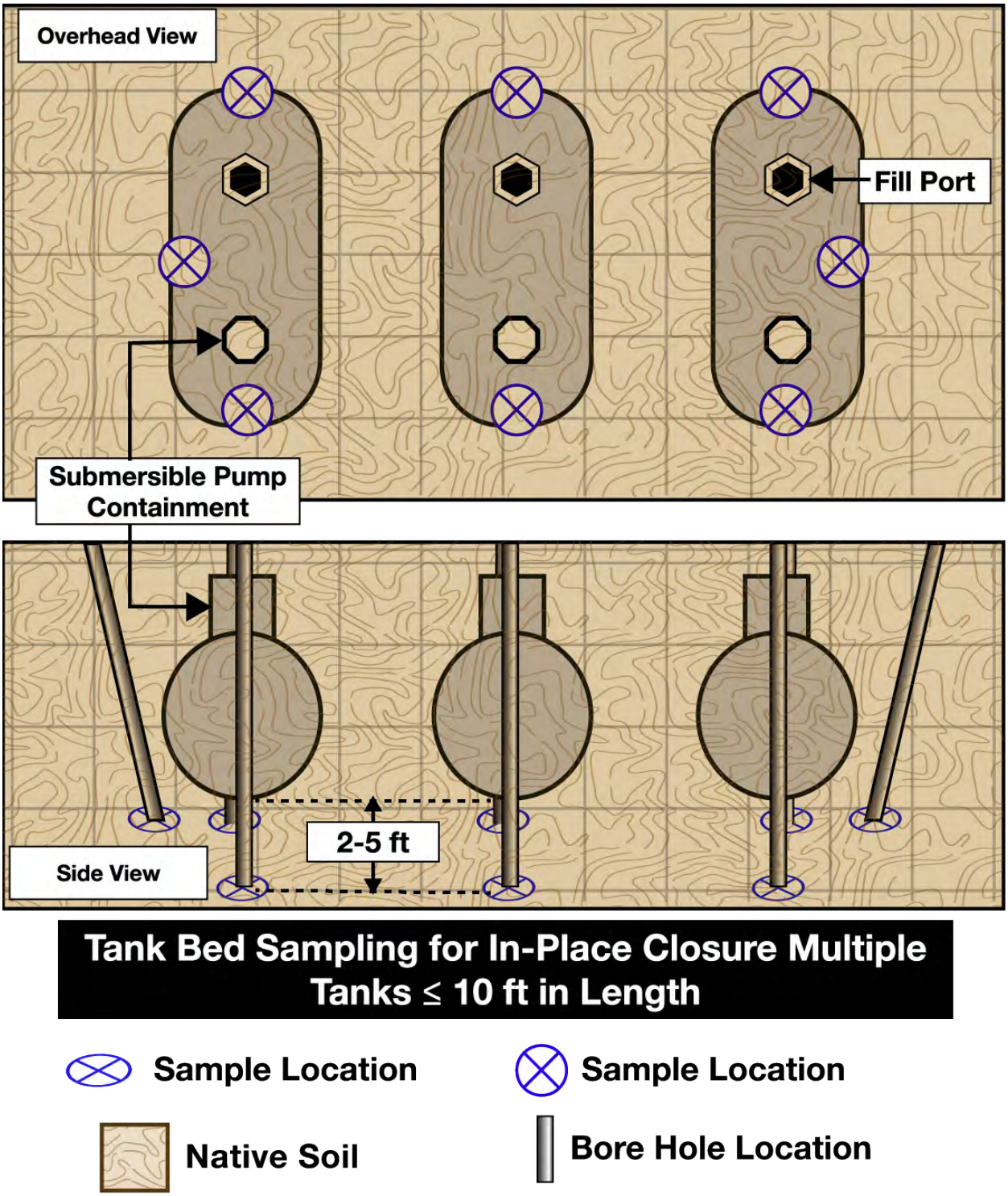


Figure 25b. Tank bed sampling for a single tank greater than ten feet in length, for an in-place closure.



Figures 26a. Tank bed sampling for multiple tanks less than or equal to ten feet in length, for an in-place closure.

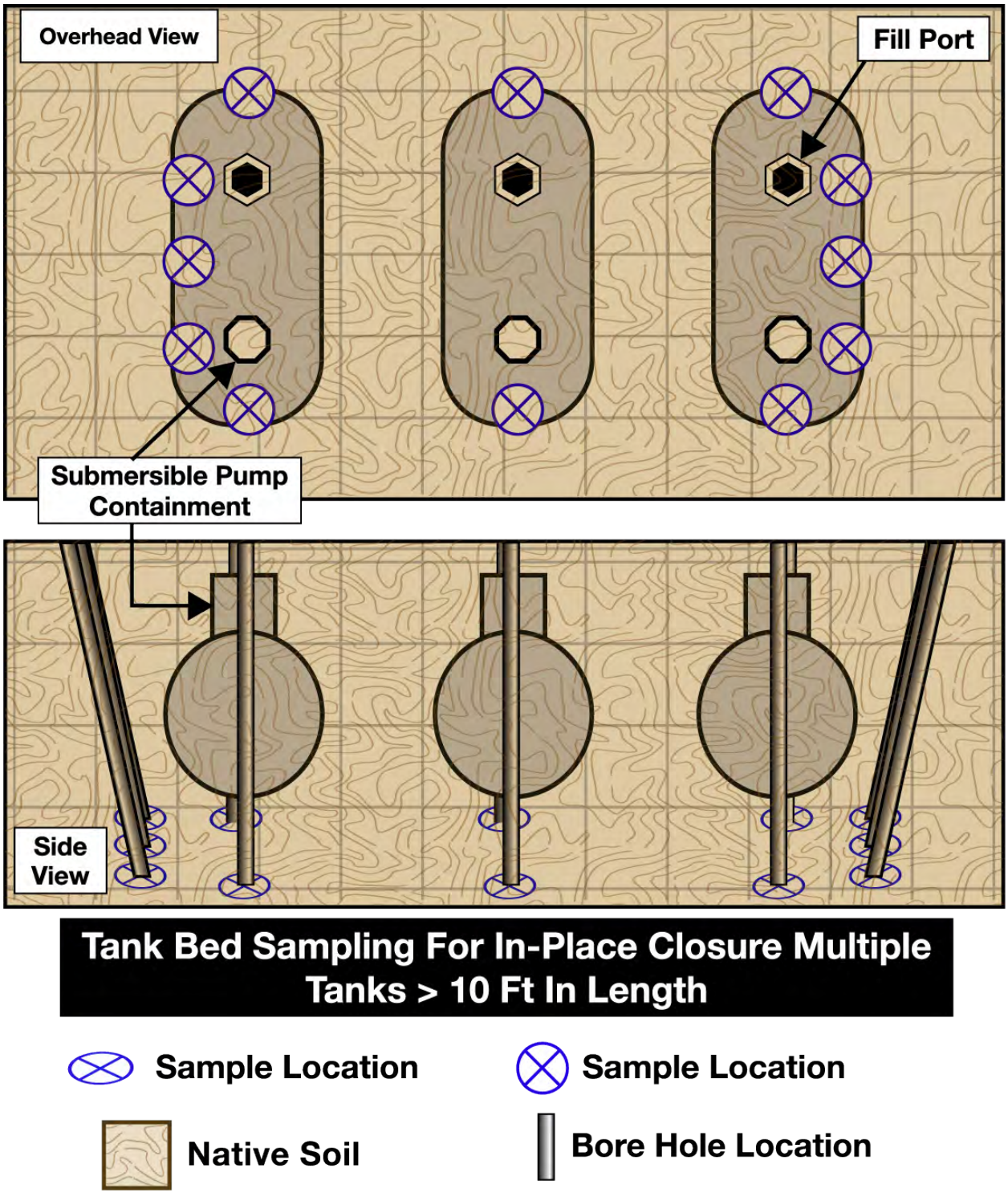


Figure 26b. Tank bed sampling for multiple tanks great than ten feet in length, for an in-place closure

