

Area-Wide Contingency Plan for Development in the Downtown Tucson Area

An Approach to Managing Impacts from Historical Releases of
Petroleum and Solvent-based Products

November 2013

Contents

Section	Page
Acronyms and Abbreviations	v
Introduction	1-1
Summary of Affected Media	2-1
Potential Impacts to Development	3-1
Handling and Management of Impacted Materials	4-1
4.1 Worker Exposure	4-1
4.2 Material Management.....	4-1
4.2.1 Soil	4-1
4.2.2 Groundwater	4-2
4.3 Material Disposal	4-2
References	5-1
Appendixes	
A Petroleum-Contaminated Soil Fact Sheet	
B Petroleum-Contaminated Soil Sampling Plan	
C Best Management Practices for Petroleum-Contaminated Soil	
Tables	
1 Summary of Environmental Sites in the Downtown Tucson Area	
Figures	
1 Environmental Sites in the Downtown Tucson Area	
2 Generalized Cross-section	
3 Property Assessment Flow Chart	

Acronyms and Abbreviations

AAC	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
BMP	best management practice
BTEX	benzene, toluene, ethylbenzene and xylenes
ERM	Environmental Resources Management
mg/kg	milligrams per kilogram
PCE	tetrachloroethene
PCS	petroleum-contaminated soil
TCE	trichloroethene
UST	Underground Storage Tank
VI	vapor intrusion
WQARF	Water Quality Assurance Revolving Fund

SECTION 1

Introduction

This *Area-wide Contingency Plan for Development in the Downtown Tucson Area* (Plan) was developed at the request of the City of Tucson to assist developers working in the downtown Tucson area. It is a collaborative effort between the City of Tucson, Union Pacific Railroad Company (UPRR) and the Arizona Department of Environmental Quality (ADEQ) to provide information to developers regarding contaminants that may be encountered in the downtown Tucson area. In some locations the shallow or “perched” groundwater zone has been impacted by a number of historical releases of chlorinated solvents and petroleum products. This Plan briefly describes areas that may have been impacted and outlines general approaches to managing material generated during construction that may be impacted from these releases.

This Plan only addresses soil and groundwater associated with the perched groundwater zone, located at a depth of about 60 to 90 feet below ground surface. Urban properties being redeveloped may have been affected by historical operations or waste management practices that are specific to the parcel(s) being redeveloped. These shallower (for example, less than about 50 feet below ground surface), site-specific impacts are outside of the scope of this Plan and may be identified and evaluated through other means such as Phase I and Phase II Environmental Site Assessments. A number of these assessments have been performed for properties in the area (for example: EEC, Inc., 2009; SCS Engineers, 2007).

As of July 2013, a number of environmental sites have been identified in the downtown Tucson area (Figure 1) (Arizona Department of Environmental Quality [ADEQ], 2012; ADEQ 2013a; ADEQ, 2013b; ADEQ 2013c; Environmental Resources Management [ERM], 2000). This map is not comprehensive; other sites may exist in the area. Several of the sites shown have been or are being addressed in cooperation with regulatory agencies such as the Underground Storage Tank (UST) Program or the Water Quality Assurance Revolving Fund (WQARF) Program, both administered through the ADEQ. Sites with impact to the perched groundwater zone are summarized in Table 1. More information on these sites may be obtained from the ADEQ website (<http://www.azdeq.gov/>) or from the UST records center. The records center is located at 1110 West Washington Street in Phoenix, Arizona. An appointment to review documentation may be made by calling (602) 771-4344 or sending an email to ustfilerequest@azdeq.gov.

Parcels located within the area shown on Figure 1 that are planned for development may require an assessment prior to construction of the potential to encounter impacted materials. The basic assessment process is discussed in Section 3.

TABLE 1
Summary of Environmental Sites in the Downtown Tucson Area
Impacted Soil and Groundwater Management Plan

Site Name	Address	Program	ADEQ Site Number	ADEQ Contact	Primary Contaminant(s)	Media Affected
7 th Street and Arizona Avenue	300 E. 7 th Street	WQARF	100007-00	Robert Wallin (520) 628-6743 Wallin.Robert@azdeq.gov	Tetrachloroethene, trichlorethene	Soil and groundwater
Union Pacific Railroad Company Passenger Depot Site	260 E. 8 th Street	UST	0- 008574	Mike Harren (602) 771-4285 Harren.Michael@azdeq.gov	Diesel fuel	Soil and groundwater
Firestone	445 N. 6 th Avenue	UST	0-007756	ADEQ (602) 771-4344	Benzene, toluene, ethylbenzene and xylenes (BTEX)	Groundwater
Arizona Department of Transportation	35 E. Toole Avenue 119 E. Toole Avenue	UST	0-007734 0-007735	ADEQ (602) 771-4344	BTEX	Soil and groundwater
Trailways Bus Station	201 E. Broadway Road	UST	4715.0232	ADEQ (602) 771-4344	Diesel fuel	Soil and groundwater
Yellow Cab	411 N. 5 th Avenue	UST	0-0006763	ADEQ (602) 771-4344	BTEX	Groundwater

Notes:

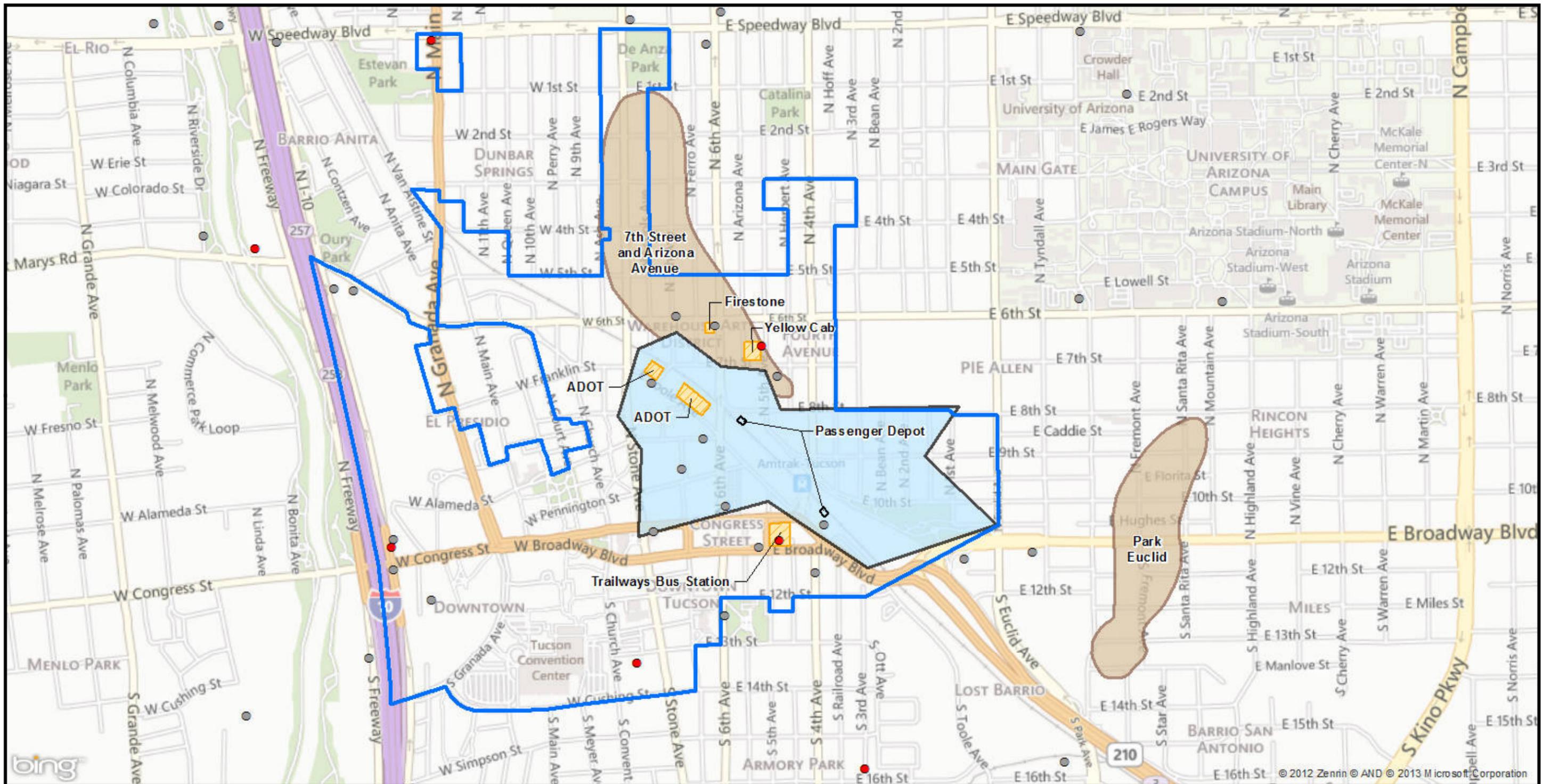
ADEQ = Arizona Department of Environmental Quality

