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SECTION V: RELATIONSHIP TO OTHER ENVIRONMENTAL STATUTES

Remediation under Act 2 sometimes involves relationships with other environmental statutes (e.g., closure of waste management facilities, groundwater pump and treat systems which discharge to a surface water and require an NPDES permit). Although other Department programs (e.g., Bureau of Clean Water) will be involved in requests and approvals, the regional Environmental Cleanup and Brownfields Manager will coordinate these activities. Therefore, all correspondence necessary for the Act 2 cleanup should be submitted to the attention of the regional Environmental Cleanup and Brownfields Manager.

As a general rule, according to Section 902 of Act 2, a permit is not required for remediation activities that occur entirely on a site if they are undertaken under Act 2. In addition, the Department may waive the need for permits and other requirements when pursuing permits and other requirements result in greater risk to human or environmental health or may interfere with natural or artificial structures or features. The Department may also waive the need for permits and other requirements if the remediation undertaken attains a standard equivalent to the applicable requirement, or if compliance with the requirement will not provide for a cost-effective remedial action.

A. Solid Waste Facilities

This section provides a general overview of the interface between Act 2 and the Solid Waste Management Act (SWMA) (35 P.S. §§ 6018.101-6018.1003). The sections that follow are meant to provide a broad overview of the interrelationship between these statutes and programs; they are not meant to be used as a substitute for specific regulations that apply to solid waste processing or disposal facilities. Solid waste management facilities, including those facilities that process and dispose of municipal, residual, or hazardous wastes, are primarily regulated under SWMA. The permitting, bonding and compliance requirements of SWMA are implemented through policies and regulations adopted as follows: Chapters 260(a) through 270(a) for hazardous waste, Chapters 271 through 285 for municipal waste, and Chapters 287 through 299 for residual waste.

The Management of Fill Policy (August 7, 2010 - Document Number 258-2182-773) provides the Department's procedures for determining whether material qualifies as clean fill or regulated fill under SWMA, and it provides guidance as to whether a permit is required when using fill. Also, please refer to the Management of Fill Questions and Answers page on the DEP website for additional information regarding this policy and its interaction with Act 2.

1. Movement of Excavated Contaminated Media and Other Solids

Under 25 Pa. Code § 287.101(e), the Department will not require a permit for the movement of residual waste within an Act 2 site (e.g., grading of the site, and placement back into exploratory holes) so long as the site attains the site-specific standard (SSS) of Act 2. This applies to Act 2 sites undergoing a site-specific cleanup. A permit is not required when moving regulated fill or clean fill from one Act 2 site to a receiving site that is being remediated to attain an Act 2 site-specific standard. Movement of regulated fill between Act 2 sites must be documented in both the sending and the receiving sites' cleanup plans and final reports (FR). Any regulated fill material normally would not be moved until after DEP approves the Remedial Investigation Report (RIR) in the SSS cleanup process. For clean fill, as defined by the Management of Fill Policy, there is no

restriction of movement. The remediator is encouraged to review 25 Pa. Code § 287.101(e) to determine all restrictions regarding the movement of excavated contaminated media and other solids. Regulated substances contained in the regulated fill must be incorporated into the notice of intent to remediate (NIR). This includes sites being remediated under the corrective action process (CAP) of 25 Pa. Code Chapter 245.

Excavated hazardous waste should be removed for proper disposal under the hazardous waste generator requirements of 25 Pa. Code Chapter 262(a). Movement of any contaminated media or solids offsite, other than to another Act 2 site, is the generation of waste under 25 Pa. Code § 250.3. Under these circumstances, the remediator is subject to the generator requirements of the SWMA.

2. Disposal Prior to September 7, 1980

Solid waste management areas or facilities that ceased disposal prior to September 7, 1980, that were not permitted or did not have an approved closure plan may be remediated under 25 Pa. Code § 250.9(a) by either removing the non-media solids and using any combination of Act 2 standards or closing in place. Closing in place may be accomplished by grading the non-media solids (including both residual and municipal waste) within the existing solid waste footprint to achieve a stable, compacted, and properly sloped or level base (this may include movement and consolidation within the solid waste footprint that does not exacerbate the release of a regulated substance), covering the non-media solids with a suitable cover and using pathway elimination under the SSS and any combination of Act 2 standards for soils and groundwater outside the perimeter of the cover. The grading, covering, revegetation, and related closure activities for waste left in place are to be consistent with best management practices (BMPs) to prevent pollution, odors, and other public nuisances. Liability protection afforded under Section 501 of Act 2 would be provided upon approval of the FR by the Department.

