

## **CLASSIFICATION OUTLINE**



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# CLASSIFICATION OUTLINE

## INTRODUCTION

This outline shall be used, in accordance with 401 KAR 42:080, to classify UST systems containing petroleum, based upon their potential impact to human health, safety, and the environment. UST systems shall be classified by assessing site-specific conditions as documented by a Professional Engineer (P.E.) licensed with the Kentucky Board of Licensure for Professional Engineers and Land Surveyors, or a Professional Geologist (P.G.) registered with the Kentucky Board of Registration for Professional Geologists, in order to establish screening levels for petroleum constituents in soil and groundwater.

The prescribed screening levels for soil and groundwater shall be utilized for the initial assessment during permanent closure and site checks, and site investigation actions to determine the extent of contamination. If petroleum contaminant concentrations exceed those screening levels specified within the applicable classification, a site investigation shall be performed, as directed in writing by the cabinet, and in accordance with the Site Investigation Outline, incorporated by reference in 401 KAR 42:060.

If an owner or operator of a UST facility is directed to undertake actions in accordance with the Corrective Action Outline, the prescribed screening levels may or may not constitute final cleanup target concentrations upon further evaluation of site-specific physical conditions and exposure pathway determinations.

A Classification Guide DEP8056 shall be completed for UST systems containing petroleum at the time of permanent closure, site check, or when directed by the cabinet in order to appropriately establish soil and groundwater screening levels. Knowledge of site history and other site-specific information, and further research on the part of the owner or operator, may be necessary to complete the Classification Guide. The Classification Guide shall be completed, signed, and submitted with the Closure Assessment Report DEP8055 (see the Closure Outline incorporated by reference in 401 KAR 42:070), Site Check Report DEP 6082 (see the Site Check Outline incorporated by reference in 401 KAR 42:060), or when specified by the cabinet.

Site classification shall be amended, if warranted, due to changes in on-site or off-site conditions, additional information, or if a release from the UST system is documented to have no potential impact on domestic-use wells, domestic-use springs, or domestic-use cisterns. A completed Classification Guide shall be submitted by the owner/operator when requested by the cabinet to replace the original Classification Guide submitted.

Note: Kentucky Geological Survey (KGS) hydrologic searches may not identify all domestic-use wells or domestic-use springs in the search area.

Sample collection and management shall be performed in accordance with 401 KAR 42:060 or 42:070, as applicable. The cabinet may evaluate instrument/method detection limits, the method's quantitation limits, relative standard deviation and sample matrices in the assessment and validation of laboratory results. The cabinet may consider the variability in analytical results within the laboratory methods specified in USEPA SW-846.

Owners or operators shall classify UST systems collectively unless the individual UST systems are separated by 100 meters (328 feet) or more.

For definition of terms used within this outline, refer to 401 KAR 42:005.

# CLASS A

## 1.0 Criteria for Classification under Class A

The following criteria shall be established and verified by a P.E. or a P.G. in order for a UST system to be classified under Class A:

- No domestic-use wells, domestic-use springs, or domestic-use cisterns are located within a 100-meter (328 feet) radius from the excavation zone.

NOTE: If site-specific information demonstrates no potential impact (e.g., a domestic-use well hydrogeologically upgradient from the excavation zone) to domestic-use wells, domestic-use springs, or domestic-use cisterns from a release within the excavation zone, those features shall be disregarded in the determination of UST system classification.

## 2.0 Soil Screening Levels for Class A

To determine the applicable site-specific soil screening levels within and beyond the point of compliance, complete the Class A Soil Screening Levels Table in the Classification Guide DEP 8056. Two examples are shown below.

Row 1 identifies the baseline soil screening levels in Class A.

Row 2 shall be completed by the P.E. or P.G. to identify the applicable Matrix Table levels applicable to soil beyond the Point of Compliance. These levels shall be utilized as soil screening levels beyond the Point of Compliance.

Row 3 shall be completed by the P.E. or P.G. to identify the adjusted soil screening levels required within the Point of Compliance for UST facilities in Class A. Choose the less stringent constituent levels from Rows 1 and 2 for each constituent and complete Row 3 to identify the final soil screening levels within the Point of Compliance.