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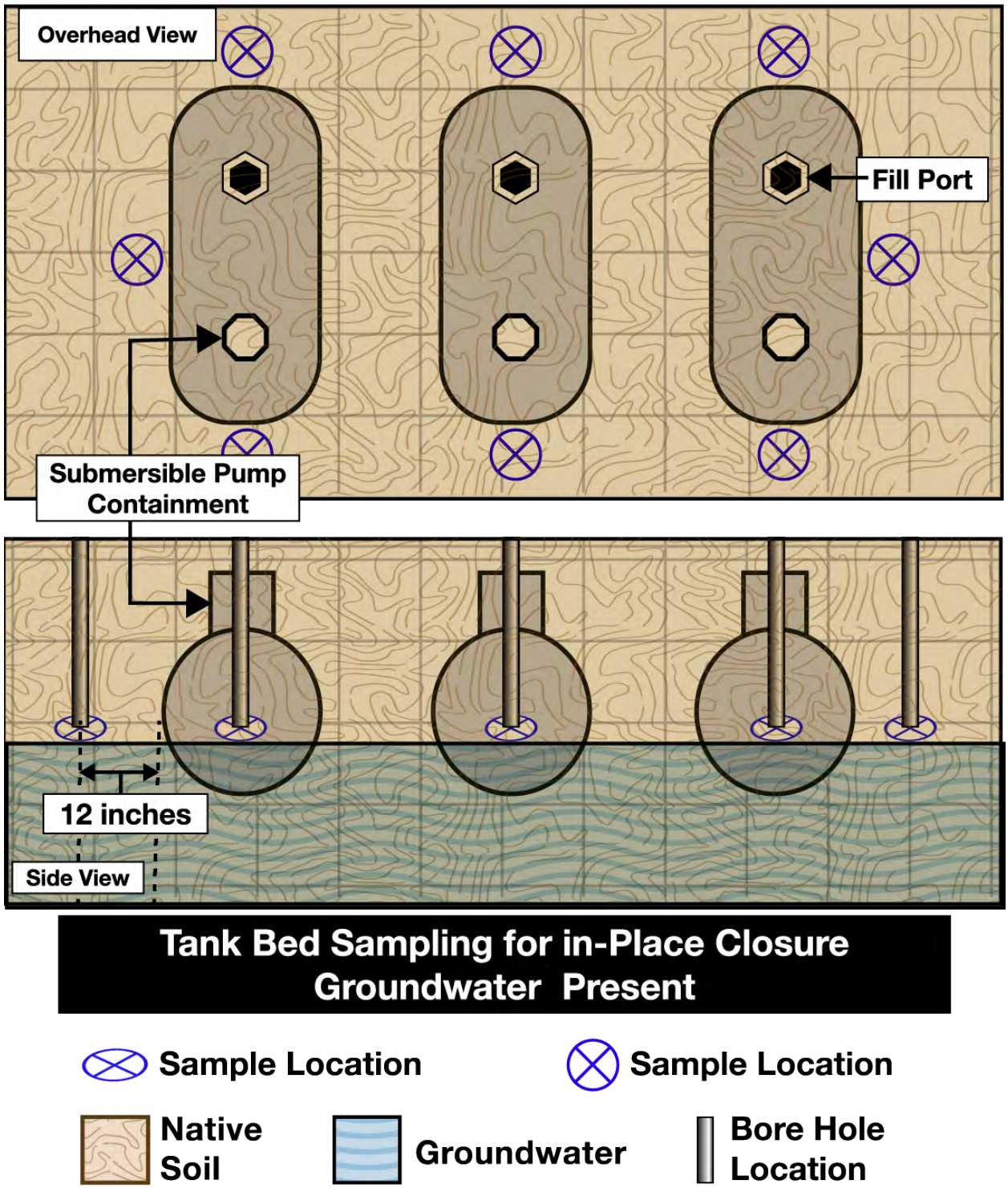


Figure 26c. Tank bed sampling for an in-place closure with groundwater present.

PIPING

The same sampling method used for tank closure in-place should be employed for piping, except that the borings are to be performed along the piping run. One sample is to be collected from native soil under each connector, elbow, bend, etc., at a depth of two feet below the piping for low permeability soils (e.g., clays, silts, fine sands) and at five feet below the piping for high permeability soils (e.g., medium to coarse sand, gravel). A minimum of one sample is to be collected every 20 linear feet of piping. If the distance between two parallel piping runs is less than or equal to five feet, then only one borehole must be performed between the piping runs.

6.1 REPLACEMENTS OR REPAIRS

Below are situational examples of procedures to follow when replacing or repairing only a portion of a system, such as: a section of piping, removal of one tank, or the abandonment of dispenser(s). This list is non-exhaustive and only provides a few common examples out of many potentially different scenarios.

- **Abandoning an island** – the facility will remain operating as a UST facility. In this case, you must submit the TSSA forms and indicate on the form that only piping and a dispenser is being closed. The section of piping that supplied the abandoned dispenser island must also be closed in accordance with the requirements of this document and chapter ATCP 93.
- **Replacing the piping** – the facility will remain operating as a UST facility and all new piping will utilize the existing trenches/dispenser islands. In this case, you must submit the TSSA forms and indicate on the form that only piping is being removed. All piping must be closed in accordance with the requirements of this document and chapter ATCP 93.
- **Replacing the tanks** – the existing piping will be utilized. In this case, you must submit the TSSA forms and indicate on the form that only tanks are being closed. The tanks must be closed in accordance with the requirements of this document and chapter ATCP 93.
- **Repairing the piping.** In this case, you must notify the field inspector of your intent and indicate on the TSSA form that only piping repair is being performed. For an assessment associated with a repair, sampling is typically needed only in the vicinity of the repair, unless there is evidence that suggests the impact of a release extends beyond the immediate vicinity of the repair.

7. REPORTING

7.1 TSSA REPORT FORM

All TSSA documentation is to be reported on parts A & B of DATCP's Tank System Service and Closure Assessment Report Form (TR-WM-140[5]). It is required that Parts A and B of the form be submitted to the DNR. Only part A needs to be submitted to DATCP. This form is included at the end of this publication and available on DATCP's Weights and Measures Forms webpage.

[5] Form numbers are subject to change. Please use the most current version available on our website.

7.2 CONTACT INFORMATION

EMERGENCIES

For emergencies such as fires, explosions, or vapor hazards, immediately call the local emergency response personnel by dialing 911, then call the statewide spills hotline at (800) 943-0003 and the relevant DNR Regional Spill Coordinator.

NON-EMERGENCIES AND FOLLOW-UP AFTER REPORTING AN EMERGENCY

Reporting Releases

All hazardous substance discharges, whether emergencies or non-emergencies, must be reported immediately to the DNR according to Wis. Stat. § 292.11. Owners, operators, or other persons who cause non-emergency hazardous substance discharges may report them by telefaxing or e-mailing a completed report (DNR Form 4400-225) to the DNR, or by calling. Please note the DNR only accepts electronic submittals of Form 4400-225. If you choose to report the discharge by phone you should call the appropriate DNR Regional Spills Coordinator.

Reporting TSSA Findings to the Facility Owner or Operator

All TSSAs must be documented on form TR-WM-140 (find details above) and submitted to the owner or operator and the DNR within 21 business days after discovery of the conditions that resulted in the assessment.

Reporting of TSSA Findings

All original TSSA report documents (scaled drawing of the site, layout showing sample locations and excavations, lab reports, photos, and parts A and B of form TR-WM-140) must be sent to the Environmental Program Associate in the corresponding DNR regional office.

Note: *Failure to notify the DNR of a release may incur serious consequences, including forfeitures of not less than $10 or more than $5,000 for each violation. Be aware that each day of continued violation is a separate offense, and that each tank which is in violation is a separate offense (Wis. Stat. § 168.26, Wis. Admin. Code § ATCP 93.180).*

Note: *DATCP periodically inspects storage facilities for petroleum products and other hazardous substances. These inspectors have authority to report any release encountered during these inspections that have not been reported to the DNR by the owner or operator – and these releases may become the subject of formal enforcement actions.*

8. REFERENCES AND ADDITIONAL INFORMATION

The Bureau of Weights and Measures of the DATCP Division of Trade and Consumer Protection is the primary unit responsible for the regulation of Wisconsin's UST and AST systems per ATCP 93.

The DNR's Remediation and Redevelopment Program and DATCP's Bureau of Weights and Measures oversee the investigation and cleanup of environmental contamination, including storage tank investigations and cleanups per chapter NR 700 series.

Additional information can be found at the following DATCP and DNR websites:

- datcp.wi.gov/Pages/Programs_Services/PetroleumHazStorageTanks.aspx
- dnr.wisconsin.gov/topic/Spills
- dnr.wi.gov/DocLink/RR/RR604.pdf
- dnr.wi.gov/DocLink/RR/RR560.pdf

Other Agency Links

U.S. EPA Spill Prevention, Control and Countermeasure Plans (SPCC)

- www.epa.gov/oil-spills-prevention-and-preparedness-regulations

Wisconsin Department of Health Services

- www.dhs.wisconsin.gov/environmental/special-topics.htm

Resources and References

NFPA Standard 329, Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids – may be used for guidance in the investigation of releases.

- www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=329

Selecting an Environmental Consultant

- dnr.wisconsin.gov/topic/Brownfields/Select.html
- dnr.wisconsin.gov/topic/cleanup

Field Measurements: Dependable Data When You Need It, EPA publication 530/UST-90/003, September 1990. Provides information on field screening techniques for petroleum releases. Superintendent of Documents Stock No. 055-000-00368-8, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238. $5.50, Visa and MasterCard accepted.

Note: *The above resource is archived at: www.epa.gov/ust/cleaning-underground-storage-tank-ust-releases*

A Guide to the Assessment and Remediation of Underground Petroleum Releases, API Publication 1628, 2nd Edition, 1989. Pages 1-20 provide an overview of where to look for spilled petroleum. API resources available at: www.api.org/oil-and-natural-gas/environment/clean-water/ground-water/publications

8.1 ADDENDUM 1: RELEASE REPORTING QUESTIONS AND ANSWERS

Who is legally responsible for reporting releases?
The person(s) in possession or control of the hazardous substance that was discharged or who caused the discharge of the hazardous substance. This is usually the owner/operator of the property on which the discharge occurred, but it can also be a generator, transporter, or other person. See Wis. Admin. Code § 93.470 for specific language.

Is it solely the owner or is the contractor legally responsible as well?
The contractor is only responsible if he/she is in "possession/control" or "caused" the hazardous substance discharge.