3. Disposal after September 7, 1980, for Residual Waste and Construction/Demolition Waste, and between September 7, 1980, and October 9, 1993, for Municipal Waste

Municipal and residual waste disposal activities that occurred after September 7, 1980, are subject to SWMA, the terms and conditions of permits issued pursuant to SWMA, and to the municipal and residual waste regulations, including an approved closure plan. Permitted facilities that are closed (prior to October 9, 1993 for municipal waste facilities) may use any one or a combination of the remediation standards for releases into soils or groundwater under 25 Pa. Code §§ 271.113(g), 271.342(b)(4) or 287.342(c). In addition, the permitted facility may elect to proceed under Act 2 and, upon approval of the FR obtain the liability protection afforded by Section 501 of Act 2 for the release (35 P.S. 6026.501). The cause of the release or spill must be addressed in accordance with the terms and conditions of the closure plan or permit. Any relief of liability afforded under Act 2 relates only to the regulated substances identified and in no way is to supersede the terms and conditions of the closure plan or permit.

An unauthorized municipal waste landfill that ceased disposal prior to October 9, 1993, or an authorized construction/demolition waste landfill, residual waste landfill or an unauthorized disposal impoundment that ceased after September 7, 1980, where the Department has not required removal of the solid waste on the ground and use of Act 2

for the remaining contaminated media, must be remediated in accordance with the following:¹

- Removal of the non-media solids and use of any one or a combination of Act 2 standards for the remaining contaminated media, or
- Closing in place by applying the applicable closure standards of the regulated facility encountered that are specified in 25 Pa. Code Chapters 271, 273, 287, 288 and 289 as required by 25 Pa. Code § 250.9(b) of the regulations (unless applicable operational standards are specifically waived by the Department under the requirements of such waivers set forth at §§ 25 Pa. Code 271.113(d), 287.117(b) of the regulations and Section 902(b) of Act 2), pathway elimination under the SSS and any one or a combination of Act 2 standards for soils and groundwater outside the perimeter of the closure area.

In addition, the unauthorized facility can elect to proceed under Act 2 and, upon approval of the FR, obtain the liability protection afforded by Section 501 of Act 2 for the release.

The Act 2 program would govern remediation at properties where solid or liquid municipal or residual wastes such as metal, brick, block or debris were disposed without permit, and became mixed with soil thereby becoming a part of the environmental media. The remediator would choose the applicable BMPs to include covering, grading, revegetation, and related activities to prevent pollution, odors and other nuisances that would apply to the remediation of mixed media. Liability relief afforded by Act 2 would only apply to the area characterized and to the contaminants identified in the Act 2 FR. If the soil/waste mixture is moved offsite, the material must be managed as waste pursuant to § 250.3 of the regulations and the municipal or residual waste regulations in accordance with 25 Pa. Code § 287.2 or § 271.2.

4. Disposal of Hazardous Waste after September 7, 1980, or Municipal Waste after October 9, 1993, Subject to Federal Closure Requirements

To ensure primacy and program authorizations under RCRA at properties where disposal of hazardous waste occurred after September 7, 1980, or municipal waste disposal occurred after October 9, 1993, regardless of whether a permit or approval was obtained, the remediation and closure of such federally regulated waste management units are governed by the appropriate SWMA regulations. Waivers of operational standards under Section 902(b) of Act 2 are generally not applicable unless approved by EPA. The Department will consult with EPA to ensure that federal closure requirements are properly applied.

Hazardous waste sites that have RCRA Subtitle C corrective action obligations may satisfy federal requirements by also participating in the voluntary cleanup process provided by Act 2. For RCRA facilities with “low” or “medium” priority corrective action obligations, Act 2 standards may be applied as described below to satisfy both

¹ In each of these situations it is assumed that the Department would exercise its enforcement discretion. If the Department determines that the responsible party/property owner conducted the intentional culpable long-term practice of placing waste into the environment, Act 97 would apply.

state and federal requirements concurrently. For “high” priority RCRA corrective action facilities, application of Act 2 standards as described below may also be used, but with greater interaction with EPA.

a) Hazardous Waste

If hazardous waste was disposed before September 7, 1980, and continued after September 7, 1980, but before July 26, 1982 [see 40 CFR § 270.1(c) incorporated by reference in 25 Pa. Code § 270a.1], without interim status, and the Department has not required removal of the hazardous waste and use of Act 2 to remaining contaminated media, the remediator must close the “existing” facility under closure standards provided in 25 Pa. Code Chapter 265a of the hazardous waste regulations for the facility unit encountered, and, upon approval of the FR by the Department, obtain the liability protection afforded by Section 501(a) of Act 2 (35 P.S. 6026.501).