<b>EXAMPLE #1 – Gasoline USTs</b>											
<b>Class A Soil Screening Levels Table</b>											
		B	T	E	X	cPAH	B(a)A	nPAH	NAP	Ch	LEAD
1	CLASS A BASELINE SOIL SCREENING LEVELS <b>WITHIN</b> THE POINT OF COMPLIANCE (PPM)	2	18	30	50	0.3	0.15	10	5	15	400
2	MATRIX TABLE SOIL SCREENING LEVELS <b>BEYOND</b> THE POINT OF COMPLIANCE	Class B SOIL MATRIX TABLE: <u>    I    </u> Soil Type: <u>    Sand    </u> Depth to Groundwater: <u>    4.5    </u> (See Section 5.1 of the Classification Outline)									
		0.1	35	30	210	NA	NA	NA	NA	NA	NA
3	CLASS A ADJUSTED SOIL SCREENING LEVELS <b>WITHIN</b> THE POINT OF COMPLIANCE	2	35	30	210	NA	NA	NA	NA	NA	NA

<b>EXAMPLE #2 – Gasoline and Waste Oil USTs</b>											
<b>Class A Soil Screening Levels Table</b>											
		B	T	E	X	cPAH	B(a)A	nPAH	NAP	Ch	LEAD
1	CLASS A BASELINE SOIL SCREENING LEVELS <b>WITHIN</b> THE POINT OF COMPLIANCE (PPM)	2	18	30	50	0.3	0.15	10	5	15	400
2	MATRIX TABLE SOIL SCREENING LEVELS <b>BEYOND</b> THE POINT OF COMPLIANCE	Class B SOIL MATRIX TABLE: <u>    II    </u> Soil Type: <u>    Silt    </u> Depth to Groundwater: <u>    7.5 M    </u> (See Section 5.1 of the Classification Outline)									
		0.2	40	30	330	0.3	0.15	10	5	15	400
3	CLASS A ADJUSTED SOIL SCREENING LEVELS <b>WITHIN</b> THE POINT OF COMPLIANCE	2	40	30	330	0.3	0.15	10	5	15	400

### 3.0 Documentation Requirements

- 3.1 All data and supporting information shall be collected and submitted to the cabinet.
- 3.2 A completed and signed Classification Guide DEP8056 shall be submitted to the cabinet.

# CLASS B

## 1.0 Procedural Requirements

The following procedures shall be required to establish the screening levels for petroleum constituents in soil, and shall be documented by a P.E. or P.G. This class includes all UST systems that do not meet the requirements of Class A.

- 1.1 Soil type shall be determined according to grain size. Collect one (1) soil sample for grain size analysis, consisting of a three (3) point composite sample along a diagonal line across the bottom of the excavation zone; taking one (1) sample at each end and one (1) in the middle of the line. Owners or operators of a UST system performing closure in place shall collect a sample from the bottom of three (3) of the borings required. A single composite of these three (3) samples shall be submitted for grain size analysis.

Composite samples shall be classified according to ASTM Designation: D 422-63 (Re-approved 2007) Standard Test Method for Particle-Size Analysis of Soils. The soil type shall be defined by the 50 percent value (D50) as plotted on a grain size distribution curve (a semi-logarithmic plot) with weight percent finer plotted on the arithmetic scale and the grain sizes plotted on the semi-logarithmic scale.

If collection of soil samples is not possible from the bottom of the excavation due to bedrock, one (1) representative composite sample shall be collected from each of the walls of the excavation zone as close to the bottom of the excavation zone as possible for grain size analysis. If the excavation zone is made up entirely of bedrock and soil sample collection is not possible from either the bottom or the walls of the excavation zone, the "sand" soil type shall apply, by default, to the site.

If owners or operators of a UST system are required to perform site investigation activities, and the predominant soil type identified in boring logs is different than that identified at time of initial classification, the cabinet may request a reevaluation of grain size.