Can the owner tell the contractor "I will report the release, and fill in the excavation?"
Yes, the owner can tell the contractor that they will report the release, and fill in the excavation. However, if contaminated soil is used to fill in the excavation, the contractor has violated solid/hazardous waste disposal requirements and the contractor would then also have a responsibility to report a hazardous substance discharge under Wis. Stats. § 292.11(2).

What would be the contractor's liability if the release went unreported?
If clean fill was used to backfill the excavation, it depends upon the harm caused by the failure to report. It is possible that if a threat to public health or safety exists as a result of the failure to notify, the contractor would be liable to the third party who was injured (e.g., if explosive vapors are present and someone is injured in an explosion).

If contaminated material was used to backfill the excavation, the contractor may be equally as liable as the property owner for cleanup, and may also be penalized for the failure to notify and for the illegal disposal.

Can the contractor withhold any information on the basis of the client-consultant relationship?
Be aware that under Wis. Stats. § 292.11(8), the DNR and its authorized representatives are able to access property and inspect any record relating to a hazardous substance for the purpose of ascertaining compliance with Wis. Stats. 292.11. It is likely that the DNR would be able to obtain the information under this authority.

How can parties report releases to meet their legal obligations?
Parties can report releases either by contacting DNR directly or by calling DNR's emergency hotline at (800) 943-0003. This number is answered by the Division of Emergency Government (DEG) 24 hours a day and receives calls covering all emergencies.

Can parties report releases by fax or federal express?
Yes, as long as they comply with the "immediate" time frame. Please visit the following websites for more information about reporting a release:

- dnr.wisconsin.gov/topic/Spills/report.html
- www.epa.gov/emergency-response/national-response-center

What information should be reported in a release notification?
The following information is requested by the DNR. Notifiers should provide additional information that they think is relevant. Reporting online can be done through the Wisconsin Web Access Management System (WAMS) via the login portal.

1. Name, address and telephone number of the person reporting the discharge.
2. Name, address and telephone number of the responsible parties or the potentially responsible parties.
3. Date, time and duration of the discharge.
4. Location of the discharge, including the legal description (public lands survey system) if available.
5. Identity, physical state, and quantity of the hazardous substance discharged.
6. Physical, chemical, hazardous, and toxicological characteristics of the hazardous substance.
7. Cause of the discharge.
8. Details of emergency response or other response actions being taken.
9. Source, speed of movement, and destination or probable destination of the discharged hazardous substance.
10. Distance and direction to the nearest inhabited buildings.
11. Impacts to the environment including air, land, and waters of the state and private wells.
12. Weather conditions existing at the scene, including wind direction and velocity.
13. Name, address and telephone number of environmental contractors (closure assessment, investigation) involved.
14. Additional information deemed relevant by the reporter.

8.2 ADDENDUM 2: CONTRACTOR CERTIFICATION IN WISCONSIN

REGULATORY OVERVIEW

In 1988, the federal government promulgated comprehensive UST regulations dealing with prevention, detection, and cleanup of releases from USTs. Two state agencies implement these regulations in Wisconsin.

Effective July 1, 2013, the DATCP Bureau of Weights and Measures regulates the installation, operation, and closure of UST and AST systems.

DATCP responsibilities include:

- Technical code and standard consultation.
- Permitting and registration of aboveground and underground flammable, combustible and hazardous liquid storage tanks.
- Retail service station inspection and petroleum product testing.
- Maintaining a statewide UST and AST database.
- Review of system design plans for storage or dispensing system installation, modification, or upgrade.
- Credential administration for individuals working in certification-requiring specialties.
- Contractor certification.
- Performance standards for new UST systems.
- Spill and overfill control requirements.
- Corrosion protection requirements.
- Facility operations reporting and record keeping.
- Release detection, reporting, and record keeping.
- UST closure and closure assessment, and reporting of suspected releases.
- Release investigation and confirmation.

The DNR administers rules pertaining to:

- Reporting of suspected releases.
- Release investigation and confirmation.
- Reporting and cleanup of spills and overfills.
- Initial response to releases and abatement measures.
- Free product removal.
- Investigations for soil and groundwater cleanup.
- Corrective action plans to address contamination.
- Public notification of releases.

CONTRACTOR REGISTRATION, CERTIFICATION, AND QUALIFICATIONS

Contractor Certification under Wis. Admin. Code § ATCP 93.240 establishes contractor certification in the following categories:

- Underground tank-system installers.
- Tank-system tightness testers.
- Aboveground tank-system installers.
- Tank removers and cleaners.
- Tank-system site assessors.
- Tank-system inspectors.
- Underground tank-system liners.

Certification is only required when work is performed on a tank system covered by ATCP 93.240. This means:

- The tank-system site assessor must be certified only when ATCP 93 requires a TSSA, e.g., for fleet and retail motor fuel tanks; farm and residential non-commercial motor fuel tanks of 1,100 gallons or more; heating oil USTs of 4,000 gallons or more; or in all cases where there is a suspected or obvious release, and
- The tank removers and cleaners must be certified for all tanks covered by the ATCP 93 closure requirements. In essence, this means all underground tanks of 60 gallons or more and all aboveground tanks of 110 gallons or more (except for field-erected tanks and heating fuel tanks for one or two-family residences), where the product stored is flammable, combustible or hazardous.

Information on contractor certification may be requested from:

The Department of Agriculture, Trade and Consumer Protection
DATCPInstallClosure@wisconsin.gov
(608) 224-4942

The DNR maintains lists of environmental consultants in different categories (see publication checklist). This information is entirely self-reported and the DNR makes no guarantee regarding its accuracy or the reliability of firms on these lists. The DNR also maintains data on environmental consultants who have indicated they wish to be considered for state projects. The list of consultants who have provided information is enclosed. The actual data is intended for departmental use, and specialized reports are prepared on a site-specific basis. However, the data is public information and may be requested in its entirety from DNR. To be added to the lists, request the "Survey of Environmental Companies" and return it to the address on the publication checklist.

Copies of Administrative Rules from the Department of Administration are available at:

- https://docs.legis.wisconsin.gov/code/admin_code

The following rules relate to tank-system site assessments:

- Chapter ATCP 93
- Chapters NR 700-799

8.3 ADDENDUM 3: WASTEWATER, SLUDGE, AND PETROLEUM PRODUCT MANAGEMENT DURING CLOSURES

Tank sludge is a solid waste regulated under Wis. Stat. § 144. Depending on the products stored in tanks, it may also be a hazardous waste. The state has the authority to impose civil or criminal penalties against tank owners, tank excavators, tank transporters, and tank salvagers who improperly dispose of tank sludge. The tank owner is responsible for classifying tank waste and making sure it is properly handled and disposed of in compliance with the regulations. Wastewater is regulated by DNR under Wis. Stat. § 281 and Wis. Stat. § 283.

WASTEWATER HANDLING

Wastewater may be generated from either the removal of tank condensate or from tank washing. It must be disposed of legally. Some tank excavation services include wastewater disposal. In areas with a sewer, you may contact the municipal wastewater treatment plant for disposal approval. In areas without a sewer, you may contact a licensed septic disposal service to transport wastewater to a wastewater treatment plant. Septic haulers may not transport flammable liquids. Identify an acceptable method to dispose of wastewater prior to excavating tanks.

SLUDGE HANDLING

Tank sludge is considered solid waste. Tank owners are responsible for determining if it is also hazardous waste. If so, owners must characterize and manage it in accordance with all state and federal regulations. This is a technical procedure that should be handled by an experienced hazardous waste contractor. If there is a possibility that at any time the tank contents were not clean fuels, additional analysis is required to identify residual wastes (such as PCBs, solvents, etc.). Complete analysis must be performed for waste oil tank sludge.

Tank sludge that has been classified as non-hazardous may be:

- Removed by a waste oil service for recycling.
- Disposed of in a licensed sanitary landfill with a clay liner if the sludge does not contain free liquids as determined by the paint filter test (EPA SW-846 methods, update II). Free liquids may be absorbed by adding clean absorbent materials such as sawdust or vermiculite.

Tank sludge that has been classified as hazardous must be:

- Transported to a licensed treatment, storage, or disposal facility by a licensed hazardous waste transportation service.
- Manifested for transportation using an EPA identification (ID) number.

ID numbers can be obtained by completing an EPA notification form 8700-12. Please visit the following websites for more information:

- https://www.epa.gov/hwgenerators/instructions-and-form-hazardous-waste-generators-transporters-and-treatment-storage
- https://dnr.wisconsin.gov/topic/Waste/Notifications.html

The EPA ID number should be requested six weeks prior to tank excavation. ID numbers cannot be obtained from the DNR.

Sludge may be held on site while laboratory analysis is being completed, or it may be transported immediately by a licensed transporter. Liquid tank sludge may be manifested as ignitable waste. Some tank excavation companies offer sludge analysis and disposal services.