WQARF – Water Quality Assurance Revolving Fund

UST = Underground Storage Tank

BTEX = benzene, toluene, ethylbenzene, and xylenes

Sources: ADEQ, 2012, ADEQ, 2013a, ADEQ, 2013b, Environmental Resources Management, 2000.



- Legend**
- Closed UST site
 - Open UST site
 - ▭ Downtown/Gateway Redevelopment Sub-Area 2
 - ▭ Potential Impacts from Petroleum
 - ▭ Water Quality Assurance Revolving Fund Site
 - ▭ Other Environmental Site

Notes:
 1. ADOT = Arizona Department of Transportation.
 2. UST = Underground Storage Tank Program
 3. Contamination may overlap in some areas.
 4. Site locations are approximate; plume configuration may change over time.

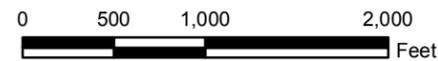


FIGURE 1
ENVIRONMENTAL SITES IN THE
DOWNTOWN TUCSON AREA
Downtown Tucson Area-Wide Contingency Plan

SECTION 2

Summary of Affected Media

As indicated in Section 1, both soil and groundwater have been impacted by historical releases. To provide a framework for the following descriptions of the affected media, a generalized cross-section has been prepared (Figure 2). Contamination from historical releases of volatile organic compounds (VOCs) and petroleum is present in the upper unsaturated zone and the perched groundwater zone.

In general, impacts to upper unsaturated zone (between the ground surface and the perched groundwater zone) are limited to the areas near the release points—that is, on or adjacent to the properties where the historical operations took place. Therefore, although relatively large areas are shown as impacted on Figure 1, most of the impact is to the perched groundwater zone, located approximately 60 to 90 feet below ground. In addition, contaminants may be present in soil vapor between the ground surface and the perched groundwater zone where impacted groundwater is present.

Released liquids tended to move downward until they encountered the perched groundwater zone. Known impacts to the perched groundwater zone include diesel fuel and related compounds and VOCs including chlorinated solvents and gasoline-related compounds such as benzene, toluene, ethylbenzene and xylenes (BTEX). Because the diesel is less dense than water, it has spread horizontally in soil above the water table. Therefore, a thin layer of soil containing diesel fuel is present at the top of the perched groundwater in some areas.

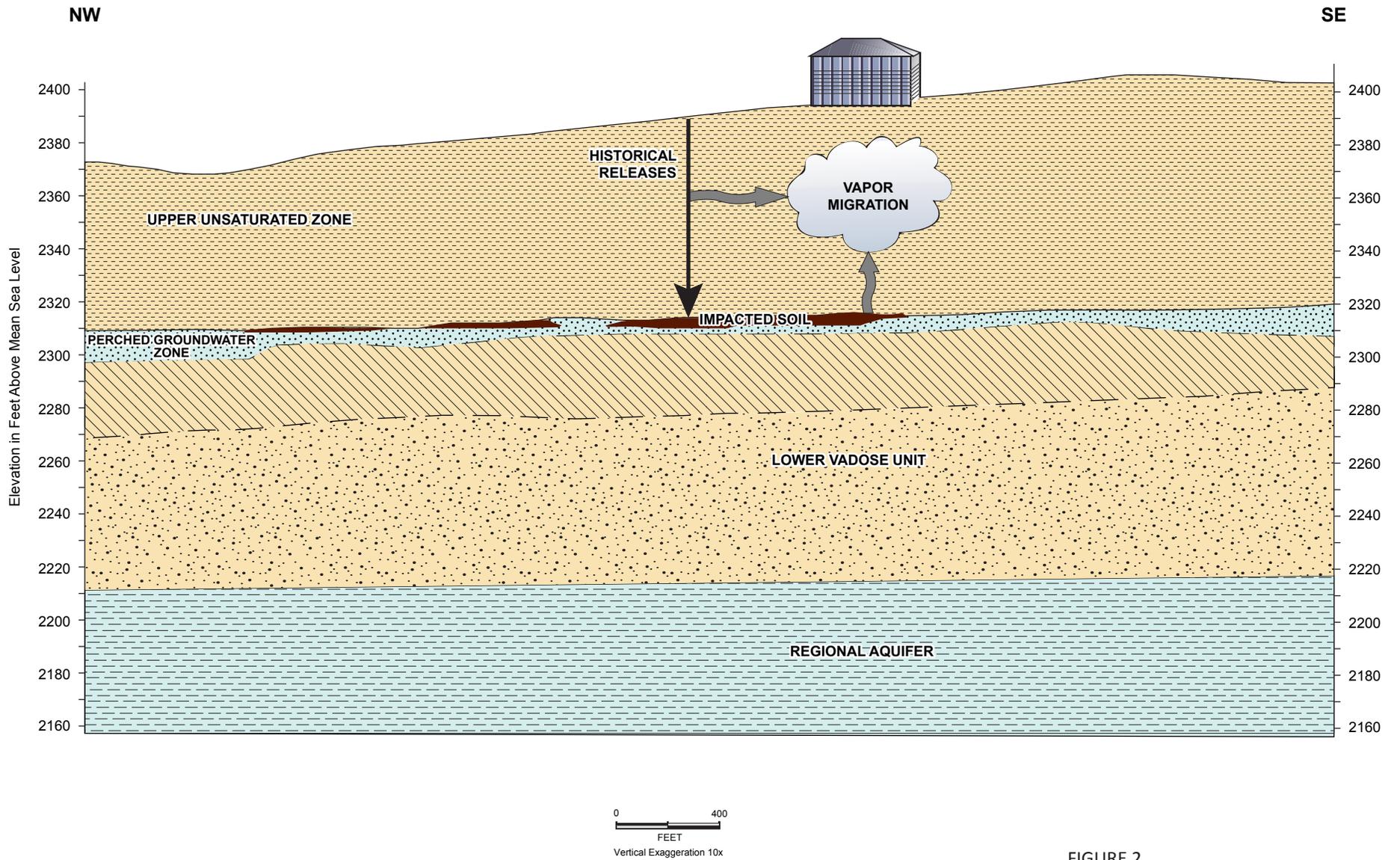


FIGURE 2
Generalized Cross-Section
Downtown Tucson
Area-wide Contingency Plan

SECTION 3

Potential Impacts to Development

Contaminants in soil and groundwater may be encountered during construction activities in the downtown Tucson area. A flow chart showing a general property assessment process is shown on Figure 3. The first step in a typical assessment often includes a Phase I environmental site assessment to identify current and previous environmental issues related to the parcel. A Phase 2 environmental site assessment is sometimes needed to better define whether the parcel has been impacted, and the extent of those impacts. The Phase I and Phase II assessments are generally performed to identify environmental issues associated with historical operations at the property, and are therefore generally oriented towards shallow impacts, unless deeper impacts are indicated during the assessments. These types of impacts are likely unrelated to the area-wide contamination associated with the perched groundwater zone as described in Section 2.