- 1.2 Identify the depth of any groundwater encountered. (See Section 5.0 of Class B.)
- 1.3 Provide photographic documentation of all identified domestic-use wells, domestic-use springs, or domestic-use cisterns. A physical address and contact information shall be provided for the owners of identified domestic-use wells, domestic-use springs, or domestic-use cisterns located within 300 meters from the excavation zone.

NOTE: If site-specific information demonstrates no potential impact (e.g., a domestic-use well hydrogeologically upgradient from the excavation zone) to domestic-use wells, domestic-use springs, or domestic-use cisterns from a release within the excavation zone, those features shall be disregarded in the determination of UST system classification.

## 2.0 Selection of a Matrix Table

Each UST system in Class B shall be placed into one of three Class B Soil Matrix Tables, which indicate the soil screening levels, based upon the geologic setting in which the UST system is located. The geologic setting of the site shall be determined by locating the site on a 7.5-Minute USGS Geological Quadrangle Map. A description of the geology is in the legend where a geologic column for the quadrangle and a detailed description of the formations is presented.

### **3.0 Geologic Formations Included in Each Matrix Table**

#### **3.1 Class B Soil Matrix Table I**

Carbonate Bedrock Settings: These areas are underlain by carbonate rocks including limestone, dolostone, interbedded limestone and shale, or interbedded dolostone and shale. Carbonate rocks will be shown on the 7.5-Minute USGS Geologic Quadrangle Map as geologic formations composed of limestone or dolomite.

#### **3.2 Class B Soil Matrix Table II**

Alluvium: These areas are underlain by deposits of Quaternary Alluvium found predominantly in the valleys along major streams (third order or greater). This setting includes sediments of lacustrine deposition or sediments derived from other glacial deposits.

Fractured Shales: These areas are underlain by thick sections of fractured shale and include the Devonian and Lower Mississippian shales as well as other areas of the state where shale is the predominant bedrock material.

Fractured Sandstone and Shale (Eastern Coal Field): These areas are underlain by alternating units of sandstone, siltstone, shale, limestone, coal, and clay. These deposits are mapped on the Geologic Quadrangle maps as predominantly Pennsylvanian in age and occur in the Eastern Coal Field Physiographic Region of the state.

#### **3.3 Class B Soil Matrix Table III**

Gulf Coastal Plain Sediments: These areas are underlain by sediments of Cretaceous and Tertiary Age and are commonly overlain by Pleistocene loess. This geologic setting is found mainly in the Jackson Purchase Physiographic Region of Western Kentucky. Note: Quaternary Alluvial deposits located within the Jackson Purchase Physiographic region are not considered Gulf Coastal Plain Sediments and shall be referred to Class B Soil Matrix Table II.

Fractured Sandstone and Shale (Western Coal Field): These areas are underlain by alternating units of sandstone, siltstone, shale, limestone, coal, and clay. These deposits are mapped on the Geologic Quadrangle maps as predominantly Pennsylvanian in age and occur in the Western Coal Field Physiographic Region of the state.

### **4.0 Criteria to Determine Appropriate Soil Screening Levels Within Each Class B Soil Matrix Table**

Once the UST system has been placed into the appropriate Class B Soil Matrix Table, the applicable soil screening levels shall be based on all of the following criteria:

- Depth to groundwater; and
- Soil type present at the site (sand, silt, or clay).

### **5.0 Determining Depth To Groundwater**

#### **5.1 Depth to groundwater shall be determined by one of the following:**

- Assessment of existing monitoring devices;
- Performance of a site-specific investigation (e.g. drilling to groundwater, etc.) to determine depth to groundwater; or

- A visual examination of the excavation zone and piping trench -- if existing monitoring devices are not present at the site for an actual determination to be made as to depth to groundwater, or to avoid a site-specific investigation, e.g., drilling until groundwater is encountered, etc. If groundwater is encountered within the excavation zone, piping trench, or borings as required for closure in place and active systems, the 4.5-meter depth to groundwater screening levels shall be used within the appropriate Class B Soil Matrix Table. If groundwater is not present within the excavation zone, piping trench, or borings as required for closure in place and active systems, the actual depth of the excavation zone or borings shall be noted, and the depth listed in the appropriate Class B Soil Matrix Table which is equal to or immediately greater than the actual depth of the excavation zone shall be used for initial classification.