Sludge that is being held on site should be handled as follows:

- Consult the laboratory prior to sampling to determine proper sampling procedures and sample containers.
- Carefully transfer the sludge from the tank to a metal drum. Seal the drum and attach a label stating "Petroleum Tank Sludge" which also includes the date and identifying information.
- To avoid contaminating non-hazardous sludge with hazardous sludge from other tanks, do not mix sludges from different tanks. Each sample jar and each sludge drum must be identified by matching numbers or descriptions.
- Handle sludge with care! Anyone transferring sludge must have the appropriate training and wear personal protective equipment (PPE).
- Avoid spills! Spilling sludge may contaminate an otherwise clean tank excavation site. You must immediately report any spill to DNR and clean up said spill.
- Maintain drums containing sludge in good condition and in a secure location while waiting for laboratory results. Report the location of sludge drums in the TSSA report that you provide to the DNR.

PRODUCT HANDLING

This section offers guidance to the product type, use, and disposal procedure(s).

What is the product? Who regulates this product?

- Product pumped to a maximum depth of two inches above the water level in the tank or two inches above the tank bottom, whichever is higher, is regulated by the Bureau of Weights and Measures (DATCP).
- Wastewater, product-water interface, petroleum directly above product-water interface, sludge, or anything below the two-inch level, is regulated by the DNR.

What should be done with the product after removal?

The Petroleum Inspection Program, under the authority of Wis. Stat. § 168 and Wis. Admin. Code ch. ATCP 94, has established the following requirements for petroleum products removed from underground storage tanks (USTs) at time of closure:

- Transferred only by a tank vehicle that complies with "Standards for Tank Vehicles for Flammable and Combustible Liquids."
- Returned to a terminal slop tank.
- Returned to a refiner.

What to do if using the product after removal?

- Gasoline may be transferred to another retail facility.
- Gasoline storage must meet the standards established in Wis. Admin. Code ch. ATCP 93 and the EPA rules.
- Gasoline may be treated as interface and blended with new gasoline at terminals or refineries at a blend rate not to exceed half of one percent.
- #1 fuel oil must be downgraded to #2 fuel oil.
- Kerosene, #1 diesel, #2 diesel, #1 fuel oil, or #2 fuel oil may be blended with new #2 fuel oil up to a 50% rate and used or sold for heating purposes.
- Products heavier than #2 fuel oil may be blended with an equal or heavier stock at up to a 50% rate and used or sold for heating purposes.

What to do if the product removed is 500 gallons or greater?
Contact DATCP at (608) 224-4942. They may:

- Sample and test the product to determine compliance with Wis. Admin. Code ch. ATCP 94 and then provide directions for disposition.
- Allow transfer of the product to another facility for use or sale.
- Classify the product as falling outside the scope of ATCP 94**.**

Note: *All product regulated by DATCP falls under chapter ATCP 94.*

ADDITIONAL INFORMATION AVAILABLE

Petroleum and Hazardous Liquids Storage Tanks Regulatory Information:
Department of Agriculture, Trade and Consumer Protection
Bureau of Weights and Measures
Madison, WI 53708-8911
(608) 224-4942

Hazardous Waste Management Information:
Bureau of Solid and Hazardous Waste Management Department of Natural Resources
P.O. Box 7921 Madison, WI 53707

Certified Laboratories:
Office of Technical Services Department of Natural Resources
P.O. Box 7922 Madison, WI 53707

For further information, please visit:
https://dnr.wisconsin.gov/topic/Waste/HWResources.html

8.4 ADDENDUM 4: TANK CLEANING AND HANDLING

Wisconsin's hazardous waste management regulations require that storage tanks be adequately cleaned before they are transported or cut up for scrap.

WHY MUST TANKS BE CLEANED PROPERLY?

Unclean tanks may pose a fire or explosion hazard through the production of vapors from sludge residues. These residues may also pose a toxicity hazard. It is illegal to transport tanks containing residues (including petroleum residues) that are hazardous wastes without a variance or emergency waiver from DNR hazardous waste staff. Interstate carriers must obtain United States Department of Transportation (USDOT) approval to carry uncleaned tanks that have held hazardous materials. Inadequate cleaning may prevent recycling of the tanks as scrap metal.

Before removing sludge, cleaning tanks, and transporting tanks, fill the tanks with inert gases or properly vent them in accordance with the DATCP requirements to remove explosive vapors. Federal Occupational Health and Safety Administration (OSHA) confined space entry regulations may apply.

WHEN IS A TANK CLEANED ADEQUATELY?

It is difficult to clean a tank so completely that no product or sludge remains on the inside surfaces. The objective of cleaning tanks is to minimize the risk of explosion, fire, or toxic substance release.

There is no widely accepted standard for determining if a tank has been adequately cleaned. However, adhering to the methods described in the publications API 2015 (American Petroleum Institute) or NFPA 327 (National Fire Protection Association) will produce a tank that can be recycled as scrap.

When a tank has been properly cleaned, an inspector should be unable to remove additional sludge or scale by wiping the inside surface of the tank with a rag or squeegee. This is also referred to as a “wipe test.”

It is important to realize that even if a tank passes this wipe test, it may contain sufficient traces of product to generate hazardous vapors. Therefore, cleaned tanks must be properly inerted or vented according to the standard procedures described in API 2015 or NFPA 327 before they are transported, cut apart, or stored.

The materials collected during cleaning (rinsate and sludge) may be hazardous wastes. The generator of the waste (generally the owner of the contents of the tank) is responsible for determining if these materials are hazardous wastes. If they are, they must be stored, transported, and disposed of according to hazardous waste regulations. Details of Wisconsin's hazardous waste regulations may be obtained from the DNR Hazardous Waste Management program.

WHAT TANK CLEANING INFORMATION MUST BE INCLUDED IN THE CLOSURE ASSESSMENT?

The closure assessment must state:

1. The method used for inerting the tank.

2. The method used for cleaning the tank (e.g., steam, water jet, chemical).
3. Who cleaned the tank.
4. The quantity of waste residue (sludge and rinsate) collected during cleaning.
5. How the waste residue was managed.
6. Where the tank or tank fragments were taken for disposal and the manner of disposal.

8.5 ADDENDUM 5: TRANSPORTING HAZARDOUS WASTE

Understanding the process for transporting hazardous waste is necessary to executing a tank closure. To transport hazardous waste in Wisconsin you must:

1. Obtain an I.D. Number from EPA using the Notification of Regulated Waste Activity Form 8700-12. To request a notification form, contact a DNR Hazardous Waste Specialist or call (608) 266-2111.

2. Obtain a hazardous waste transportation service license from the DNR at: https://dnr.wisconsin.gov/topic/Waste/Licenses.html, OR:

    a. Hire a licensed hazardous waste hauler. Licensed hazardous waste haulers can be found at: Wisconsin DNR Waste & Materials Management Public Reports https://apps.dnr.wi.gov/wmmps/shellreportviewer.aspx?RID=93&inst=1

Persons transporting hazardous waste into or through Wisconsin who are based in another state should submit a license application and fee to the DNR regional office where the transportation activity is concentrated or where the transporter enters Wisconsin. The annual license fee is $400 and covers the entire fleet located at a single location, also called a transportation service. Each location at which vehicles are based is considered a separate transportation service and must have its own license.

Only accept hazardous waste accompanied by a manifest that is properly signed by the generator (unless the waste was generated by a very small quantity generator who is not required to, and does not, manifest its waste). The transporter must ensure that copies of a manifest meet the requirements of chapter Wis. Admin. Code ch. NR 620 by:

- Being signed by the generator. Please note a new online process for electronic manifests is still being determined at the federal level.
- Being signed and dated by the transporter when the waste is accepted from the generator.
- Accompanying the waste at all times.
- Being signed and dated by another transportation service that also transports the waste or by the facility indicated on the manifest that receives the waste.
- Being kept by the transporter and by the generator for three years.

NOTE: *A manifest should not be used for shipments of only nonhazardous waste, except for PCB waste.*

If the transporter is unable to deliver the waste to the facility, alternate facility, or another transporter indicated on the manifest, the transporter must contact the generator for further directions. The transporter must then revise the manifest, obtain a second manifest, or return the waste to the generator.

Properly package, label, and mark the waste and placard the vehicle. Hazardous waste must be packaged according to the hazardous materials transportation requirements in 49 CFR Part 173. Hazardous waste must be labeled and marked, and vehicles must be placarded according to the hazardous materials transportation requirements in 49 CFR Part 172.

First secure containerized waste in the vehicle to prevent movement.
Properly train equipment operators. Each transportation service must have an employee training program for hazardous waste handling and equipment operators. Topics in the program must include the problems and potential hazards posed by the transportation and disposal of hazardous waste, and equipment inspection techniques. Training records must be kept for 3 years.

Periodically inspect your equipment. Each transportation service must have an inspection program for hazardous waste handling and transportation equipment. The program must include a schedule for equipment inspection and a checklist of specific areas or items to inspect. Records of when the equipment was inspected, any problems observed, and any maintenance, must be kept for three years.

Properly report and respond to hazardous waste discharges.
This summary of hazardous waste transporter requirements is based on guidance from the DNR for chapter Wis. Admin. Code ch. NR 663, effective August 1, 2006. For more details and verification of actual requirements, consult the code or contact the DNR Hazardous Waste Specialist for the county in which your site is located. Please note that requirements are slightly different for rail or water transport or when a transporter mixes wastes of different shipping descriptions.

What should be done if a discharge of hazardous waste occurs during transportation?