As examples, typical units encountered are surface impoundments and waste piles. Closure requirements set forth in 40 CFR § 265.228 (surface impoundment closure) and 40 CFR § 265.258 (waste pile closure), incorporated by reference in 25 Pa. Code Chapter 265a, require removal of the solids and contaminated subsoils. To attain clean closure, the remediator should remove solids and contaminated soils that are above the level of the listing; i.e., characteristically hazardous solids and soils, and solids and soils contaminated by waste disposal above the residential Statewide health standard (SHS) for used aquifers. Any soil or groundwater contamination remaining after clean closure must be remediated using any one or a combination of Act 2 standards. If clean closure is not attained, the remediator must close the hazardous waste regulated unit in place using the closure standards for landfills set forth in 40 CFR § 265.310 and use the SSS for the in-place closed area. Any release into groundwater or soil outside the approved in-place closure area is subject to any one or a combination of Act 2 standards (except the Statewide health nonuse aquifer standard).

Hazardous waste facilities created after September 7, 1980, and hazardous waste facilities existing on September 7, 1980, which continued to receive waste after July 26, 1982, are subject to the closure, post-closure and corrective action requirements of 40 CFR Part 264, as incorporated by reference in Chapter 264a. As examples, a surface impoundment in this category is subject to the closure requirements of 40 CFR § 264.228 and a waste pile in this category is subject to the closure requirements of 40 CFR § 264.258. If clean closure is not attained, the remediator must close the regulated hazardous waste unit in place, using the closure standards for landfills set forth in 40 CFR § 264.310 and use the site-specific pathway elimination standard for the in-place closed area. Any release into groundwater or soils outside the approved in-place closure area is subject to one or a combination of Act 2 standards (except the Statewide health nonuse aquifer standard as explained above) at a point of compliance (POC) for groundwater set forth in 40 CFR § 264.95.

b) Municipal Waste

If a permitted municipal waste landfill received waste between October 9, 1993, and December 23, 2000, a release from the landfill of a regulated substance must be remediated in accordance with a closure plan approved prior to December 23, 2000, or remediation standards in the municipal waste regulations that are similar to the federal requirements under Subtitle D of RCRA.

A release of a regulated substance from a municipal waste landfill permitted on or after December 23, 2000 must be remediated in accordance with the remediation standards in the municipal waste regulations that are similar to the Subtitle D requirements in § 271.342(b)(2).

At properties where the unauthorized disposal of municipal waste occurred after October 9, 1993, remediation shall consist of removal of the non-media solids and the use of any one or a combination of Act 2 standards for the remaining contaminated media.

Where the Department determines that the removal of the waste, which was not authorized disposal, is impracticable or will cause unacceptable impacts to public health or the environment, the remediation shall consist of closing the facility in place by applying the applicable closure standards of the regulated facility encountered that are specified in Chapters 271 and 273, as required by 25 Pa. Code § 250.9(b) and by using pathway elimination under the SSS for the non-media solids on the ground, and any one or a combination of Act 2 standards for soils and groundwater outside the perimeter of the closure area that is consistent with the applicable requirements for groundwater remediation standards and POC set forth in 25 Pa. Code § 271.342(b).

B. Clean Streams Law Interface

The Department has developed a contaminant dependent hierarchical process described in Section III.A.3 of this manual for demonstrating attainment of surface water quality criteria.

The waiver provision of 25 Pa. Code § 250.406 was included as part of the initial Chapter 250 Land Recycling Program regulations, as promulgated by the Environmental Quality Board on August 16, 1997. The preamble of this rulemaking explains: “This section was added on final rulemaking to clarify the relationship between the surface water quality standards and Act 2.” The preamble further clarifies the intent of the waiver provision in the section stating: “Section 902(b) of Act 2 authorizes the Department to waive applicable requirements where responsible persons can demonstrate, among other things, that the proposed remedial action will attain a standard of performance that is equivalent to that required under the otherwise applicable requirement through use of an alternative method or approach.”

Act 2 allows for a waiver of certain requirements as specified in Section 902 of the Act (35 P.S. § 6026.902). The substance of this waiver provision is provided in 25 Pa. Code § 250.406(c). The waiver provision of 25 Pa. Code Chapter 250.406 allows the remediator to apply to the Department for a waiver of the otherwise applicable requirements of Chapter 93 relating to human health criteria based on the use of alternative site-specific exposure factors or design conditions associated with the surface water pathway.