**5.2** If an actual determination of depth to groundwater, below the bottom of the excavation, is made which falls between the depths listed within the Class B Soil Matrix Tables, the upper depth listed shall be used to determine soil screening levels. For example, if the depth to groundwater is established at 12 meters through a site-specific determination, the 10.5-meter depth to groundwater screening levels shall be used as opposed to the 13.5-meter depth to groundwater levels.

## 6.0 Soil Screening Levels for Class B

To determine the applicable site-specific soil screening levels within and beyond the point of compliance, complete Class B Soil Screening Levels Table in the Classification Guide DEP8056. Two examples are shown below.

<b>EXAMPLE #1 – Gasoline USTs</b>										
<b>Class B Soil Screening Levels Table</b>										
Class B SOIL MATRIX TABLE: <u>I</u> Soil Type: <u>Sand</u>										
Depth to Groundwater: <u>4.5 M</u> (See Section 5.1 of the Classification Outline)										
	B	T	E	X	cPAH	B(a)A	nPAH	NAP	Ch	LEAD
<b>MATRIX TABLE SOIL SCREENING LEVELS WITHIN AND BEYOND THE POINT OF COMPLIANCE</b>	0.1	35	30	210	NA	NA	NA	NA	NA	NA

<b>EXAMPLE #2 – Gasoline and Waste Oil USTs</b>										
<b>Class B Soil Screening Levels Table</b>										
Class B SOIL MATRIX TABLE: <u>II</u> Soil Type: <u>Silt</u>										
Depth to Groundwater: <u>7.5 M</u> (See Section 5.1 of the Classification Outline)										
	B	T	E	X	cPAH	B(a)A	nPAH	NAP	Ch	LEAD
<b>MATRIX TABLE SOIL SCREENING LEVELS WITHIN AND BEYOND THE POINT OF COMPLIANCE</b>	0.2	40	30	330	0.3	0.15	10	5	15	400

## **7.0 Documentation Requirements**

- 7.1** All data and supporting information shall be collected and submitted to the cabinet.
- 7.2** A completed and signed Classification Guide DEP8056 shall be submitted to the cabinet.



**CLASS B SOIL MATRIX TABLES**  
(Gasoline, Kerosene, Jet Fuel)

SOIL TYPE	MATRIX TABLE I		MATRIX TABLE II		MATRIX TABLE III	
	DEPTH TO GROUNDWATER (METERS)	SOIL SCREENING LEVELS B/T/E/X (PPM)	DEPTH TO GROUNDWATER (METERS)	SOIL SCREENING LEVELS B/T/E/X (PPM)	DEPTH TO GROUNDWATER (METERS)	SOIL SCREENING LEVELS B/T/E/X (PPM)
SAND	4.5	0.1 / 35 / 30 / 210	4.5	0.01 / 0.5 / 0.4 / 3	4.5	0.01 / 0.5 / 0.4 / 3
	5.5	0.5 / 110 / 100 / 500	5.5	0.01 / 2 / 2 / 18	5.5	0.01 / 2 / 1 / 13
	7.5	0.8 / 180 / 160 / 500	7.5	0.02 / 7 / 4 / 40	7.5	0.01 / 4 / 2 / 20
	10.5	1 / 180 / 230 / 500	10.5	0.05 / 20 / 10 / 90	10.5	0.02 / 6 / 3 / 30
			13.5	0.1 / 40 / 20 / 190	13.5	0.02 / 8 / 4 / 40
			16.5	0.2 / 70 / 40 / 320	16.5	0.03 / 9 / 5 / 50
			23.5	1 / 180 / 210 / 500	23.5	0.05 / 15 / 8 / 80
SILT	4.5	0.1 / 35 / 30 / 230	4.5	0.01 / 0.5 / 0.4 / 3	4.5	0.01 / 0.5 / 0.4 / 3
	5.5	0.4 / 80 / 80 / 500	5.5	0.03 / 2 / 4 / 40	5.5	0.01 / 1 / 1 / 10
	7.5	0.6 / 180 / 140 / 500	7.5	0.2 / 40 / 30 / 330	7.5	0.01 / 3 / 2 / 20
	10.5	1 / 180 / 240 / 500	10.5	0.8 / 180 / 180 / 500	10.5	0.02 / 5 / 3 / 30
			13.5	6 / 180 / 300 / 500	13.5	0.03 / 8 / 5 / 45
			16.5	20 / 180 / 300 / 500	16.5	0.04 / 12 / 9 / 70
			23.5	20 / 180 / 300 / 500	23.5	0.09 / 30 / 18 / 150
CLAY	4.5	0.1 / 35 / 30 / 240	4.5	0.01 / 0.5 / 0.4 / 3	4.5	0.01 / 0.5 / 0.4 / 3
	5.5	0.3 / 80 / 60 / 470	5.5	0.1 / 50 / 40 / 250	5.5	0.01 / 0.7 / 0.8 / 7
	7.5	0.5 / 150 / 100 / 500	7.5	19 / 180 / 300 / 500	7.5	0.01 / 2 / 1 / 13
	10.5	2 / 180 / 300 / 500	10.5	20 / 180 / 300 / 500	10.5	0.03 / 7 / 7 / 40
			13.5	20 / 180 / 300 / 500	13.5	0.09 / 20 / 15 / 120
			16.5	20 / 180 / 300 / 500	16.5	0.4 / 50 / 35 / 290
			23.5	20 / 180 / 300 / 500	23.5	0.5 / 50 / 70 / 330