- Call the Division of Emergency Government's 24-hour number: (800) 943-0003.
- Comply with the hazardous substance spill requirements in Wis. Stats. § 292.11 and Wis. Admin. Code ch. NR 706.
- Give notice as required by 49 CFR 171.15 to the National Response Center at (800) 424-8802.
- Report as required by 49 CFR 171.16 to the Director, Office of Hazardous Materials Regulations, Materials Transportation Bureau, U.S. DOT, Washington, D.C. 20590.
- Remove, containerize, transport, and dispose of spilled hazardous waste according to the hazardous waste management requirements in Wis. Admin. Code ch. NR 600 and Wis. Admin. Code ch. 685.

8.6 ADDENDUM 6: METHANOL FIELD PRESERVATION FOR GRO, PVOC AND NAPHTHALENE SAMPLES

Please note, the below procedures are subject to change. Visit https://dnr.wisconsin.gov/sites/default/files/topic/LabCert/GROSEP95.PDF for more detailed requirements.

What is methanol field preservation and when is it required?
Methanol field preservation involves placing soil samples in jars containing methanol or adding methanol to jars containing soil while at the sampling location. The methanol reduces

volatilization and biodegradation of soil contaminants prior to lab analysis, thus giving more accurate sample results.

Is the methanol preservation necessary?
There is strong evidence that samples which are not preserved in the field underestimate the contamination that is present. Scientific data shows that losses of 30 percent or more are typical. This data is supported by field experience where screening, odor and staining of soils indicate that contamination was present, but lab samples showed no detect.

What is the procedure for preserving samples with methanol?
For samples collected for closure assessments (e.g., closure assessments for USTs), the DNR recommends:

- Adding 25 grams (g or gm) of soil directly to a tared 60 milliliter (ml) jar containing 25 ml of purge and trap grade methanol.
- It is not advisable to weigh out exactly 25 gm of soil for each sample because this is an approximation, and any agitation causes unnecessary volatilization.
- Instead, weigh out one 25 gm sample of site soil into an empty 60 ml jar, mark a fill line, and use this jar as a model for collecting the actual samples.
- The maximum amount of soil that can be added to a 60 ml jar is 35 gm.
- If a 40 ml jar is used, the sampler should add a maximum of 20 gm of soil and 20 ml of methanol.

For samples collected for leaking underground storage tank (LUST) investigations, the DNR recommends adding the methanol to the soil because many samplers use field screening to identify samples for analysis, and soil samples preserved in methanol are a hazardous waste unless analyzed by a laboratory. Collect two samples at each sample location, one for field screening and one for potential laboratory analysis. Place 25 grams of soil in an empty, tared 60 mil VOC vial for potential lab analysis (20 gm maximum for a 40 ml vial). Cap the vial and place on ice while conducting field screening of the other co-located sample. Collecting soils into an intermediate container and sub-sampling after screening has been done is not acceptable. After completing field analysis of all samples, select the co-located laboratory samples that should be analyzed based on the field screening results.

There are three ways to add methanol to the soil. The first two involve the use of a glass syringe and non-coring syringe needle to transfer the methanol from a septa vial containing purge and trap grade methanol to the sample vial. Both require the sampler to use a fresh syringe needle for each sample to avoid cross contamination.

- The first method requires loosening the cap to relieve pressure buildup from the methanol addition.
- The second method is to use a smaller sample size and less methanol to overcome sample pressurization.
- All samples must maintain a 1:1 ratio of milliliters of methanol to grams of soil.
- DNR recommends using 10 gm soil and 10 ml of methanol, but the laboratory analyzing the samples should approve the sample size. It is also possible to remove the cap and add the methanol directly to the jar.
    - However, this method increases the potential for volatilization, cross contamination, and spillage. Add the methanol to samples within two hours of collection. Samples should be returned to an iced cooler immediately after preservation.

- Samples may be preserved by the laboratory only if they are received by the lab within two hours of collection.

How can I dispose of soil samples that aren't sent in for analysis?
Soil preserved in methanol is a hazardous waste. Soil samples are exempt from hazardous waste regulations if they are analyzed at a laboratory. Any samples that are not analyzed are hazardous waste and the generator is legally responsible for proper disposal. In general, do not collect and preserve excess samples, and if you collect and preserve a sample, have it analyzed.

What can be done to ensure personal safety while handling methanol?
Do not store methanol in a hot place. On hot days, carry the methanol samples in your sample cooler prior to sample collection. Beware of pressure buildup in heated sample jars containing methanol. Avoid inhaling methanol vapors. Work quickly while filling sample jars to minimize your exposure to the methanol. Open only one methanol vial at a time. Do not handle methanol in an unventilated area. If you are preserving samples inside a vehicle in inclement weather, make sure to provide some ventilation. Always review the safety data sheets before working within any hazardous substance.

What is a dry weight sample and how many do I have to collect?
A dry weight sample is a jar filled with dirt that is required by the lab to calculate the percent moisture of the soil at the sampling location. Dry weight samples should be tightly sealed to prevent loss of soil moisture, but because they are not analyzed for contaminants, they do not require special preservation. You need to collect a dry weight sample for each sampling location at the site.

How can I avoid cross-contamination?
Site assessors should not handle petroleum products prior to sample collection. Wash your hands after filling your car with gas. Under no circumstances should methanol sample jars be stored near gasoline (e.g., with a gas can in the trunk of a car). Tank removers doubling as site assessors should wear coveralls during tank removal and take them off before sampling. Vehicle exhaust and ambient gasoline vapors are another potential source of cross contamination. Quickly open, fill, and reseal methanol sample jars. Low concentrations of ambient vapors can be monitored with a Photo-Ionization Detector (PID). Other samples and sample breakage are other potential sources of contamination. Put each sample in a separate freezer bag. Collect samples from least to most perceived contamination, if possible.

What are the consequences of spilling methanol?
If methanol is spilled from vials before or after sample collection, the lab results will be skewed and incorrect. When a small amount of methanol is spilled during the sampling process, it is necessary to resample using a fresh vial. If methanol is spilled during shipping to the laboratory, the DNR will ask for resampling.

Will rainwater entering the sample jar affect the results?
It may. Do not allow rainwater to enter a sample jar. Suspend sampling if it is raining hard.

How should I ship the jars to the lab?
Methanol must be shipped in accordance with the attached shipping instructions. To pack the jars in an absorbent material and keep them on ice, place the jars in an insulated cooler with ice or other coolant and then place the cooler in a slightly larger cardboard box. Fill the space between the cooler and the box with the absorbent material (e.g., vermiculite).

Is there a shelf-life for unused methanol jars?
The shelf-life may be specified by the lab providing the jars, such as 15-30 days.

What companies provide jars containing methanol and other equipment?
Tared sample jars containing methanol should be obtained from the laboratory that will perform the analysis. A list of commercial labs certified for Volatile Organic Compound (VOC) analysis is available from the DNR at the address shown in the references.

8.7 ADDENDUM 7: SHIPPING METHANOL

DNR's Modified GRO Method for Determining Gasoline Range Organics requires laboratories and samplers to ship sample vials with small amounts (25 ml) of methanol for in field preservation of samples.

Methanol is considered a hazardous material by USDOT. Methanol shipments must follow Title 49 of the Code of Federal Regulations (49 CFR). However, methanol shipped in small amounts qualifies for a small quantity exemption (section 173.4).

The following is a summary of the requirements for shipping samples under Title 49 CFR. Consultants and laboratories should refer to the code for a complete review of the requirements.

1. Maximum volume per vial is 30 ml.
2. A vial must not be full (of methanol).
3. Vials must be securely packed with cushioning and surrounded by an absorbent material such as vermiculite.
4. Packaging must be strong enough to hold up to the intended use. Refer to specifications in 49 CFR 173.4(a)(6)(i).
5. The maximum package weight is 65 pounds (lb).
6. The package must be marked with the following statement: "This package conforms to conditions and limitations specified in 49 CFR 173.4."

Refer to section 173.4 of Title 49 CFR for detailed information on these requirements. In addition, it's advised to mark these packages with the words 'THIS SIDE UP" and arrows, in case the vials are improperly sealed.

If the methanol has leaked from the vials during transport to the lab, DNR or DATCP will ask for resampling.

8.8 ADDENDUM 8: GEOGRAPHIC REFERENCING USING THE PUBLIC LANDS SURVEY SYSTEM

Please note this section is included for historical reference, and is still a useful tool for referencing sites based on geographic location. It is helpful, but not required as part of the TSSA report.

The public lands survey system (PLS) is a system of land surveying established by the United States government in the 19th century. It is one of the most common systems of geo-referencing in use in Wisconsin, and is the easiest system to learn for the purpose of providing the legal description of the site location for UST closure assessments.

The subdivisions of the reference system from largest to smallest are the township, range, section, quarter section, and quarter-quarter section. A township is a 6-mile by 6-mile square

of land. The land area of Wisconsin, which is approximately 325 miles long and 300 miles wide, contains over 400 townships.

Townships are identified using the PLS reference system, which is similar to a Cartesian coordinate system. In the PLS system, the "x-axis" (east-west) is the town base line, and the "y-axis" (north-south) is the fourth principal meridian. Any township in Wisconsin can be identified using an ordered pair consisting of a township number and a range number. Township numbers are not unique to a particular township. For example, 50 different townships can have the same township number. Only the combination of a township number and range number uniquely identifies a township.