In order for a remediator to “demonstrate to the Department that the proposed remedial alternative will result in attainment of a concentration in the stream that does not exceed human health criteria and aquatic life criteria” as stated in 25 Pa. Code § 250.406 (c)(2) for a waiver of provisions in 25 Pa. Code Chapter 93, they would need to use alternative site-specific exposure factors or design conditions that would demonstrate that human health exposures to the surface water pathway are controlled. The remediator could make this demonstration using a qualitative evaluation of alternative site-specific exposure factors. The remediator would not necessarily need to use a quantitative risk assessment process or submit a risk assessment report.

In cases where the applicant can demonstrate to the Department that future human health exposures to the surface water pathway will be highly unlikely, the Department may issue the waiver. This would generally apply to small shallow flows of surface water where the possibility of any future consumption of the surface water would be highly unlikely, and the possibility of significant human exposure through direct contact, consumption of fish, or other pathways would also be highly unlikely.

In cases where the remediator can demonstrate to the Department that future human health exposures to the surface water pathway are controlled, the Department may issue the waiver.

1. Point Source Discharges

Surface water discharges associated with contaminated sites are classified as point and nonpoint sources. A point source is a distinct conveyance from which pollutants are or may be discharged into a surface water such as a leachate discharge from a disposal unit. Such point source discharges are required to be permitted as a NPDES discharges. In other situations, stormwater runoff from a contaminated site discharges through a storm

sewer or surface water may be considered a point source discharge and may also be subject to NPDES requirements.

2. Nonpoint Source Discharges

Act 2 requires that any site selecting the SHS or SSS must also demonstrate compliance with surface water quality criteria when a nonpoint source discharge such as contaminated groundwater discharges into surface water as summarized in § 250.309(a). Within 25 Pa. Code § 93.6, Water Quality Standards, the remediator is reminded that discharges to surface water should also be free of floating materials such as oil and grease (aesthetic or visible nuisances) in addition to the dissolved-phase impact.

3. Erosion and Sedimentation (E&S) Control

In addition to evaluating the impact of discharges into surface water, the remediator must carefully evaluate remedial activities to minimize E&S in conformance with the requirements of 25 Pa. Code Chapter 102. In-place closures of unregulated and unauthorized disposal units will satisfy these requirements through the development, implementation, and maintenance of E&S control BMPs.

Remedial actions implemented during Act 2 cleanups that include any earth disturbance activities should be undertaken using the following procedures:

a) For Earth Disturbances Less Than 5,000 Square Feet (Ft²)

If the proposed earth disturbance at an Act 2 cleanup site involves an area of less than 5,000 ft² and the potential discharge is to waters other than special protection, the remediator should implement and maintain applicable E&S BMPs as outlined in the BMP program guidance manual on the DEP website (*Pennsylvania Stormwater BMP Manual*, December 2006). Chapter 7 of DEP's BMP manual is devoted to Special Management Areas, including Brownfields sites.

If the earth disturbance involves an area of less than 5,000 ft² and the potential discharge is to waters that are Special Protection (for example, Exceptional Value or High Quality Waters), then the requirements in the following section apply.

b) For Earth Disturbances 5,000 Ft² to 1 Acre (and Discharge to Special Protection Waters For Any Size of Earth Disturbance Less Than 1 Acre)

If the proposed earth disturbance at an Act 2 cleanup site involves an area 5,000 ft² or greater, the remediator should prepare an E&S plan. All earth disturbance activities should be conducted in accordance with the E&S plan. The remediator should have a copy of the E&S plan and all subsequent inspection reports and monitoring records onsite during all stages of the earth disturbance activity. The remediator should contact the county conservation district for any technical assistance prior to preparing the E&S plan. In some cases, the county conservation district may wish to review the plan voluntarily, or it may require the review on behalf of the local municipality. In addition, the county conservation

district may inspect the site as a follow-up to the plan review, as part of routine inspections, or in response to a complaint.

c) For Earth Disturbances 1 Acre or Greater

If the proposed earth disturbance at an Act 2 cleanup site involves an area of one (1) acre or more, the planned action may require a general or individual NPDES permit for stormwater discharges associated with construction activities. In these cases, the remediator should contact the DEP regional Waterways and Wetlands Program staff or assistant regional director to schedule a pre-application meeting. At the pre-application meeting, DEP and county conservation district staff will provide the remediator with the relevant information regarding the permit procedures and requirements. It is important to note that in addition to the development of an E&S Plan, the remediator will be required to develop a post-construction stormwater management plan for any new structures (e.g. buildings, parking lots, etc.). The remediator is not authorized to initiate any Act 2 earth disturbance activities until DEP or the Conservation District issues the permit to the remediator.