Vapor intrusion (VI) may occur where contaminants are present beneath existing or planned future buildings. VI is the migration of vapor through the soil and into enclosed spaces such as buildings. This could result in exposure by occupants of the buildings to contaminants that may be present in soil or groundwater. VI is generally associated with more volatile contaminants including chlorinated solvents and gasoline-related compounds such as BTEX. A screening-level assessment indicated that VI associated with free-phase diesel fuel at the Passenger Depot Site did not pose unacceptable risk to construction workers or residents (ERM, 2000). The collection of soil gas samples prior to construction can help assess the potential for VI at a development site. If VI is identified as a potential issue for a specific building, cost-effective methods of addressing VI, such as installing a vapor barrier beneath the building, are available.

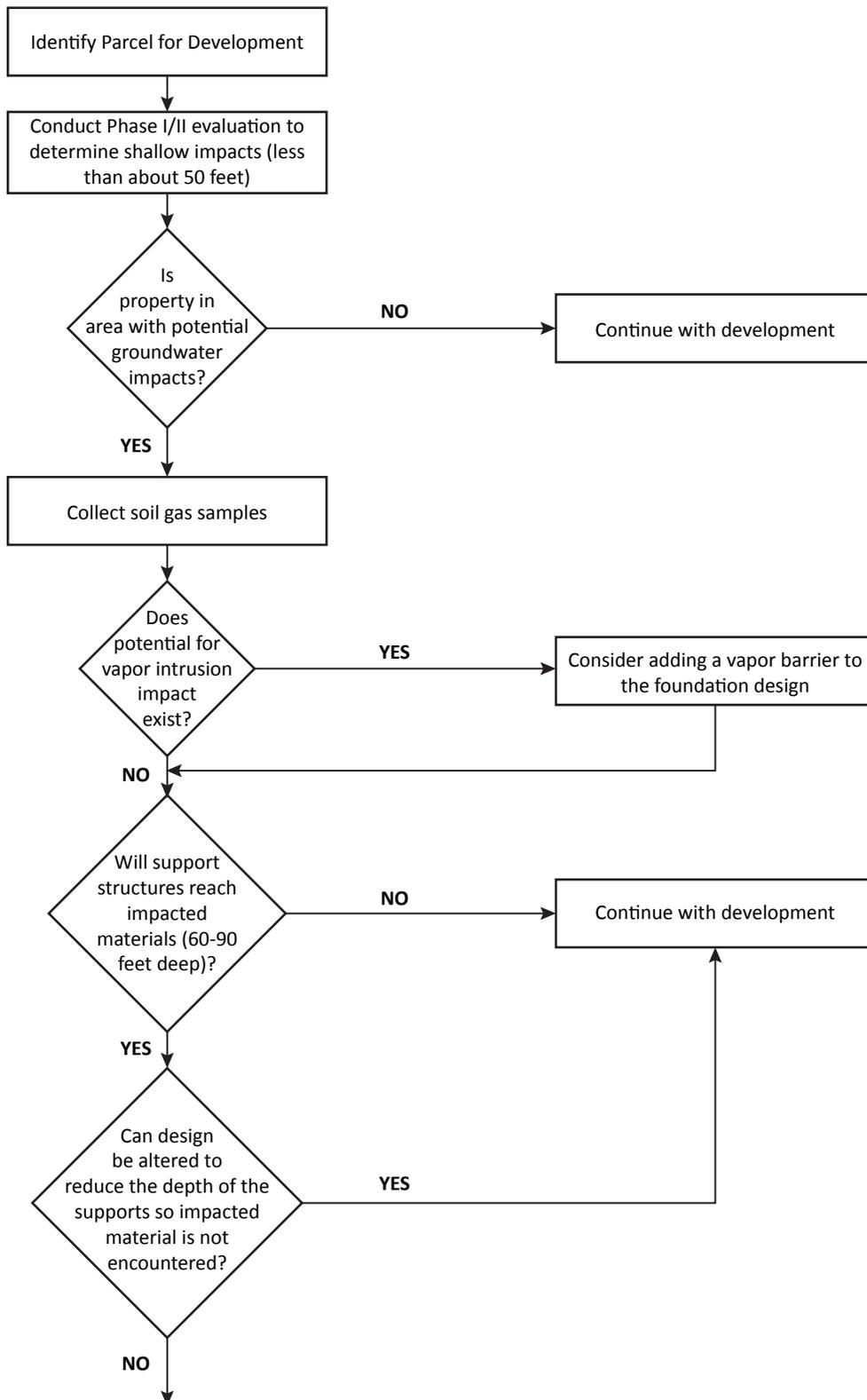
Also, development plans should be reviewed to identify whether subsurface structures will reach the perched groundwater zone (located at about 60 to 90 feet below ground). If it is early enough in the design process, the design may be altered to eliminate such deep support structures or minimize their size to reduce the amount of impacted materials that are encountered during construction.

If it is not possible to modify the design, and impacts to deep soil and the perched groundwater have been identified, then there is potential for exposure by construction workers to impacted materials during construction. For example, construction workers may come into contact with these potentially-impacted materials if the materials are brought to the surface through drilling or excavation. Exposure to impacted materials can be minimized by:

- Designing subsurface structures that do not extend deep enough to reach impacted materials (about 60 to 70 feet).
- Minimizing the size of deep support structures to reduce the amount of impacted material generated during construction.
- Developing a health and safety plan to describe safety protocols when performing the work. This plan may include a description of administrative controls, engineering controls, and personal protective equipment for construction workers if construction is expected to encounter impacted materials.
- Developing a soil management plan to handle, characterize and dispose of impacted materials generated during construction. Impacted materials should be handled and managed separately from non-impacted materials.

These procedures are discussed in more detail in Section 4.

In addition, if subsurface structures are to be installed in soil or groundwater containing contaminants, a materials specialist should perform an assessment to determine whether contaminants may accelerate corrosion or other degradation processes.



- Consider:**
- Altering design to minimize size of supports within impacted material
 - Preparing soil management plan prior to construction
 - Preparing Health and Safety Plan to protect workers during construction
 - Determining dewatering treatment/disposal strategy
 - Assessing construction materials for compatibility with contaminants

FIGURE 3
Property Assessment Flow Chart
 Downtown Tucson
 Area-Wide Contingency Plan

SECTION 4

Handling and Management of Impacted Materials

Potentially-impacted materials associated with the perched groundwater zone that may be encountered during construction include:

- Soil containing petroleum hydrocarbons
- Groundwater containing chlorinated solvents or gasoline- or diesel-related compounds

Key effects of encountering this material include exposure by construction workers and the need to manage and dispose of the material that is generated. Management of these aspects of construction is described in the following subsections. Additional information may be found on the ADEQ website describing special waste (<http://www.azdeq.gov/environ/waste/solid/special.html>). A Petroleum-Contaminated Soil Fact Sheet and a Petroleum-Contaminated Soil Sampling Plan, both generated by ADEQ, are attached as Appendix A and Appendix B of this report.

4.1 Worker Exposure

If it is expected that construction activities will encounter impacted materials, an environmental health and safety professional should be consulted to evaluate the potential for worker exposure to potentially harmful chemicals during construction. As previously described, general classes of chemicals present in deep soil and perched groundwater include chlorinated solvents such as PCE and TCE, gasoline-related compounds such as BTEX, and diesel-related hydrocarbons. The environmental professional can also assist in determining what administrative controls, engineering controls, and personal protective equipment may be used during construction to minimize exposure by workers.

4.2 Material Management

Guidelines for the management of contaminated soil and groundwater are provided in the following subsections. These guidelines are not intended to be comprehensive or provide site-specific procedures for management of impacted materials. Because conditions will likely vary depending on the location and the nature of construction activities, management plans should be developed in consultation with an environmental professional.