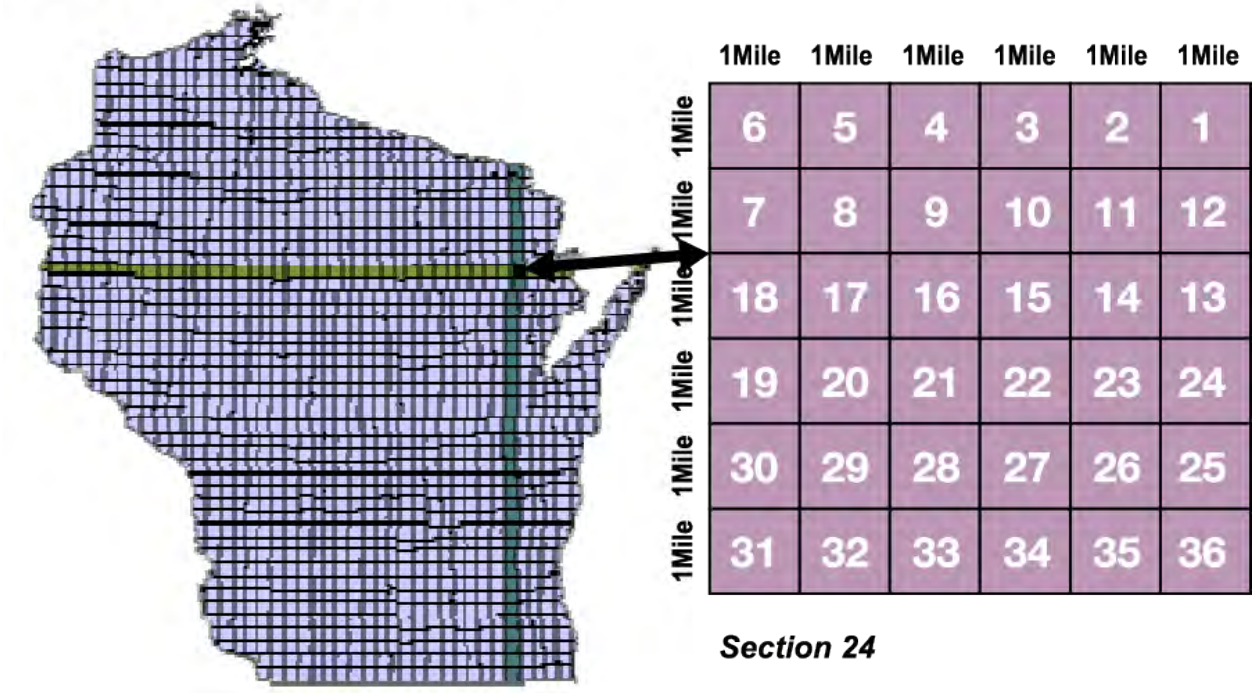
Townships north of the town base line are followed by an 'N' and townships south of it are followed by an 'S.' Since all townships in Wisconsin are north of the town base line, all Wisconsin township numbers are followed by an 'N.' Townships east of the fourth principal are followed by an 'E' and townships west of it are followed by a 'W.' For example, T1N R2W designates the township in Grant County occupied by the southwestern-most corner of Wisconsin. T34N R30E designates the township in Door County occupied by the northeastern tip of Washington Island. Note that, although the town base line runs east-west, township numbers change in the north-south direction. Similarly, although the fourth principal meridian runs north-south, the range numbers change in the east-west direction.

Sections are 1-mile by 1-mile squares of land. Each township contains 36 sections. The sections are numbered in a standard zigzag order, which was used by field crews conducting traverses. The sections are further divided into quarters and quarter-quarters (i.e., sixteenths). The four quarters are referenced using the four comers of the compass: northeast (NE), southeast (SE), southwest (SW), and northwest (NW). A quarter-quarter is referenced by first identifying the quarter within which it lies and then referencing the four comers of the compass again. For example, X in the figure below is in the NW quarter-quarter of the SE quarter of section 21. In the same figure, 0 is in the SE quarter-quarter of the NW quarter. It is possible to further subdivide quarter-quarters into quarter-quarter-quarters following the same pattern. The length of a quarter-quarter-quarter is 1/16 of a mile or 330 feet. In summary, the legal description of X is NW 1/4, SE 1/4, Section 21, T25N, R17E.

The legal description of a particular site can be determined by locating the site on a United States Geologic Survey (USGS) topographic map or a plat book. USGS maps can be purchased from the USGS as well as from the Wisconsin Geologic and Natural History Survey (WGNHS) in Madison. Plat books can be purchased from Rockford Map Publishers and are available for viewing at most libraries and town halls.

Note: *It is not necessary to provide detailed metes and bounds to satisfy the legal description requirement (e.g. PTNE 1/4 SEC 7 T7N R20E COM EI/4 COR NO 44'E 832.68 FT THE BGN NO 44'E 505 FIP N89 23'W 189.86 FT S61 01'W 210 FTS51 33'W 150 FT S28 58'E 387.81, etc.) However, such descriptions do provide all or part of the necessary information (shown in bold).*

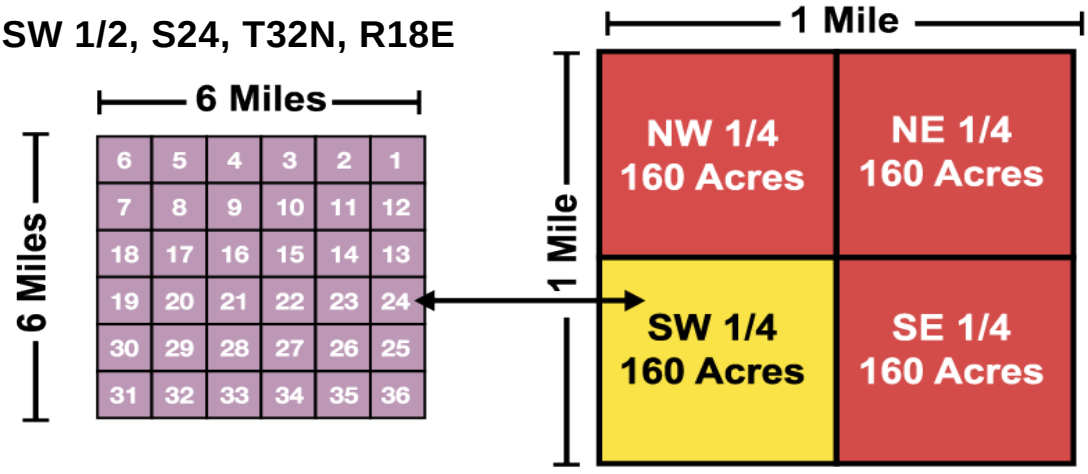
N 1/2 SE 1/4, S24, T32H, R18E



Section 24

Many parcels of land are smaller than an entire section. They sometimes are the size of a *quarter section.* Each section is divided into 4 quarters, each being 1/4 square miles, or 160 acres. Each of the quarter sections is labeled with a quadrant direction. In our example, the description is referring to the southwest quarter Section of Section 24, which is highlighted in yellow in figure 6. Again, be sure to read the description from back to front so you know to which quarter section the description is referring.

N1/2, SW 1/2, S24, T32N, R18E



SW 1/4 Section of Section 24

TR-WM-140 (11/23) Formerly ERS-8951

Wisconsin Department of Agriculture, Trade and Consumer Protection
Bureau of Weights and Measures
P.O. Box 7837, Madison, WI 53707-7837
(608) 224-4942

Wis. Admin. Code § ATCP 93.560

FOR OFFICE USE ONLY

TANK SYSTEM SERVICE AND CLOSURE ASSESSMENT REPORT

Completion of this form is mandatory. Failure to complete this form is subject to enforcement action under Wis. Admin. Code ch. ATCP 93. *Personal information you provide may be used for purposes other than that for which it was originally collected (Wis. Stat. § 15.04(1)(m)).*

Complete One Form for Each System Service Event.