As previously detailed, a portion of Chapter 7 of the DEP's BMP manual is devoted to BMPs at Brownfield sites. The remediator should consult with the manual and ECB regional office staff in the coordination of any required E&S plan development and all permit applications.

Additional guidance may be found in DEP's *Erosion and Sediment Pollution Control Program Manual*, March 2012. The manual may be found on the DEP website.

d) Post-Construction Stormwater Management (PCSM)

A remediator proposing a new earth disturbance activity that requires permit coverage under 25 Pa. Code Chapter 102 or other Department permit that requires compliance with E&S control shall be responsible to ensure that a written PCSM Plan is developed, implemented, operated and maintained in accordance with the requirements of 25 Pa. Code § 102.8.

The remediator should keep in mind that a completed Act 2 cleanup site may contain existing site conditions which have public health or environmental limitations. Because of such limitations, the remediator may be able to demonstrate to the Department that it would not be practicable to complete all aspects of the E&S PCSM BMPs as outlined and required within 25 Pa. Code Chapter 102. 25 Pa. Code § 102.8(g)(iii) describes how an applicant who is developing a Brownfield site with impervious conditions or conditions that represent a concern to public health or environmental limitation, e.g., cannot infiltrate stormwater due to residual impacts being addressed through the Act 2 SSS, can demonstrate to the Department that it is not practicable to satisfy the PCSM requirements pertaining to stormwater volume and quality.

Local municipalities and entities (e.g. Philadelphia Water Department) may have separate regulations regarding stormwater management obligations post construction. The remediator of an Act 2 site should be mindful of local stormwater management compliance issues. These obligations are outside of DEP's authority and may require separate permitting application(s).

C. Clean Air Act and Air Pollution Control Act Interface

One area of interface is the case of applying remediation technologies (e.g., air strippers or incineration units) which result in air emissions. In such a situation, a remediator may be required to obtain a general air quality plan approval and operating permit under 25 Pa. Code Chapter 127, Subchapter H. Exemptions to the Air Quality permit requirements are listed and explained in the Air Quality Permit Exemptions document (275-2101-003).

Some pertinent exemptions in this document include an exemption under 25 Pa. Code § 127.14(a) regarding the use and occupancy of a building. Other exemptions under § 127.14(a)(8) include those regarding sources of uncontrolled VOCs with limited emissions increases, those considered as de minimis (25 Pa. Code § 127.449) increases, remediation technologies meeting defined specifications, and any source granted an exemption via a request and submittal of a Request for Determination (RFD). This exemption request is defined in the exemptions document as well as on the Air Quality webpage.

Installation of radon-type vapor mitigation systems as part of an Act 2 remediation does not require a permit if the emission will be of minor significance as defined in 25 Pa. Code §§ 127.3 and 127.14. These systems do not require testing after installation for purposes of determining compliance with air emissions criteria. However, the installed radon-type vapor mitigation systems will need to be tested to demonstrate that sub-slab depressurization is occurring (i.e., the pressure gradient indicates that advective air flow is out of the structure, rather than into the structure). Section IV of this manual (Vapor Intrusion) discusses this process in greater detail.

In cases other than remediation technology emissions, care should be taken to conduct the remediation such that odor (25 Pa. Code § 123.31) and particulate (25 Pa. Code §§ 123.1, 123.2) nuisances will be addressed.

Friable asbestos is regulated as a hazardous air pollutant under Section 112 of the Clean Air Act. Asbestos in soil and groundwater can be addressed at Act 2 sites under 25 Pa. Code Chapter 250. The only exception to this would be attaining the Statewide health standard in soil, as an MSC for asbestos in soil has not been developed. Guidance for the management of asbestos is available on the Department's website as well as EPA's website.