4.2.1 Soil

It is anticipated that impacts to the deep soil will be primarily from petroleum-related compounds. This is because free product petroleum has migrated above the perched groundwater zone, while chlorinated solvents, BTEX and diesel-related compounds are dissolved within the groundwater. Soil containing petroleum compounds may be considered “petroleum contaminated soils” (PCS) as described in Arizona Revised Statutes 49-851. According to the Petroleum-Contaminated Soil Fact Sheet, in order for material to be considered PCS it must contain one or more of the following compounds at a concentration greater than the residential Soil Remediation Level:

- | | | | |
|------------------|------------------------|--------------------------|---------------|
| • Benzene | • Anthracene | • Chrysene | • Naphthalene |
| • Toluene | • Benz(A)anthracene | • Dibenz(A, H)anthracene | • Pyrene |
| • Ethylbenzene | • Benzo(A)pyrene | • Fluoranthene | |
| • Total xylenes | • Benzo(B)fluoranthene | • Fluorine | |
| • Acenaphthylene | • Benzo(K)fluoranthene | • Indenopyrene | |

It is anticipated that due to the small amount of petroleum present above the perched groundwater zone, concentrations of petroleum compounds will not be high enough for the soil to be considered PCS. However, the

amount of impacted soil may vary depending on proximity to a release point. Best management practices (BMPs) for PCS should be followed during excavations within potentially-impacted areas since the soil may contain petroleum. BMPs for PCS are described in AAC R18-13-1601 et seq (attached to this report as Appendix C). Some of these BMPs are summarized below to provide general guidelines for management of PCS.

PCS should be segregated from soil that does not contain petroleum and placed in an accumulation area constructed in such a way as to:

- Prevent migration of contaminants into subsurface soil, groundwater, or surface water
- Prevent run-off and run-on of rainwater
- Collect and control run-off for at least the water volume resulting from a 24-hour, 25-year storm event
- Control public access and prevent unauthorized vehicle traffic and illegal dumping

Examples of accumulation areas include:

- A bermed area lined with 100 mil plastic sheeting
- Roll-off containers with retractable covers
- 55-gallon drums with lids

After the material is placed in the accumulation area, it should be characterized through laboratory analysis and disposed of in accordance with federal, state, and local laws. Characterization requirements can be developed by working with the landfill that would receive the waste.

4.2.2 Groundwater

The perched groundwater zone may contain chlorinated solvents or petroleum compounds at concentrations that exceed the Arizona Aquifer Water Quality Standards. Groundwater that is generated during construction activities within the downtown Tucson area described in this Plan should be placed in a closeable container, characterized through laboratory analysis, and disposed of in accordance with federal, state, and local laws. Suitable containers may include 55-gallon drums or polyethylene tanks.

4.3 Material Disposal

Based on the extent of impacted soil and groundwater generated during construction activities, it may be necessary to work with a landfill and/or waste hauler that will accept PCS and other impacted materials. Landfills that may accept this type of material include:

Los Reales Landfill
5300 E. Los Reales Road
Tucson, AZ 85756
(520) 791-4183

Waste Management Butterfield Landfill
40404 S. 99th Ave.
Mobile, AZ 85239
Industrial Sales: (602) 437-3165

It is recommended that landfill personnel be involved in the characterization of impacted materials to streamline the characterization and disposal process.

SECTION 5

References

Arizona Department of Environmental Quality (ADEQ). 2012. Park-Euclid WQARF Site, Tucson, Arizona – Site Map. July.

ADEQ. 2013a. Personal Communication. April 2.

ADEQ. 2013b. Fact Sheet for the 7th Street and Arizona Avenue WQARF Site.

<http://www.azdeq.gov/environ/waste/sps/download/tucson/7thstreetfact.pdf>. Spring.

ADEQ. 2013c. Fact Sheet for the Union Pacific Railroad Company Passenger Depot Site. Date and website location pending.

EEC, Inc. 2009. Depots Plaza Excavation and Caisson Boring, 1 North 5th Avenue, Tucson, Arizona Summary of Soil and Groundwater Monitoring Activities. July 7.

Environmental Resources Management. 2000. Remedial Investigation Report, Passenger Depot Site, ADEQ VRP Facility # 100149-00, Tucson, Arizona. December.

SCS Engineers, Inc. 2007. Ronstadt Transit Center, 215 E. Congress Street, Tucson, Arizona Phase I Environmental Site Assessment. January 29.

Appendix A
Petroleum-Contaminated Soil Fact Sheet

Petroleum Contaminated Soil (PCS) - July 2008

WHAT IS PCS?

Generally speaking, petroleum-contaminated soils (PCS) are generated when gasoline, diesel and used oil are released into the environment. PCS is defined in the Arizona Revised Statutes (A.R.S.) § 49-851.A.3 as soils excavated for storage, treatment or disposal containing benzene, toluene, ethylbenzene, total xylenes, acenaphthylene, anthracene, benzene (A) anthracene, benzo (B) flouranthene, benzo (K) flouranthene, chrysene, dibenz (A, H) anthracene, flouranthene, flourene, indenopyrene, naphthalene or pyrene in concentrations in excess of levels determined by the Arizona Department of Environmental Quality (ADEQ) director pursuant to A.R.S. § 49-152 to protect public health and the environment.

Special Waste PCS

PCS is considered **Special Waste PCS** when soil that is excavated for storage, treatment or disposal contains regulated contaminants listed in A.R.S. § 49-851.A.3 at levels above non-residential soil remediation levels (SRLs). It is designated a special waste above the non-residential level because its treatment, storage, transportation or disposal has the potential to cause adverse effects on public health and the environment.

As of February 1998, the Department determined that the non-residential SRLs are to be followed by PCS handlers for the protection of human health and the environment as set forth in A.R.S. § 49-152 for the 17 constituents listed in the statute.

Solid Waste PCS

PCS excavated for storage, treatment or disposal containing the regulated contaminants (listed in the attached table) is considered a **Solid Waste** only when the contaminants are above the residential SRLs, but below or at the non-residential SRLs. These soils are exempt from PCS rules except for the waste determination requirements and are subject to solid waste regulations found in Arizona Administrative Code (A.A.C.) Title 18, Ch. 8, Art. 16.

Soil exempt from PCS rules

When the levels of regulated contaminants (listed in the attached table) are below or at the residential SRLs in excavated soil, they are EXEMPT from PCS rules except for the waste determination requirements. These soils are exempt from regulation as a solid waste provided that the applicable requirements under A.R.S. § 49-701.02 are met.

I'VE GENERATED PCS – NOW WHAT DO I DO?

Pursuant to A.A.C. R18-13-1604, a generator of excavated PCS must determine if the soil is special waste PCS, solid waste PCS, or non-regulated soil through laboratory analysis by an Arizona certified laboratory or by using generator knowledge. It is recommended that the generator manages the PCS as special waste until a proper waste determination has been conducted.

If laboratory analysis is used, the waste determination shall be performed in accordance with a site-specific written sampling plan using:

- “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846),” Third Edition, Chapter Nine, Sampling Plan.
- ADEQ’s Petroleum Contaminated Soil sampling plan. The sampling plan is available on our Web site: www.azdeq.gov/environ/waste/solid/special.html

I HAVE SPECIAL WASTE PCS – NOW WHAT DO I DO?

- Obtain a Special Waste Generator ID Number (A.A.C. R18-13-1302)
- Complete the “Generator” section of a Special Waste Manifest prior to off-site consignment (A.A.C. R18-13-1302)
- Only use a registered Special Waste Shipper (A.A.C. R18-13-1303)
- Dispose of the Special Waste at a registered storage, disposal, or treatment facility permitted by ADEQ (A.A.C. R18-13-1613)

- Store Special Waste PCS less than 90 days prior to shipment to a storage, disposal or treatment facility (A.A.C. R18-13-1612)
- Keep records at least 3 years (A.A.C. R18-13-1305)

- A written record of monthly inspections of the tank or container for leaks and deterioration and any corrective actions must be kept.

HOW SHOULD SPECIAL WASTE PCS BE STORED?