FOR PORTIONS OF THE FORM THAT DO NOT APPLY, CHECK THE 'N/A' BOX

CHECK ONE: ☐ **UNDERGROUND** ☐ **ABOVEGROUND**

Part A – To be completed by contractor performing repair or closure

A. TYPE OF SERVICE ☐ CLOSURE ☐ REPAIR/UPGRADE ☐ CHANGE-IN-SERVICE

Indicate portion of system being serviced if a repair, upgrade or change-in-service is being performed

☐ Remote fill ☐ Tank ☐ Piping ☐ Transition/containment sump ☐ Spill bucket ☐ Dispenser

B. IDENTIFICATION

OWNER INFORMATION

OWNER NAME	CONTACT NAME	TITLE

MAILING ADDRESS	☐ CITY ☐ TOWN ☐ VILLAGE	STATE	ZIP

TELEPHONE: ( ) -	E-MAIL

SITE INFORMATION

FACILITY NAME

SITE ADDRESS (Not PO Box)	☐ CITY ☐ TOWN ☐ VILLAGE	STATE	ZIP

SERVICE CONTRACTOR INFORMATION

PRIMARY SERVICE CONTRACTOR Section A Above	SERVICE CONTRACTOR CERT ID #	TELEPHONE: ( ) -	CELL: ( ) -

STREET ADDRESS	☐ CITY ☐ TOWN ☐ VILLAGE	STATE	ZIP

C. TANK SYSTEM DETAIL (Complete for all service activities)

a	b	c	d	e	f	g		h	
						Release - System Integrity Compromised (e.g. holes, cracks, loose connection,		If "Yes" to "g", Then Specify Source and Cause of Release[5]	
Tank ID #	Type of Closure[1]	Tank Material of Construction	Piping Material of Construction	Tank Capacity (gallons)	Contents[2]			Source of Release[3]	Cause of Release[4]
						☐ Yes	☐ No		
						☐ Yes	☐ No		
						☐ Yes	☐ No		
						☐ Yes	☐ No		
						☐ Yes	☐ No		
						☐ Yes	☐ No		

1. Indicate type of closure: P = Permanent, TOS = Temporarily Out-of-Service, CIP = Closure In-Place

2. Indicate type of product: DL = Diesel, LG = Leaded Gasoline, UG = Unleaded Gasoline, FO = Fuel Oil, GH = Gasohol, AF = Aviation Fuel, K = Kerosene, PX = Premix, WO = Waste/Used Motor Oil, FCHZW = Flammable/Combustible Hazardous Waste, OC = Other Chemical (indicate the chemical name(s):

3. CAS number(s):

4. Source of release: T = tank, P = piping, D = dispenser, STP = submersible turbine pump, DP = delivery problem, O = other, UNK = Unknown

5. Cause of release:
S = spill, O = overfill, POMD = physical or mechanical damage, C = corrosion, IP = installation problem, O = other, UNK = Unknown

6. Has release been reported to the Department of Natural Resources? ☐ Yes ☐ No ☐ Release not evident at this time (pending sample analysis)

Part A Distribution: DATCP DNR Inspector Contractor Owner

D. CLOSURES (Check applicable box at right in response to all statements in section D)

Written notification was provided to the local agent 5 days in advance of closure date. ☐ Yes ☐ No

All local permits were obtained before beginning closure. ☐ Yes ☐ No ☐ NA

☐ UST Form TR-WM-137 or ☐ AST Form TR-WM-118 filed by owner with the DATCP indicating closure. ☐ Yes ☐ No ☐ NA

NOTE: *TANK INVENTORY FORM TR-WM-137 or TR-WM-118 SIGNED BY THE OWNER MUST BE SUBMITTED WITH EACH CLOSURE or CHANGE-IN-SERVICE CHECKLIST*

D. ☐ CLOSURE BY REMOVAL OR IN-PLACE

1. General Requirements	Remover Verified	Inspector Verified	Inspector Not Present	NA
a. Product from piping drained into tank (or other container).	☐ Y ☐ N	☐ Y ☐ N	☐	☐
b. Piping disconnected from tank and removed.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
c. All liquid and residue removed from tank using explosion-proof pumps or hand pumps prior to removing tank from excavation.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
d. All pump motors and suction hoses bonded to tank or otherwise grounded.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
e. Fill pipes, gauge pipes, vapor recovery connections, submersible pumps and other fixtures removed.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
f. Vent lines left connected until tanks purged.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
g. Tank openings temporarily plugged so vapors exit through vent.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
h. Tank atmosphere reduced to 10% of the lower flammable range (LEL) - see Section E.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
2. Specific Closure-by-Removal Requirements				
a. Tank removed from excavation after PURGING/INERTING; placed on level ground and blocked to prevent movement.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
b. Tank cleaned before being removed from site.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
c. Tank labeled in full compliance with API 1604 after removal but before being moved from site.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
NOTE: *COMPLETE TANK LABELING SHOULD INCLUDE WARNING AGAINST REUSE; FORMER CONTENTS; VAPOR STATE; VAPOR FREEING TREATMENT; MONTH/DAY/YEAR OF REMOVAL*				
d. Tank vent hole (1/8" in uppermost part of tank) installed prior to moving the tank from site.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
e. Site security is provided while the excavation is open.	☐ Y ☐ N	☐ Y ☐ N	☐	☐
3. Specific Closure-In-Place Requirements				
NOTE: *CLOSURES IN-PLACE ARE ONLY ALLOWED WITH THE PRIOR WRITTEN APPROVAL OF THE DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION (DATCP) OR LOCAL AGENT.*				
a. Tank properly cleaned to remove all sludge and residue.	☐ Y ☐ N	☐ Y ☐ N ☐		☐
b. Solid inert material (sand, cyclone boiler slag, or pea gravel recommended) introduced and tank	☐ Y ☐ N	☐ Y ☐ N ☐		☐
c. Vent line disconnected or removed.	☐ Y ☐ N	☐ Y ☐ N ☐		☐
d. Inventory form filed by owner with DATCP indicating closure in-place.	☐ Y ☐ N	☐ Y ☐ N ☐		☐

E. ☐ REPAIR, UPGRADE OR CHANGE-IN-SERVICE

Written notification was provided to the local agent 5 days in advance of service date.	☐ Y	☐ N	☐ NA
All local permits were obtained before beginning service.	☐ Y	☐ N	☐ NA
Form TR-WM-137 or 0 TR-WM-118 filed by owner with DATCP indicating change-in-service.	☐ Y	☐ N	☐ NA

F. METHOD OF VAPOR FREEING OF TANK

☐ Displacement of vapors by eductor or diffused air blower.

Eductor driven by compressed air, bonded and drop tube left in place; vapors discharged minimum of 12 feet above ground.

☐ Inert gas using dry ice or liquid carbon dioxide.

☐ Inert gas using CO_2 or N_2 **NOTE***: INERT GASSES PRODUCE AN OXYGEN DEFICIENT ATMOSPHERE. LEL METERS MAY NOT FUNCTION ACCURATELY. THE TANK MAY NOT BE ENTERED IN THIS STATE WITHOUT SPECIAL EQUIPMENT.*

Gas introduced through a single opening at a point near the bottom of the tank at the end of the tank opposite the vent.

Gas introduced under low pressure not to exceed 5 psig to reduce static electricity. Gas introducing device grounded.

☐ Readings of 10% or less of the lower flammable range (LEL) or <5% oxygen obtained before removing tank from ground.

☐ Tank atmosphere monitored for flammable or combustible vapor levels prior to and during cleaning and cutting.

☐ Calibrate combustible gas indicator and/or oxygen meter prior to use. Drop tube removed prior to checking atmosphere. Tank space monitored at bottom, middle and upper portion of tank.

G. REMOVER/CLEANER INFORMATION

REMOVER/CLEANER NAME (PRINT):	REMOVER/CLEANER SIGNATURE	CERTIFICATION #	DATE TANK REMOVED

I attest that the procedures and information which I have provided as the tank closure contractor are correct and comply with Wis. Admin. Code ch. ATCP 93.

Company expected to perform soil contamination assessment

Distribution: DATCP DNR Inspector Contractor Owner

H. INSPECTOR INFORMATION

INSPECTOR NAME (PRINT):	INSPECTOR SIGNATURE	INSPECTOR CERTIFICATION #	COMPANY NAME

FDID # FOR LOCATION WHERE INSPECTION PERFORMED	INSPECTOR TELEPHONE:NUMBER	DATE SIGNED
	( ) -	

INSPECTOR NOTES:

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Part B – To be completed by environmental professional - Submit *original* Part B to the WDNR along with a *copy* of Part A

I. TANK-SYSTEM SITE ASSESSMENT (TSSA)

SITE NAME - ***Note: SITE NAME and address MUST MATCH with Part A Section 1.***

SITE ADDRESS (Not PO Box) ☐ CITY ☐ TOWN ☐ VILLAGE STATE ZIP

To determine if a TSSA is required, see Wis. Admin. Code ch. ATCP 93 and section II part B of *ASSESSMENT AND REPORTING OF SUSPECTED AND OBVIOUS RELEASES FROM UNDERGROUND AND ABOVEGROUND STORAGE TANK SYSTEMS.*

If a TSSA is required, then follow the procedures detailed in *ASSESSMENT AND REPORTING OF SUSPECTED AND OBVIOUS RELEASES FROM UNDERGROUND AND ABOVEGROUND STORAGE TANK SYSTEMS*

1. Site Information

a. Has there been a previously documented release at this site? ☐ Yes ☐ No

If yes, provide the DATCP # or DNR Bureau for Remediation and Redevelopment Tracking System (BRRT's #)

b. Number of active tanks at facility prior to completion of current services: USTs ASTs

(**NOTE 1**: *Do not include previously closed systems or system components*.)

c. Excavation/trench dimensions (in feet). (Photos must be provided.)

EXCAVATION/TRENCH #	LENGTH	WIDTH	DEPTH

2. Visual Excavation/Trench Inspection (Photos must be provided for "Yes" responses, except item b.)

Do any of the following conditions exist in or about the excavation(s)?

a. Stained soils: ☐ Yes ☐ No | b. Petroleum odor: ☐ Yes ☐ No | c. Water In excavation/trench: ☐ Yes ☐ No

d. Free product in the excavation/trench: ☐ Yes ☐ No | e. Sheen or free product on water: ☐ Yes ☐ No

3. Geology/Hydrogeology

a. Depth to groundwater | feet | b. Indicate type of geology[2]

4. Receptors

a. Water supply well(s) within 250 feet of the facility? ☐ Yes ☐ No | If yes, specify:

b. Surface water(s) within 1000 feet of the facility? ☐ Yes ☐ No | If yes, specify:

5. Sampling

a. Follow the procedures detailed in *ASSESSMENT AND REPORTING OF SUSPECTED AND OBVIOUS RELEASES FROM UNDERGROUND AND ABOVEGROUND STORAGE TANK SYSTEMS.*

b. Complete Tables 1 and 2 as appropriate. (Attach chain-of-custody and laboratory analytical reports.)

c. Attach a detailed map of site features and sample locations.