D. Regulated Storage Tank Release Sites

1. Introduction

Storage tank cleanups conducted pursuant to the Storage Tank and Spill Prevention Act (35 P.S. §§ 6021.104 – 6021.2104 Act 32 of 1989, as amended) are required to meet one or more of the standards established under Act 2. Section 904(c) of Act 2 preserves the CAP for the remediation of releases from storage tank systems regulated by Act 32 (35 P.S. 626.904(c)). Regulated storage tank systems include a wide range of underground and aboveground tanks containing petroleum products and hazardous substances. The CAP applies to releases from regulated tank systems for which remediation (anything beyond notification) was initiated on or after August 5, 1989, the effective date of Act 32. Remediators who take corrective action under Act 32 and demonstrate attainment of one or more of the standards under Act 2 will be afforded liability protection. Where Act 32 applies, remediators are not subject to the notice, fee and approval provisions contained in Act 2, but reports submitted under the requirements of Act 32 are subject to review times and deemed approval provisions of 25 Pa. Code Chapter 245.

A remediator who initiated cleanup prior to a tank becoming deregulated by Act 16 of 1995 (which amended Act 32) should continue to implement the CAP, along with use of the Act 2 remediation standards, to receive liability protection. Where a tank is not governed by Act 32 (non-regulated tanks), adherence to the Act 2 administrative process and cleanup standards is required to receive liability protection. When releases of petroleum products occur at sites with both regulated and non-regulated storage tank systems, the remediator may elect to address the releases together, or to address them separately on a dual track of the Act 2 and Act 32 processes. If the remediator elects to address the releases together, then combined reports and notices that satisfy the requirements of each statute, as they apply to each particular tank system, may be submitted. Department reviews will also be conducted to satisfy the requirements of both statutes.

For example, a remediator may submit a combined site characterization/RIR that contains the information required for regulated tank systems under the CAP and unregulated tanks under Act 2, and it will serve a dual function under both Act 32 and Act 2. It should be submitted on a timeframe that meets both statutes; thus, if there is no specific time required to submit the RIR under Act 2, but a site characterization report under Act 32 is required within 180 days of reporting the release, the site characterization/RIR should be submitted within 180 days. Compliance with Act 2 notice and public participation requirements is necessary to receive liability protection for non-regulated tank systems.

The remediator is reminded that the public notification process is abbreviated as allowable if the FR demonstrating attainment of the background or SHSs for a tank cleanup is submitted to DEP within 90 days of the release.

2. Short List of Petroleum Products

The Department has developed an abbreviated list (“short list”) of regulated substances for specific petroleum products. The short list for releases of petroleum products is

discussed in detail in this guidance document in Section III, Technical and Procedural Guidance.

3. Management of Separate Phase Liquid (SPL) under Act 2 and Act 32

When a liquid (such as gasoline or chlorinated solvent), also referred to as free product, is released to the environment, accumulations of the free product as a separate phase (SPL) may occur within soil or bedrock. Depending on the density of the liquid relative to water, the SPL may migrate under gravity through the subsurface and either remain on or just below the water table or sink through the water column and accumulate on impermeable surfaces lower in the aquifer. Substances that are less dense than water, like most petroleum products, are called Light Nonaqueous Phase Liquids (LNAPL). Substances that are denser than water, such as chlorinated substances, are called Dense Nonaqueous Phase Liquids (DNAPL).

The presence of SPL may be found in various media and locations including the soil, vadose zone, aquifer, surface water, or sediments. SPL may also be present in differing phases. Residual SPL is SPL in the subsurface that is hydraulically disconnected in the pore spaces in a porous media or fractures in bedrock/clay. The residual SPL may be present at concentrations below saturation, may not extend great lateral distances from the source of the release, and it tends to be relatively immobile. Mobile SPL is SPL that is hydraulically connected in the pore space or fractures and has the potential to move under the prevailing hydraulic conditions. Mobile SPL that is stable has the potential to migrate if the prevailing hydraulic conditions are altered.

If not removed, the presence of SPL may be a long-term management concern at sites undergoing remediation. SPL might constitute a continuing source of contamination and could greatly increase the time and cost for post-closure care monitoring. The presence of SPL introduces complex fate and transport issues and uncertainties regarding the future migration of contamination and its impact. Remediation should be based on a thorough site conceptual model.

SPL at contaminated sites should be addressed in the following manner:

a) Management of SPL under Act 32 and Chapter 245

Under Act 32 and 25 Pa. Code Chapter 245, Subchapter D, the corrective action obligation for releases from regulated aboveground and underground tank systems must include the removal of SPL from the environment to prevent migration into uncontaminated areas (25 Pa. Code § 245.306(b)(1)). This obligation begins immediately upon release as required under interim remedial action requirements discussed below and continues until the SPL body is no longer capable of migrating into uncontaminated areas.