- Each Special Waste PCS storage area, tank or container used for storage or accumulation of PCS must be labeled as followed:

CAUTION: CONTAINS PETROLEUM
CONTAMINATED SOIL
GENERATOR NAME:
GENERATOR ID#:
ACCUMULATION START DATE:

Special Waste PCS stored in piles:

- Must comply with the facility design requirements listed in A.A.C. R18-13-1609, including a containment system with a clay, synthetic, concrete or asphalt liner.
- Piles must be covered and managed to control wind dispersal of the Special Waste PCS.
- A written record of weekly inspections of the Special Waste PCS piles must be kept, documenting any corrective actions for the run-on and run-off control system, wind dispersal system, and of any leachate collection and control systems.

Special Waste PCS stored in tanks and containers:

- Any tank or container used for storage of Special Waste PCS must be leak-proof, and made of, or lined with, material that will not react with the Special Waste PCS.
- The tank or container must be closed at all times unless Special Waste PCS is being added or removed, and not opened, handled or stored in a manner that will lead to rupture or leaks.

ADEQ ADDITIONAL INFORMATION:

Solid Waste Inspections and Compliance Unit
(602)771-4673 or
Toll-free at (800) 234-5677 Ext. 771-4673
Hearing impaired persons may call our TDD line at
(602) 771-4829.
Web site: www.azdeq.gov

SPECIAL WASTE CONSTITUENTS (A.R.S. § 49-851A.3)	REGULATED CONTAMINANTS	SOLID WASTE PCS >RESIDENTIAL SRLs (IN PPM, MG/KG)	SPECIAL WASTE PCS >NON-RESIDENTIAL SRLs (IN PPM, MG/KG)
BTEX EPA Method 8260 or 8021	Benzene	0.65	1.4
	Toluene	650	650
	Ethylbenzene	400	400
PAHS Polynuclear aromatic hydrocarbons Commonly found in diesel and lubricant oil EPA Method 8310	Total Xylenes	270	420
	Acenaphthylene	3,700	29,000
	Anthracene	22,000	240,000
	Benz[A]anthracene	6.9	21
	Benzo[A]pyrene	0.69	2.1
	Benzo[B]fluoranthene	6.9	21
	Benzo[K]fluoranthene	69	210
	Cyrysene	680	2,000
	Dibenz[A,H]anthracene	0.69	2.1
	Fluoranthene	2,300	22,000
Fluorene	2,700	26,000	
Indenopyrene	6.9	21	
Naphthalene	56	190	
Pyrene	2,300	29,000	

Appendix B
Petroleum-Contaminated Soil Sampling Plan

Petroleum Contaminated Soil Sampling Plan

April 2007

Excavated soils must be characterized prior to treatment or disposal in order to demonstrate that the selected treatment or disposal method is both necessary and appropriate. The following guidelines should be employed for determining the appropriate number of samples to characterize the excavated soils. If the soils are being taken to a fixed disposal or fixed treatment facility, the additional sampling requirements, if any, for that facility should be followed.

Soil volume (cubic yards)	Number of discreet samples*
1 – 10	2, one from each half
11 -20	3, one from each third
21-100	4, one from each quarter
101 -500	one sample for each 25 cubic yards, not to exceed 10 samples
> 500	one sample for each 50 yards

**Discreet samples, in intervals of two, may be combined into a composite sample in the laboratory from the sample extract to save on the cost of analyses. For example, four (4) discreet samples can be combined in the laboratory to create two composite samples. VOC samples should be composited after the extraction process has been performed using an aliquot of the extract.*

Discreet samples should be collected from the excavated soil by pushing or driving a clean split-spoon type sampler lined with clean sleeves composed of an inert material such as Teflon, stainless steel, or brass. Sample collection should be conducted in accordance with industry standards.

Completely filled sleeves should be immediately sealed by completely covering the ends with a Teflon patch, covering the Teflon patch with a foil patch, covering the patches with tight-fitting plastic caps, and sealing the caps by wrapping custody seals or non-contaminating tape around the sleeve, overlapping the lower edge of the cap. The sample should be immediately labeled, placed in a sealable plastic bag, and stored at 4 degrees Celsius.

Alternative sampling methods may be used if approved by the Arizona Department of Environmental Quality. The sample should be submitted to a fixed-based or mobile analytical laboratory certified by the Arizona Department of Health Services to perform the appropriate analyses. A properly completed chain-of-custody document should accompany all samples.

The soil sample preservation and extraction for volatile organic contaminants should be conducted in accordance with ADEQ Policy 0170.00 Implementation of EPA Method 5035 – Soil Preparation for EPA Methods 8015B, 8021B and 8260B. Petroleum contaminated soil sampling can be considered “UST/Tank sampling” with regards to Policy 170, allowing the collection of bulk samples. Samples should be analyzed for the constituents and laboratory methods as indicated in Table 1.

Appendix C
Best Management Practices for Petroleum
Contaminated Soil

ARTICLE 16. BEST MANAGEMENT PRACTICES FOR PETROLEUM CONTAMINATED SOIL

Article 16, consisting of Sections R18-13-1601 through R18-13-1614, recodified from 18 A.A.C. 8, Article 16 at 8 A.A.R. 5172, effective November 27, 2002; Section and subsection citations within this Article were also updated under A.R.S. § 41-1011(C) (Supp. 02-4).

R18-13-1601. Definitions

In addition to definitions in A.R.S. § 49-851 and A.A.C. R18-13-1301, the terms in this Article shall have the following meanings:

1. "Accumulation site" means an area or site at which PCS from one or more points of generation under the control of the generator of PCS is accumulated for more than 12 hours but less than 90 days prior to treatment, storage, or disposal.
2. "Containment system" means a system designed to contain an accumulation of special waste which meets the design and performance standards in R18-13-1608 and either R18-13-1609 or R18-13-1611.
3. "Excavated" means removed from the earth by scraping or digging a hole or cavity in the earth's surface or otherwise removed from the earth's surface.
4. "Facility" or "special waste receiving facility" means a treatment facility, storage facility, or disposal facility which has been approved by the Director in accordance with A.R.S. § 49-857 or has qualified for Interim Use Facility status pursuant to A.R.S. § 49-858.
5. "Hazardous waste" means hazardous waste as defined in A.R.S. § 49-921(5).
6. "Non-fuel, non-solvent petroleum product" means a petroleum-based substance refined from virgin crude oil that is not used as a solvent or fuel including mineral oils and hydraulic oils.
7. "Non-regulated soils" means soils contaminated with total petroleum hydrocarbon (TPH) levels equal to or less than 100 mg/kg which are neither hazardous waste, PCS, nor solid waste PCS, and which do not constitute an environmental nuisance pursuant to A.R.S. §§ 49-141 through 49-144.
8. "PCS" means petroleum-contaminated soils, which are not hazardous waste or solid waste PCS, which are excavated for storage, treatment, or disposal, and which contain contaminants as described by any of the following:
 - a. TPH which exceeds concentrations of 5,000 mg/kg,
 - b. Benzene which exceeds concentrations of 0.13 mg/kg,
 - c. Toluene which exceeds concentrations of 200 mg/kg,
 - d. Ethylbenzene which exceeds concentrations of 68 mg/kg,
 - e. Total xylene which exceeds concentrations of 44 mg/kg.
9. "PCS disposal facility" means a site or special waste receiving facility at which the disposal of PCS has been approved by the Director pursuant to A.R.S. § 49-857 or has qualified for Interim Use Facility status pursuant to A.R.S. § 49-858.
10. "Petroleum" means petroleum as defined in A.R.S. § 49-1001(11).
11. "Point of compliance" means point of compliance as defined in A.R.S. § 49-244.
12. "Special waste shipper" means a person who transports special waste for off-site treatment, storage, or disposal.
13. "Solid waste PCS" means excavated soils contaminated with petroleum, which are not hazardous waste and which meet any of the following:
 - a. Have TPH concentrations which exceed 100 mg/kg but which are at or below 5,000 mg/kg;
 - b. Are soils contaminated with non-fuel, non-solvent petroleum products with a TPH which exceeds 100 mg/kg.
14. "Storage" means the holding of PCS for a period of more than 90 days but less than one year.
15. "Storage facility" means a special waste receiving facility which engages in storage and which has been approved by the Director pursuant to A.R.S. § 49-857 or has qualified for Interim Use Facility status pursuant to A.R.S. § 49-858.
16. "Temporary treatment facility" means an on-site treatment facility, or an off-site treatment facility owned or operated by the generator of PCS, where the PCS is treated to reduce TPH, benzene, toluene, ethylbenzene, or total xylene concentrations and which complies with the requirements of R18-13-1610.
17. "Total petroleum hydrocarbons" or "TPH" means the sum of the aliphatic and aromatic hydrocarbon constituents contained in petroleum, as determined through laboratory testing.
18. "Treatability study" means a study in which a special waste is subjected to a treatment process to determine any one or more of the following:
 - a. Whether the waste is amenable to the treatment process,
 - b. What pretreatment is required,
 - c. The optimal process conditions needed to achieve the desired treatment,
 - d. The efficiency of a treatment process,
 - e. The characteristics and volumes of residual contaminants from a particular treatment process,
 - f. Toxicological and health effects.
19. "Treatment facility" means a special waste receiving facility which has been approved by the Director pursuant to A.R.S. § 49-857 or has qualified for Interim Use Facility status pursuant to A.R.S. § 49-858, and at which PCS receives treatment to reduce TPH or benzene, toluene, ethylbenzene, or total xylene concentrations.