J. NOTE RELEVANT OBSERVATIONS, SPECIFIC PROBLEMS OR CONCERNS BELOW

TABLE 1 SOIL FIELD SCREENING & GRO/DRO LABORATORY ANALYTICAL RESULTS-FOR PETROLEUM PRODUCTS

Sample ID #	Sample Location & Soil/Geologic Description	Sample Collection Method				Depth Below Tank/Piping (feet)	Field Screening Result (ppm)	GRO (mg/kg)	DRO (mg/kg)
		Grab	Shelby Tube	Direct Push	Split Spoon				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				
		☐	☐	☐	☐				

TABLE 2 SOIL LABORATORY ANALYTICAL RESULTS-FOR PETROLEUM PRODUCTS

Sample ID #	BENZENE ug/kg	TOLUENE ug/kg	ETHYLBENZENE ug/kg	MTBE ug/kg	TRIMETHYL - BENZENES (TOTAL) ug/kg	XYLENES (TOTAL) ug/kg	NAPHTHALENE ug/kg

K. TANK-SYSTEM SITE ASSESSMENT INFORMATION

☐ As a tank-system site assessor certified under Wis. Admin. Code § ATCP 93.240, it is my opinion that there is no indication of a release of a regulated substance to the environment.

☐ Sampling at the site indicates there has been a release to the environment. Pursuant to Wis. Admin. Code § ATCP 93.585(2)(a) and Wis. Stat. § 292.11(2)(a), the owner or operator or contractor performing work under ch. ATCP 93 shall immediately report any release of a regulated substance to the Wisconsin Department of Natural Resources. Failure to do so may result in forfeitures of a minimum of $10 and a maximum of $5000 for each violation under Wis. Stat. § 168.26(5). Each day of continued violation and each tank are treated as separate offenses.

TANK-SYSTEM SITE ASSESSOR NAME (PRINT): TANK-SYS TEM SITE ASSESSOR SIGNATURE CERTIFICATION NO.

( ) -

TANK-SYSTEM SITE ASSESSOR TELEPHONE NUMBER DATE SIGNED COMPANY NAME

This document can be made available in alternate formats to individuals with disabilities upon request.

Distribution: DATCP DNR Inspector Contractor Owner

9. GLOSSARY

9.1 ABBREVIATIONS & ACRONYMS

AST – Aboveground Storage Tank

API – American Petroleum Institute

ASTM – American Society for Testing and Materials (includes international)

BWM – Bureau of Weights and Measures

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended.

CFR – Code of Federal Regulations

DATCP – Department of Agriculture, Trade and Consumer Protection

DHS – (Wisconsin) Department of Health Services

DNR – Department of Natural Resources

USEPA – United States Environmental Protection Agency

ESA – Environmental Site Assessment

FID – Flame Ionization Detector

GRO – Gasoline Range Organics

LPO – Local Program Operator (no longer in use as of 2022).

NFPA – National Fire Protection Association

OSHA – Occupational Safety and Health Administration

PAH – Polycyclic Aromatic Hydrocarbons

PA – Preliminary Assessment

PCB – Polychlorinated Biphenyl

PID – Photo-Ionization Detector

PPE – Personal Protective Equipment

PVOC – Petroleum Volatile Organic Compound

SI – Site Investigation

TOS – Temporarily out of service

TSSA – Tank-System Site Assessment

USDOT – United States Department of Transportation

USGS – United States Geological Survey

UST – Underground Storage Tank

VOC – Volatile Organic Compound

9.2 TERMS

Aboveground Storage Tank –

Any vessel that has a liquid capacity of 110 gallons or more, is intended for fixed installation, is not solely used for processing and does not meet the definition of an underground storage tank.

Compositing –

Sampling method used where several samples are physically mixed into a larger composite sample. The entire composite sample may be measured for desired information, or one or more random sub-samples may be measured individually.

In general, individual samples which are composited must be the same size or volume and the composite sample must be completely mixed.

Composite sampling can be useful for estimating mean concentration of a substance, and if appropriate, compositing can result in substantial savings where the cost of analyzing individual samples is high.

Cartesian Coordinate System –

A system in which the location of a point is given by coordinates that represent its distances from perpendicular lines that intersect at a point called the origin. A Cartesian coordinate system in a plane has two perpendicular lines (the x-axis and y-axis); in three-dimensional space, it has three (the x-axis, y-axis, and z-axis).

Containment –

See NFPA 30, section 22.11, see also “secondary containment” in ATCP 93.

Discrete sample –

The process of collecting a single soil sample from a specific location and depth interval.

Environmental Site Assessment –

The process of determining whether contamination is present on a parcel of real property.

Free product –

Any regulated substance that exists outside of a tank system, a dispenser system or a container for transporting the substance.

Hazardous waste –

A subset of solid wastes that pose substantial or potential threats to public health or the environment and meet any of the following criteria:

Is specifically listed as a hazardous waste by EPA;

Exhibits one or more of the characteristics of hazardous wastes (ignitability, corrosiveness, reactivity, and/or toxicity);

Is generated by the treatment of hazardous waste; or is contained in a hazardous waste.

Obvious release –

An obvious release means there is an indication of a release, and there is both environmental evidence, such as soil discoloration, observable free product, or odors – and a known source such as a tank or piping with cracks, holes or rust plugs, or leaking joints.

Product –

Any regulated substance, used in this reference guide when discussing petroleum products such as gasoline, oil, etc.; see “free product”.

Release –

Any discharge, including spilling, leaking, pumping, pouring, emitting, emptying, leaching, dumping or disposal of a regulated substance into groundwater, surface water or subsurface soils.

Residue –

A small amount of something that remains after the main part has gone or been taken or used; see “sludge”.

Rinsate –

Water containing low concentrations of contaminants, resulting from the cleaning of containers. In this guide, this refers to storage tanks.

Site Assessment –

Begins with a preliminary assessment (PA), which gathers historical and other readily available information on site conditions and surroundings to evaluate whether the site poses a potential threat to human health and the environment and/or whether further investigation is needed.

Samples are rarely collected.

See “environmental site assessment”

Site Investigation: –

Builds on the information gathered in the preliminary assessment. A SI determines whether the potential threat or threats identified in the PA actually exist.

Includes the collection of environmental samples from areas identified in the PA.

Also determines whether hazardous substances are being released into the environment and are a threat to human health.

Determines whether a site warrants short-term or long-term cleanup, or if the site requires no further action.

Sludge –

The residues (solids and some water) produced as a result of regular use of ASTs/USTs and during tank cleaning procedures. See “Tank system closure”; ATCP 93.560.

Solid waste –

As defined under RCRA, any solid, semi-solid, liquid, or contained gaseous materials discarded from industrial, commercial, mining, or agricultural operations, and from community activities. Solid waste includes garbage, construction debris, commercial refuse,

sludge from water supply or waste treatment plants, or air pollution control facilities, and other discarded materials.

Suspected release –

There is indication that a tank system or dispensing system has leaked — such as inventory losses; observable free product or evidence of free product in secondary containment at dispensers, submersible pumps or spill buckets; petroleum odors; unexplained presence of water in a tank; or activation of a leak detection alarm system — but there is no observable environmental evidence of a release.

There is observable environmental evidence of a release, such as soil discoloration or free product, but the source is unknown.

Tank Closure Assessment –

See "Tank System Service and Closure Assessment Report form, current #TR-WM-140".

Tank-System Site Assessment –

The process by which DATCP and the DNR expects tank-system owners or operators to determine if a tank system or any component of that system has released petroleum products or other hazardous substances into the soil, groundwater or surface waters.)

Temporarily out of service –

A storage tank system that is not in use meets the requirements of s. ATCP 93.445 (1) or 93.545 (1) and is intended to be placed back into use within 24 months.

Note: Temporarily out of service does not apply to stationary tanks that are of seasonal use, such as heating fuel storage tanks.

Underground Storage Tank –

Any one or combination of tanks, including connected pipes, that is used to contain an accumulation of regulated substances, and the volume of which, including the volume of connected underground pipes, is 10 percent or more beneath the surface of the ground.

Vermiculite –

The mineralogical name given to hydrated laminar magnesium-aluminum-iron silicate that resembles mica in appearance.

All vermiculite ores contain a range of other minerals that were formed along with the vermiculite in the rock.

Vermiculite ores from some sources have been found to contain asbestos minerals but asbestos is not intrinsic to vermiculite and only a few ore bodies have been found to contain more than tiny trace amounts. See "EPA SW-846" for current use of absorbent minerals in test methods.

**Note: Definitions taken from ATCP 93, unless otherwise indicated/hyperlinked*

10. INDEX OF TABLES AND FIGURES

Tables

Figures