U.S. EPA regulation 40 CFR § 280.64 requires owners and operators to remove “free product” to the maximum extent practicable (MEP) as determined by the implementing agency. As the implementing agency, the Department defines MEP as the extent of removal necessary to prevent migration of SPL to uncontaminated

areas and prevent or abate immediate threats to human health or the environment. MEP is discussed further in this section and Section III of this guidance.

25 Pa. Code § 245.306(a)(3)(ii) requires that SPL recovery resulting from a release from a regulated storage tank system be initiated IMMEDIATELY upon its discovery to prevent or address an immediate threat to human health and the environment. This may include the abatement or prevention of vapors from entering structures and creating unacceptable health, fire or explosion risks.

25 Pa. Code § 245.306(b)(1) requires that SPL removal be conducted in a manner that prevents the spread of contamination into uncontaminated areas. Interim remedial actions that prevent the further migration of SPL into uncontaminated areas include, but are not limited to, the following:

- Excavation of contaminated soils for treatment or disposal. Excavation that intends to remove LNAPL with highly contaminated soil should include any saturated contaminated soils and unconsolidated material at and just below the water table, to the extent feasible, because a significant volume of an LNAPL release is contained within and below the vadose zone. Removal of this mass reduces both contaminant flux into groundwater and plume migration.
- Rapid containment, absorption, and removal of surface releases.
- Installation of subsurface extraction or deployment of in-situ destruction technologies to remove SPL that causes vapor migration or fire and explosion hazards.

If a sufficient volume of SPL is released into the subsurface, then multiple phases (e.g. soil, water, vapor) are generally present. As each of these phases behaves differently, the ultimate remediation to a cleanup standard may require a combination of corrective action technologies. Initial recovery of SPL is an especially important aspect of site remediation because improper recovery techniques may reduce the effectiveness of the treatment and transfer significant portions of the contaminant mass into other phases.

b) Management of SPL under Act 2 and Chapter 250

While Act 2 and 25 Pa. Code Chapter 250 do not mandate SPL recovery within the property, removal of SPL within the property to the MEP, as described above, as an immediate or interim response may reduce long-term management concerns at sites undergoing remediation. The extent of SPL removal will be determined by the standard(s) selected by the remediator after immediate threats to human health and safety and the environment have been mitigated. 25 Pa. Code § 250.702(b)(3) and (4) state that if SPL is present, attainment shall be demonstrated in soil and groundwater where they are directly impacted by SPL. For groundwater, attainment requires knowledge of plume stability such that contaminant concentrations at the point of compliance will not exceed the

selected standard per 25 Pa. Code § 250.702(b)(2). Removal of SPL may simplify and shorten the timeframe necessary for attainment demonstration.

c) Relationship of SPL to Compliance with Act 2 Standards

i) Background Standard

The background standard is available at sites where SPL is migrating onto the property from an offsite source. It should be demonstrated that concentrations of regulated substances in both soil and groundwater at the source property are not related to any release on the property. Once that is established, attainment of the background standard should be demonstrated within the soil and groundwater directly impacted by the SPL at the POC.

ii) Statewide Health Standard (SHS)

Although not required for an Act 2 remediation using the SHS, removal of SPL throughout the plume to the MEP, as described above, is extremely beneficial.

(a) Groundwater

The Department has determined that the SHS is not available when SPL, as LNAPL or DNAPL, is present in POC wells. The rationale behind development of the saturation and solubility caps under the promulgated SHS MSCs was that no SPL should be present at the POC at attainment. At sites where SPL remains within the interior of the property, attainment at the POC shall be demonstrated within the groundwater impacted by the SPL.

(b) Soil

In addition, within the property, the lesser of the direct contact number to a depth of 15 feet for chemicals of concern and the soil-to-groundwater pathway number throughout the entire soil column should be attained in soil that is saturated with the SPL. This soil requirement applies to all sites including both those where the SPL has been removed and those where some amount remains.

At sites where applicable soil standards have been attained and the remediator has determined that unrecoverable SPL remains, a release of liability under the SHS will not be conveyed until the remediator has established through monitoring and fate and transport modeling that any remaining SPL will not migrate to compliance points.

iii) Site-Specific Standard (SSS)

Under Act 2, attainment of the SSS when SPL is present at the POC may be permissible as long as it has been demonstrated that any discharge to surface water meets the requirements of 25 Pa. Code § 250.406, there is no unacceptable risk-based exposure, and sufficient evidence exists to demonstrate that SPL is unlikely to migrate to new areas and impact offsite receptors. If the contamination is from a regulated tank site, compliance with 25 Pa. Code § 245.306 to demonstrate the SPL has been removed to the MEP. Activity and use limitations (AULs) that are part of the postremediation care plan should be included in the environmental covenant.