Historical Note

Recodified from R18-8-1601 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1602. Applicability

- A. The Director declares that PCS, as defined in R18-13-1601(8), constitutes a special waste as defined in A.R.S. § 49-851(A)(9). Except as otherwise provided in this Section and R18-13-1603, PCS shall be treated, stored, and disposed of in accordance with this Article. PCS shall not be diluted with any material or substance for purposes of avoiding applicability of these rules.
- B. PCS which is used in a treatability study shall comply with all of the following:
1. The owner or operator of the facility where a treatability study is to be conducted shall notify the Department of its intent to conduct a treatability study at least 30 days prior to the commencement of the treatability study.
 2. The total quantity of PCS used in the treatability study shall not exceed 5000 kilograms, unless evidence is provided which justifies the need for a larger quantity and permission to use a larger amount is granted by the Director.
 3. The owner or operator of the facility shall maintain records detailing the treatability study and the results obtained in accordance with R18-13-1614.
 4. The treatability study shall be completed and the PCS shall be removed from the site within one year from commencement of the study.
 5. Upon completion of the treatability study, the owner or operator of a facility shall dispose of the PCS used in the treatability study in accordance with this Article.
 6. Sampling of the PCS shall be conducted in accordance with R18-13-1604(B) and (C) before and after the treatability study is performed.
 7. The performance of the treatability study shall not result in an environmental nuisance pursuant to A.R.S. §§ 49-141 through 49-144.
- C. PCS which is excavated pursuant to the requirements of A.R.S. Title 49, Chapter 6, Underground Storage Tank Regulation, and which is not removed from the site, shall comply with the requirements of R18-13-1610 and R18-13-1612.
- D. PCS incorporated into asphalt for use in paving is not subject to other provisions of this Article if the owner or operator of the facility where the asphalt is produced does all of the following:
1. Notifies the Department in writing at least 30 days prior to commencing such incorporation,
 2. Maintains records in accordance with R18-13-1614,
 3. Stores the PCS prior to incorporation in accordance with R18-13-1611,
 4. Uses only soil characterized as PCS based on TPH concentrations as set forth in R18-13-1601(8)(a).

Historical Note

Recodified from R18-8-1602 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1603. Exemptions

- A. Solid waste PCS are exempt from the provisions of this Article, except for the requirements in R18-13-1604, and are subject to A.R.S. § 49-761 et seq.
- B. Non-regulated soils are exempt from the provisions of this Article, except for the requirements in R18-13-1604, and are exempt from the requirements of A.R.S. § 49-761 et seq.
- C. Asphaltic cement which is not hazardous waste is exempt from the requirements of this Article.
- D. Soils which are contaminated with petroleum, which have been generated by households, and which are not hazardous waste, shall be exempt from the requirements of this Article.
- E. Soil characterized as PCS solely because the TPH concentration exceeds 5,000 mg/kg may be disposed in accordance with A.R.S. § 49-761 et seq. and shall be exempt from the requirements of this Article, except that the generator shall comply only with the requirements for accumulation sites in R18-13-1612, if either of the following conditions are met:
1. The mathematical product of the TPH (mg/kg) and the number of tons excavated is less than 10,000.
 2. The mathematical product of the TPH (mg/kg) and the number of cubic yards excavated is less than 8,500.

Historical Note

Recodified from R18-8-1603 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1604. Waste Determination

- A. A generator of excavated soil contaminated with petroleum shall determine whether the soil is PCS, solid waste PCS, or non-regulated soil. The basis for the determination shall be maintained for at least three years and shall be made available to the Department upon request. The generator shall make such determination using either of the following methods:
1. Testing the soil pursuant to subsection (B) of this Section. Laboratory analysis of these samples shall be performed by a laboratory licensed by the Arizona Department of Health Services. Approved testing methods, which identify concentrations for total recoverable extraction of contaminants, shall be used.
 2. Application of knowledge of the characteristics of the contaminated soil in light of the known or potential source of the contamination. The Department may require sampling to confirm the accuracy of applied knowledge.
- B. Sampling of soils contaminated with petroleum shall be performed in accordance with a site-specific written sampling plan which is consistent with the requirements set forth in either of the following:
1. "Test Methods for Evaluating Solid Waste", EPA SW-846, 3rd Edition Volume II: Field Manual, Physical/Chemical Method, Chapter Nine (SW-846 Third Edition), 1986, Environmental Protection Agency, Washington, D.C. and no future editions or amendments, incorporated herein by reference and on file with the Department and the Office of the Secretary of State.

2. "Quality Assurance Project Plan", Chapter 9, May 1991 Edition, Arizona Department of Environmental Quality, Phoenix, Arizona and no future editions or amendments incorporated herein by reference and on file with the Department and the Office of the Secretary of State.
- C. Where multiple samples are collected from a stockpile of contaminated soil generated from a single source, the stockpile shall be considered as PCS if the arithmetic mean of the TPH concentrations of the samples exceeds 5,000 mg/kg. A sample having a concentration of total petroleum hydrocarbons which is below the analytical method detection limit or reporting limit shall be assigned a concentration which is 1/2 of the reported analytical method detection limit or reporting limit.
- D. If soil excavated during the initial investigation of a site to determine the extent of contamination is PCS, the PCS may be returned into the excavation site from which the soil was removed if all of the following conditions are met:
 1. There is no freestanding liquid within the excavation, unless the State Fire Marshal or other jurisdictional fire authority directs otherwise, and the requirements of subsections (2) and (3) of this subsection are met.
 2. The owner or operator provides notification to the Department that the PCS has been returned to the excavation within 14 days after the return of the PCS to the excavation.
 3. The owner or operator completes a site characterization within 120 days and implements remediation within 150 days after the date the site characterization began.

Historical Note

Recodified from R18-8-1604 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1605. Transportation

- A. PCS transported to a special waste receiving facility in Arizona shall be transported by a special waste shipper which has met the requirements of R18-13-1303.
- B. A special waste shipper shall transport the PCS in closed containers pursuant to R18-13-1611(E) or shall ensure that any vehicle used to transport the PCS is loaded and covered in such a manner that the contents will not blow, fall, leak, or spill from the vehicle.
- C. A special waste shipper transporting PCS to a special waste receiving facility in Arizona, except a facility located on Indian country, shall deliver PCS to a special waste receiving facility approved by the Department.

Historical Note

Recodified from R18-8-1605 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1606. Fees

In accordance with A.R.S. §§ 49-855(C)(2) and 49-863, the treatment, storage, or disposal facility in this state that first receives a shipment of PCS shall remit to the Department a fee of \$4.50 per ton but not more than \$45,000 per generator site per year for PCS that is transported to the facility.

Historical Note

Recodified from R18-8-1606 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4). Amended by final rulemaking at 18 A.A.R. 1217, effective July 1, 2012 (Supp. 12-2).