B/T/E/X: Benzene/Toluene/Ethylbenzene/Xylene (total)  
PPM: mg/kg - parts per million

NOTE: The UST Branch may consider the variability in analytical results within the laboratory methods specified in USEPA SW-846.

**CLASS B SOIL MATRIX TABLES**  
(Diesel, Waste Oil, New Oil)

SOIL TYPE	MATRIX TABLE I		MATRIX TABLE II		MATRIX TABLE III	
	DEPTH TO GROUNDWATER (METERS)	SOIL SCREENING LEVELS Ch/B(a)A/cPAH/nPAH/NAP (PPM)	DEPTH TO GROUNDWATER (METERS)	SOIL SCREENING LEVELS Ch/B(a)A/cPAH/nPAH/NAP (PPM)	DEPTH TO GROUNDWATER (METERS)	SOIL SCREENING LEVELS Ch/B(a)A/cPAH/nPAH/NAP (PPM)
SAND	4.5	15 / 0.15 / 0.3 / 10 / 5	4.5	15 / 0.15 / 0.3 / 3 / 1	4.5	15 / 0.15 / 0.3 / 3 / 1
	5.5	15 / 0.15 / 0.3 / 10 / 5	5.5	15 / 0.15 / 0.3 / 9 / 2	5.5	15 / 0.15 / 0.3 / 8 / 2
	7.5	15 / 0.15 / 0.3 / 10 / 5	7.5	15 / 0.15 / 0.3 / 10 / 4	7.5	15 / 0.15 / 0.3 / 10 / 2
	10.5	15 / 0.15 / 0.3 / 10 / 5	10.5	15 / 0.15 / 0.3 / 10 / 5	10.5	15 / 0.15 / 0.3 / 10 / 4
			13.5	15 / 0.15 / 0.3 / 10 / 5	13.5	15 / 0.15 / 0.3 / 10 / 5
			16.5	15 / 0.15 / 0.3 / 10 / 5	16.5	15 / 0.15 / 0.3 / 10 / 5
			23.5	15 / 0.15 / 0.3 / 10 / 5	23.5	15 / 0.15 / 0.3 / 10 / 5
SILT	4.5	15 / 0.15 / 0.3 / 10 / 5	4.5	15 / 0.15 / 0.3 / 3 / 1	4.5	15 / 0.15 / 0.3 / 3 / 1
	5.5	15 / 0.15 / 0.3 / 10 / 5	5.5	15 / 0.15 / 0.3 / 10 / 5	5.5	15 / 0.15 / 0.3 / 6 / 1
	7.5	15 / 0.15 / 0.3 / 10 / 5	7.5	15 / 0.15 / 0.3 / 10 / 5	7.5	15 / 0.15 / 0.3 / 10 / 3
	10.5	15 / 0.15 / 0.3 / 10 / 5	10.5	15 / 0.15 / 0.3 / 10 / 5	10.5	15 / 0.15 / 0.3 / 10 / 5
			13.5	15 / 0.15 / 0.3 / 10 / 5	13.5	15 / 0.15 / 0.3 / 10 / 5
			16.5	15 / 0.15 / 0.3 / 10 / 5	16.5	15 / 0.15 / 0.3 / 10 / 5
			23.5	15 / 0.15 / 0.3 / 10 / 5	23.5	15 / 0.15 / 0.3 / 10 / 5
CLAY	4.5	15 / 0.15 / 0.3 / 10 / 5	4.5	15 / 0.15 / 0.3 / 3 / 1	4.5	15 / 0.15 / 0.3 / 3 / 1
	5.5	15 / 0.15 / 0.3 / 10 / 5	5.5	15 / 0.15 / 0.3 / 10 / 5	5.5	15 / 0.15 / 0.3 / 8 / 2
	7.5	15 / 0.15 / 0.3 / 10 / 5	7.5	15 / 0.15 / 0.3 / 10 / 5	7.5	15 / 0.15 / 0.3 / 10 / 5
	10.5	15 / 0.15 / 0.3 / 10 / 5	10.5	15 / 0.15 / 0.3 / 10 / 5	10.5	15 / 0.15 / 0.3 / 10 / 5
			13.5	15 / 0.15 / 0.3 / 10 / 5	13.5	15 / 0.15 / 0.3 / 10 / 5
			16.5	15 / 0.15 / 0.3 / 10 / 5	16.5	15 / 0.15 / 0.3 / 10 / 5
			23.5	15 / 0.15 / 0.3 / 10 / 5	23.5	15 / 0.15 / 0.3 / 10 / 5
		LEAD - 400 PPM			LEAD - 400 PPM	