E. HSCA/CERCLA Remediation

1. Hazardous Sites Cleanup Act (HSCA) Sites

HSCA is the state Hazardous Sites Cleanup Act (P.L. No. 108 of 1988; 35 P.S. §§ 6020.101-6020.1305). HSCA is the state cleanup law that provides for the remediation of sites contaminated with hazardous substances. HSCA provides the Department with enforcement authorities to encourage parties who are responsible for the release of hazardous substances to conduct the necessary response actions. HSCA also provides the Department with the funding and the authority to conduct response actions when the responsible parties are unwilling or unable to conduct the appropriate response action. The responsible parties can then be held liable for those response costs.

HSCA sites are a limited set of sites that have been officially designated by the Department as meeting the criteria for response action under HSCA. Some HSCA sites are listed on the Pennsylvania Priority List (PAPL) for remedial response pursuant to Section 502 of HSCA (35 P.S. § 6020.502). These are the HSCA sites where the response is expected to cost more than \$2 million or take more than one year to conduct. Pursuant to Section 904(b) of Act 2, “any remediation on a site included on the state priority list established under ... [HSCA], shall be performed in compliance with the administrative record and other procedural and public review requirements of ... [HSCA]” (35 P.S. § 6026.904(b)). For these listed sites, a party interested in conducting a remedial response can submit a proposal to the Department and work with the Department to reach a settlement. A proposal to conduct a remedial response should be in the form of a letter to the regional ECB Manager, not an Notice of Intent to Remediate (NIR). Responsible parties under HSCA are encouraged to propose an Act 2 remedy they would like to perform on the HSCA site. The proposal will be evaluated and published in accordance with HSCA. The Department is responsible for choosing a remedy that satisfies Act 2, and that considers public comments and the Department’s analysis of the alternatives, pursuant to Section 506(e) of HSCA. It is possible that the Department will select an Act 2 remedy other than that proposed by a responsible party based upon these considerations. Persons who wish to conduct the remediation may follow the settlement procedures established under HSCA. The settlement process would follow the procedures established under HSCA. This would result in a binding settlement agreement which would be subject to the public notice and comment provisions of HSCA.

Most HSCA sites are not listed on the PAPL for remedial response. These are sites where a HSCA site study or a HSCA interim response is planned. For these HSCA sites where the Department has not yet taken an interim response action or committed to a remedy for the site, a party interested in conducting a voluntary response can submit an NIR and proceed using the normal Act 2 procedures. The Department would monitor the progress of the voluntary response action. If the Department determined that the pace and the scope of the voluntary response was acceptable then no further action pursuant to HSCA would be required. If the Department determined that the pace or the scope of the voluntary response was not acceptable, then the Department could proceed with further action pursuant to HSCA.

2. Comprehensive Environmental Response Compensation Liability Act (CERCLA) Sites

CERCLA is the federal Superfund law (42 U.S.C. §§ 9601, et seq.). Under CERCLA the U.S. Environmental Protection Agency (EPA) can place sites on the National Priority List (NPL) “Superfund List” for remedial response. For sites listed on the NPL, EPA requires that all remedial response actions be conducted pursuant to the procedural requirements of CERCLA. As a state law, Act 2 does not waive or supersede the procedural requirements of the federal law, and therefore the Act 2 liability relief cannot automatically confer release from CERCLA liability. However, the Act 2 remediation standards may be considered applicable standards for remediations conducted at CERCLA sites. EPA also has authority under CERCLA to conduct removal response actions or take enforcement actions at sites that are not listed on the NPL.

F. References

ASTM E2531, Standard Guide for Development of Conceptual Site Models and Remediation Strategies for Light Nonaqueous Phase Liquids Released to the Subsurface.

EPA. 1996. How to Effectively Recover Free Product at Leaking Underground Storage Tank Sites: A Guide for State Regulators. EPA 510-R-96-001.

ITRC (Interstate Technology & Regulatory Council) 2009. Evaluating LNAPL Remedial Technologies for Achieving Project Goals. LNAPL-2. Washington, D.C.: Interstate Technology & Regulatory Council, LNAPLs Team. www.itrcweb.org

API (American Petroleum Institute) Interactive LNAPL Guide.
<http://www.api.org/environment-health-and-safety/clean-water/ground-water/lnapl/api-interactive-lnapl-guide>

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