R18-13-1607. Facility Approval; Application

- A. PCS shall be treated, stored, or disposed only at a PCS disposal facility, storage facility, treatment facility, or temporary treatment facility. A facility shall not be constructed or operated prior to obtaining written approval from the Department, except as provided for in A.R.S. § 49-858.
- B. The owner or operator of a PCS treatment, storage, or disposal facility shall submit an application to the Department which contains all of the information required in accordance with A.R.S. § 49-762.
- C. In addition to the requirements specified in A.R.S. § 49-762, the application shall contain all of the following:
 1. A vicinity map, in a scale not over 1:24,000, which shows where the facility is located with respect to the surroundings, including an indication of the use of the adjacent properties.
 2. An engineering report which includes all of the following:
 - a. Detailed plans and specifications for the entire facility including manufacturer's performance data and design features of treatment, pollution control, and monitoring equipment.
 - b. A site description which includes general information on the geology, hydrogeology, soils, and land use. If a facility is located within the pollution management area of a facility for which an aquifer protection permit has been issued under A.R.S. § 49-241 et seq., then the applicant may resubmit or incorporate by reference the general information.
 - c. A background soil sampling plan and results which characterize the site, including the rationale used to determine the locations, depths, and number of samples.
 3. A site map, in a scale not to exceed 1:2,400, which clearly identifies where the PCS shall be deposited, containment berms, fencing and security measures, access roads, any improvements, wells, and location of surface water courses.
 4. An operational plan which includes all of the following:
 - a. General description of the daily operations of the facility and the processes, techniques, or methods to be employed;
 - b. The source, amount, concentration of contaminants, and any other relevant information concerning the PCS to be handled;
 - c. The schedule for sampling the PCS during treatment to evaluate treatment methods;

-
- d. Description of plans for final use and disposal of PCS and remediated soil, liners, piping, carbon canisters, and any other contaminated equipment;
 - e. Procedures to ensure that only waste which has been characterized is received and that hazardous waste is not received;
 - f. Procedures for random inspection of incoming loads to verify that only waste which has been characterized is accepted;
 - g. Procedures for collecting and managing run-off which comes in contact with PCS;
 - h. Procedures for recordkeeping of all inspection results, training of personnel, and sampling results;
 - i. Procedures to control public access, and prevent unauthorized entry and illegal dumping.
5. A contingency plan for emergency preparedness which describes alternatives for storage, treatment, or disposal.
 6. A closure plan which includes:
 - a. A description of the steps necessary to close the facility, the specific proposed closure activities, and an implementation schedule;
 - b. Information on site conditions and characterization of the waste received during the life of the facility;
 - c. A description of the sampling plan utilized to sample background soil beneath the site following closure;
 - d. A description of plans for use of the land site after closure;
 - e. A description of post-closure care.
 7. An affidavit that the proposed facility is in compliance with local zoning requirements in effect at the time the application is submitted.
- D. Following completion of construction of a facility and prior to placement of PCS on the site, the owner or operator shall submit to the Department a construction certification report, including as-built plans which indicate any changes to the design or operational plans for the facility.
- E. Plans required in accordance with this Section shall be sealed by a professional engineer registered in the state of Arizona, if required by statute.
- F. A facility shall be in compliance with all other applicable federal, state, and local approvals or permits which are required for the design, construction, and operation of the facility.

Historical Note

Recodified from R18-8-1607 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1608. General Design and Performance Standards

- A. A facility which receives PCS for treatment, storage, or disposal shall be designed and operated to ensure compliance with the following performance standards relating to aquifer protection:
1. Pollutants discharged shall in no event cause or contribute to a violation of Aquifer Water Quality Standards, at the applicable point of compliance, or, if the facility is a municipal solid waste landfill, it shall comply with the requirements of A.R.S. § 49-761.01(C).
 2. Any pollutant discharged shall not further degrade, at the applicable point of compliance, the quality of any aquifer that already violates an Aquifer Water Quality Standard for that pollutant.
- B. A facility which receives PCS for treatment, storage, or disposal shall meet the general design criteria of either subsection (B)(1) or (2) as follows:
1. The PCS shall be held within a containment system designed and constructed to preclude the migration of contaminants into subsurface soil, groundwater, or surface water. The containment system shall meet the following criteria:
 - a. Maintain a maximum hydraulic conductivity of no more than 1×10^{-7} cm/sec;
 - b. Be designed to provide structural integrity throughout the life of the facility;
 - c. Be designed in accordance with the applicable design criteria set forth in subsection (C) of this Section and R18-13-1609 through R18-13-1613; or
 2. An alternative design shall contain, at a minimum, all of the following and shall demonstrate that the design will limit discharges listed in A.R.S. § 49-243(D) to the maximum extent practicable:
 - a. The hydrogeologic setting of the facility and the capacity of the liner and soils to preclude discharge to groundwater or surface water;
 - b. The operating methods, processes, or other alternatives to be used at the facility;
 - c. Additional factors which would influence the quality and mobility of the leachate produced and the potential for that leachate to migrate to groundwater or surface water.
- C. A PCS treatment, storage, or disposal facility shall meet the following general design criteria:
1. The facility shall be designed to prevent run-on and run-off. The design shall provide run-on control for the peak discharge from a 24-hour, 25-year storm event. Run-off shall be collected and controlled for at least the water volume resulting from a 24-hour, 25-year storm event.
 2. The facility shall not restrict the flow of the 100-year floodplain, reduce temporary water storage capacity of the floodplain, or be maintained in a manner which results in a washout or inundation of the PCS.
 3. The owner or operator shall control public access and shall prevent unauthorized vehicular traffic and illegal dumping.
 4. The owner or operator shall manage any standing water that has come into contact with the PCS in accordance with rules promulgated pursuant to A.R.S. § 49-761 et seq.
- D. A facility which manages PCS in accordance with the requirements of this Article shall be exempt from the aquifer protection permit requirements in accordance with A.R.S. § 49-250(B)(21).

- E. A facility which has been issued an aquifer protection permit from the Department shall be exempt from the requirements of subsections (A) and (B) of this Section but shall comply with the requirements of subsection (C).

Historical note

Recodified from R18-8-1608 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1609. Treatment Facility

- A. The owner or operator of a PCS treatment facility shall obtain approval from the Department prior to commencement of construction or operation and shall comply with all of the following:
1. Not dilute PCS as a method of treatment, except as allowed in the approved plan for the facility;
 2. Treat the PCS or, if the chosen treatment process fails to remediate the soil to below the regulatory thresholds, dispose of the PCS pursuant to R18-13-1613.
 3. Sample the treated soil and provide the results of the sampling to the Department within 45 days of completion of the treatment.
- B. A PCS treatment facility designed in accordance with R18-13-1608(B)(1) shall comply with the following specific design criteria:
1. At a minimum, a containment system shall include a clay, synthetic, concrete, or asphalt liner component which is placed upon a foundation or prepared subgrade which supports the liner, and resists pressure gradients above and below the liner, to prevent failure due to settlement, compression, or uplift.
 2. During construction or installation of a containment system, liners and cover systems shall be inspected for uniformity, damage, and imperfections. Immediately after construction or installation is completed, and prior to placement of PCS within the containment system, the systems shall be checked for both of the following:
 - a. Synthetic liners and covers shall be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters.
 - b. Concrete, asphalt, and soil-based liners and covers shall be inspected for imperfections including lenses, cracks, channels, root holes, or other structural non-uniformities that may cause an increase in the permeability of the liner or cover.
 3. The liner component shall consist of one of the following:
 - a. A synthetic liner which is compatible with the waste and which has a minimum 6" buffer layer of sand or soil between the liner and the PCS.
 - b. A compacted soil or admixed liner provided with a minimum 6" buffer layer of sand or soil between the liner and the PCS.
 - c. An asphalt or reinforced concrete liner which is not in the drainage area of a dry well and is free of unsealed cracks and seams.
 4. Aeration equipment shall be limited to the area above the buffer layers indicated in subsections (B)(2)(a) and (b).
 5. The owner or operator of the facility shall utilize protective measures to ensure containment system integrity during placement, treatment, or removal of the PCS.
 6. PCS stored at a treatment facility prior to treatment shall be stored in accordance with the requirements of R18-13-1611.