PAH: Polynuclear Aromatic Hydrocarbons  
Ch: Soil Screening level individually for Chrysene  
B(a)A: Soil Screening level individually for Benzo(a)anthracene  
cPAH: Soil Screening level individually for Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, and Indeno(1,2,3- cd)pyrene  
nPAH: Soil Screening Level Individually for Acenaphthene, Acenaphthylene, Anthracene, Benzo(ghi)perylene, Fluoranthene, Fluorene, Phenanthrene, and Pyrene.  
NAP: Soil Screening Level Individually for Naphthalene  
PPM: mg/kg - parts per million

NOTE: The UST Branch may consider the variability in analytical results within the laboratory methods specified in USEPA SW-846.

## SOIL TABLE C

### ALLOWABLE SOIL LEVELS IN EXCAVATED MATERIALS TO BE USED FOR UN-RESTRICTED OFF-SITE PURPOSES \*

<b>BTEX (PPM)</b>	
BENZENE	0.01
TOLUENE	0.7
ETHYLBENZENE	0.9
XYLENE (TOTAL)	5
<b>PAH (PPM)</b>	
Ch	15
B(a)A	0.15
cPAH	0.3
nPAH	10
NAP	5
<b>Total Lead</b>	
400 PPM	

- BTEX: Benzene, Toluene, Ethylbenzene, and Xylene (total)  
 PAH: Polynuclear Aromatic Hydrocarbons  
 Ch: Soil Screening level individually for Chrysene  
 B(a)A: Soil Screening level individually for Benzo(a)anthracene  
 cPAH: Soil Screening level individually for Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene  
 nPAH: Soil Screening level Individually for Acenaphthene, Acenaphthylene, Anthracene, Benzo(ghi)perylene, Fluoranthene, Fluorene, Phenanthrene, and Pyrene.  
 NAP: Soil Screening level Individually for Naphthalene  
 PPM: mg/kg - parts per million

\* Soil samples shall be analyzed for BTEX, PAH, and Total Lead when this table is used.

NOTE: The UST Branch may consider the variability in analytical results within the laboratory methods specified in USEPA SW-846.

# GROUNDWATER

## 1.0 General

The screening levels in groundwater shall be established through an assessment of site-specific conditions as determined by a P.E. or P.G. Groundwater Table 1, Groundwater Table 2, and Groundwater Table 3 specify the groundwater screening levels through an assessment of the criteria outlined below.

## 2.0 Groundwater Table Criteria

### 2.1 Groundwater Table 1 Criteria

The screening levels in Groundwater Table 1 shall be used if either of the following conditions exists:

- The UST facility is not serviced by a public water supply; or
- Domestic-use wells, domestic-use springs, or domestic-use cisterns are located within a 100-meter (328 feet) radius from the excavation zone.

NOTE: If site-specific information demonstrates no potential impact (e.g., a domestic-use well hydrogeologically upgradient from the excavation zone) to domestic-use wells, domestic-use springs, or domestic-use cisterns from a release within the excavation zone, those features shall be disregarded in the determination of groundwater screening levels.

### 2.2 Groundwater Table 2 Criteria

The screening levels in Groundwater Table 2 shall be used if:

- The UST facility is serviced by a public water supply;
- Domestic-use wells, domestic-use springs, or domestic-use cisterns are not located within a 100-meter (328 feet) radius from the excavation zone; and
- Domestic-use wells, domestic-use springs, or domestic-use cisterns are located within a 100-meter (328 feet) to 300-meter (984 feet) radius from the excavation zone.

NOTE: If site-specific information demonstrates no potential impact (e.g., a domestic-use well hydrogeologically upgradient from the excavation zone) to domestic-use wells, domestic-use springs, or domestic-use cisterns from a release within the excavation zone, those features shall be disregarded in the determination of groundwater screening levels.

### 2.3 Groundwater Table 3 Criteria

The screening levels in Groundwater Table 3 shall be used if:

- The UST facility is serviced by a public water supply; and
- Domestic-use wells, domestic-use springs, or domestic-use cisterns are not located within a 300-meter (984 feet) radius from the excavation zone.

## 3.0 Application of Groundwater Tables 1, 2 and 3

3.1 In every case, Groundwater Table 1 screening levels shall be applied to groundwater at or beyond the Point of Compliance for the purpose of site investigation.

3.2 If groundwater, within the Point of Compliance, is contaminated above the screening levels specified in Groundwater Table 1, the cabinet shall, if necessary, direct in writing that a groundwater assessment at the Point of Compliance be performed.

# GROUNDWATER SCREENING LEVELS

<b>BTEX (PPM)</b>			
<b>TABLE</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Distance Parameters per Section 2.0</b>	<b>0-100 Meters</b>	<b>100-300 Meters</b>	<b>Over 300 Meters</b>
BENZENE	0.007	0.039	0.31
TOLUENE	0.94	7.81	101
ETHYLBENZENE	0.47	5.59	148
XYLENE (TOTAL)	5.89	51	719

<b>PAH (PPM)</b>	
cPAH	0.005
nPAH	3
NAP	0.3
<b>Dissolved Lead</b>	
0.015 PPM *	

- BTEX: Benzene, Toluene, Ethylbenzene, and Xylene (total)  
 PAH: Polynuclear Aromatic Hydrocarbons  
 cPAH: Screening level Individually for Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene  
 nPAH: Screening level Individually for Acenaphthene, Acenaphthylene, Anthracene, Benzo(ghi)perylene, Fluoranthene, Fluorene, Phenanthrene, and Pyrene.  
 PPM: mg/L - parts per million

\* Samples shall be filtered prior to acid preservation.

NOTE: The UST Branch may consider the variability in analytical results within the laboratory methods specified in USEPA SW-846.

## 4.0 Vapor Intrusion

- 4.1** Owners or operators of UST systems suspected of being the source of vapor intrusion may be directed in writing to perform a vapor intrusion assessment in accordance with Section 4.0 of the Release Response and Initial Abatement Requirements Outline.
- 4.2** When a UST system is classified to use Groundwater Table 2 or Groundwater Table 3 screening levels, and vapor persists within residential or commercial structures after achieving cleanup to Groundwater Table 2 or Groundwater Table 3 screening levels, additional corrective action shall be directed in writing by the cabinet, as necessary.