Historical Note

Recodified from R18-8-1609 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1610. Temporary Treatment Facility

- A. The owner or operator of a temporary treatment facility shall treat and remove all PCS from the temporary treatment facility within one year from the date of commencement of receipt of PCS for treatment. PCS shall not be diluted to meet any treatment requirement, except in accordance with the approved plan.
- B. A temporary treatment facility shall obtain approval from the Department prior to commencing construction or operation. In lieu of the requirements of R18-13-1607(C), an application for approval shall contain all of the following:
1. An affidavit signed by the owner or operator of the temporary treatment facility which states that the facility will comply with the requirements of this Article;
 2. An affidavit that the proposed facility is in compliance with local zoning requirements in effect at the time the application is submitted;
 3. Application information required pursuant to A.R.S. § 49-762 for plan approval for temporary treatment facilities;
 4. A vicinity map, in a scale not over 1:24,000, which shows where the facility is located with respect to the surroundings, including an indication of the use of the adjacent properties;
 5. A site description which includes general information on the geology, hydrogeology, soils, and land use;
 6. A background soil sampling plan and results which characterize the site, including the rationale used to determine the locations, depths and number of samples;
 7. A site map, in a scale not to exceed 1:2,400, which clearly identifies where the PCS shall be deposited, containment berms, fencing and security measures, access roads, any improvements, wells, and location of surface water courses;
 8. An operational plan which includes all of the following:
 - a. General description of the daily operations of the facility and the processes, techniques, or methods to be employed;
 - b. The source, amount, concentration of contaminants, and any other relevant information concerning the PCS to be handled;
 - c. The schedule for sampling the PCS during treatment to evaluate treatment methods;

-
- d. Description of plans for final use and disposal of PCS and remediated soil, liners, piping, carbon canisters, and any other contaminated equipment;
 9. A closure and post-closure care plan which includes both of the following:
 - a. A description of the steps necessary to close the facility, the specific proposed closure activities, and an implementation schedule;
 - b. A description of the sampling plan utilized to sample background soil beneath the site following closure.
 - C. A temporary treatment facility shall not be operated for more than one year unless a one-time extension is granted by the Department. The Department may grant an extension of up to one additional year if all of the following are met:
 1. The inability to perform is caused by events beyond the control of the owner or operator, including acts of God, which include flood, tornado, earthquake, and causes beyond the owner's or operator's control including fire, explosion, unforeseen strikes or work stoppages, riot, sabotage, public enemy, war, requirements established by courts of competent jurisdiction, and other governing law. Financial inability to perform shall not be justification for an extension.
 2. The owner and operator submits to the Department verifiable documentation which includes all of the following:
 - a. A description of the circumstances causing any delay;
 - b. Evidence of the existence of the circumstance;
 - c. A description of past, present, and future measures taken or to be taken by the owner or operator to prevent or minimize any delay;
 - d. A timetable by which the owner and operator will resume and complete required performance.
 3. The request is received at least 60 days prior to the expiration of the year in which the facility first received PCS. Where the Department grants an extension, that extension shall be granted prior to the expiration of the deadline and communicated to the owner or operator in writing.
 - D. A temporary treatment facility shall meet the design criteria as specified in R18-13-1608 and R18-13-1609(B).
 - E. PCS stored at a temporary treatment facility prior to treatment shall be stored in accordance with the requirements of R18-13-1611.
 - F. In accordance with A.R.S. § 49-762(F), a temporary treatment facility shall be exempt from the notice and public hearing requirements set forth in A.R.S. § 49-762(L).

Historical Note

Recodified from R18-8-1610 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1611. Storage Facility

- A. A shipment of PCS shall not be stored for a period exceeding one year from the date the PCS is received.
 - B. Each shipment of contaminated soil shall be identified by source and stored in a manner which does not allow commingling of different shipments until all sampling results have been obtained. PCS shall be stored within an approved containment system and shall not be commingled with treated soils.
 - C. A PCS storage facility shall obtain approval from the Department prior to commencement of construction or operation. A PCS storage facility designed in accordance with R18-13-1608(B)(1) shall comply with either of the following:
 1. The containment system shall meet the requirements of R18-13-1609(B).
 2. The PCS shall be stored in tanks or containers which meet the requirements of subsection (E) of this Section.
 - D. A PCS storage area or each tank or container used for storage shall be marked as follows:

CAUTION: CONTAINS PETROLEUM-CONTAMINATED SOIL
GENERATOR NAME:
GENERATOR ID#:
ACCUMULATION START DATE:
- The owner or operator of the storage facility shall fill in the accumulation start date at the time the PCS is placed into storage. The letters shall be legible, not obstructed from view, on a high contrast background, and sufficiently durable to equal or exceed the duration of storage. Lettering size shall be 2.5 cm (1 inch) and in Sans Serif, Gothic, or Block style.
- E. A tank or container used to store PCS shall meet all of the following requirements:
 1. Prevent leakage of PCS and any free liquids from the tank or container;
 2. Be made of, or lined with, materials which will not react with the PCS;
 3. Be kept closed during storage except to add or remove PCS;
 4. Not be opened, handled, or stored in a manner which may rupture the tank or container or cause it to leak;
 5. Shall be inspected monthly by the owner or operator of the storage facility for leaks and for deterioration. A written record of the inspection shall be prepared at the time of the inspection and shall document corrective action, if any, taken as a result of the inspection.
 - F. A PCS storage facility at which PCS is stored in piles shall comply with both of the following:
 1. All storage piles shall be covered or otherwise managed to control wind dispersal of the PCS.
 2. Storage piles of PCS shall be inspected weekly and a written record of the inspection shall be prepared at the time of the inspection which documents any corrective action taken as a result of the inspection. The record shall document detection of any of the following:
 - a. Deterioration, malfunctions, or improper operation of run-on and run-off control systems;
 - b. Malfunctioning of wind dispersal control systems;
 - c. The presence of leachate in and the malfunctioning of any leachate collection and removal systems.

Historical Note

Recodified from R18-8-1611 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1612. Accumulation Sites

- A. PCS from one or more points of generation under the control of a single generator may be accumulated in an accumulation site under the control of that generator for up to 90 days prior to shipment of the PCS to a storage, disposal, or treatment facility.
- B. An accumulation site shall comply with the storage facility requirements set forth in R18-13-1611, except subsection (A) of that Section. An accumulation site shall not be required to comply with the requirements in R18-13-1607.
- C. While PCS is at an accumulation site, the owner or operator shall control public access and prevent unauthorized vehicular traffic and illegal dumping. PCS shall be managed to prevent the PCS from being exposed to storm water run-on or run-off.

Historical Note

Recodified from R18-8-1612 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1613. Disposal

- A. PCS shall be disposed at a special waste receiving facility which has been approved for the disposal of PCS, or at a hazardous waste management facility as defined in R18-13-260(E)(13).
- B. A PCS disposal facility designed in accordance with R18-13-1608(B)(1) shall comply with the following specific design criteria:
 - 1. The disposal facility shall be designed with a composite liner, as defined in subsection (B)(2), and a leachate collection system that is designed and constructed to maintain less than a 12-inch depth of leachate over the liner.
 - 2. For purposes of this Section, "composite liner" means a system consisting of two components: the upper component shall consist of a minimum 30-mil flexible membrane liner (FML) and the lower component shall consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60 mil thick. The FML component shall be installed in direct and uniform contact with the compacted soil component.

Historical Note

Recodified from R18-8-1613 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).

R18-13-1614. Records

Records required to be kept pursuant to this Article shall be maintained by the owner or operator and made available for inspection by the Director for a period of three years or longer during the course of an enforcement action or litigation.

Historical Note

Recodified from R18-8-1614 at 8 A.A.R. 5172, effective November 27, 2002 (Supp. 02-4).