



STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
NASHVILLE, TENNESSEE 37243-0435

DAVID W. SALYERS, P.E.  
COMMISSIONER

BILL LEE  
GOVERNOR

MEMORANDUM

TO: Governor Bill Lee  
Governor of the State of Tennessee

Lieutenant Governor Randy McNally  
Speaker of the Senate

Speaker Cameron Sexton  
Speaker of the House of Representatives

FROM: David W. Salyers, P.E. *David W. Salyers  
by KSS 10/27/19*  
Commissioner

DATE: October 21, 2019

SUBJECT: Annual Report on Tennessee's Division of Remediation Hazardous Waste  
Remedial Action Fund

Tennessee Code Annotated § 68-212-212 requires the Department of Environment and Conservation to prepare an annual report on the expenditures from the Hazardous Waste Remedial Action Fund. The report is to be submitted to the Governor and Tennessee General Assembly.

Attached is your copy of this year's report that covers FY 2018-2019.



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# Division of Remediation

Annual Report

July 2018 – June 2019



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# About the Division of Remediation

The Division of Remediation (DoR) identifies and investigates sites contaminated with hazardous substances, petroleum, or radioactive materials; then uses practical and effective methods to investigate and reasonably and safely contain, remediate, monitor and maintain these sites. These efforts minimize chemical and radiological threats to public health, safety, and the environment. The purpose of this report is to report expenditures from the Hazardous Waste Remedial Action Fund from July 1, 2018 through June 30, 2019 as required by Tennessee Code Annotated section 68-212-212. This report also provides a high level overview of the Division of Remediation's activities.



## Division of Remediation FY18-19 Highlights

- **1,169** Number of properties currently quarantined for methamphetamine contamination
- **70** Number of sites that entered the Brownfield Voluntary Oversight and Assistance Program
- **66** Number of sites completed through the Brownfield Voluntary Oversight and Assistance Program
- **650** Number of acres determined to be ready for reuse or redevelopment through the Brownfield Voluntary Oversight and Assistance Program
- **58** Number of drycleaners registered in the Drycleaner Environmental Response Program (DCERP)
- **\$1,030,937** Hazardous Waste Remedial Action Fund dollars paid to the United States Environmental Protection Agency (EPA) for the state match on EPA Superfund financed National Priority List (NPL) Sites or used to fund operation and maintenance associated with those sites

### ***Division of Remediation's areas of responsibility***

- The Hazardous Waste Management Act of 1983, T.C.A. Title 68, Chapter 212, Part 2, Inactive Hazardous Substance sites (State Superfund sites) (99 sites)

- Brownfield & Voluntary sites (T.C.A. § 68-212-224) (398 sites)
- Institutional Control Compliance Inspections (T.C.A. § 68-212-225) (810 sites)
- US EPA Brownfield Grant assistance
- US EPA National Priority List (NPL) aka Federal Superfund sites (19 sites)
- US Department of Energy sites including Oak Ridge Reservation (1 site)
- Drycleaner Environmental Response Program (DCERP) sites (T.C.A. Title 68, Chapter 217, Part 1) (246 registered dry cleaners, 58 dry cleaners participating in an Environmental Response Action)
- Cleanup rules/guidance for properties where methamphetamine was manufactured, training, certifying hygienists and contractors (1,169 sites)
- Petroleum spills not regulated by Division of Underground Storage Tanks and that are not transportation related
- Releases associated with aboveground storage tanks
- US Department of Defense sites (52 sites) (35 of these sites are Formerly Used Defense Sites (FUDS))



## The Hazardous Waste Remedial Action Fund

Tennessee Code Annotated section 68-212-204 establishes the Hazardous Waste Remedial Action (HWRA) Fund to provide funding to operate the program implementing the Hazardous Waste Management Act of 1983. This fund is also available for the purposes of identifying and investigating inactive hazardous substance sites, and then reasonably and safely containing, cleaning up, monitoring, and maintaining these sites. This fund may also be used to match the funds of any federal agency, which enables the state to receive federal funds to clean up hazardous substance sites. The HWRA Fund also provides funding for state financed investigation and remediation at inactive hazardous substance sites. Pursuant to Tennessee

Code Annotated section 68-212-212, DoR reports that expenditures from the HWRA Fund for FY 18-19 totaled \$5,086,154.67.<sup>1</sup>

The HWRA Fund is funded through a state appropriation of at least one million dollars (\$1,000,000). It also receives funds through cost recovery and the collection of hazardous waste remedial action fees. These fees are collected from hazardous waste generators and transporters based upon the volume of waste generated and transported, as well as from parties responsible for the contamination. DoR also makes every effort to recover its costs from parties responsible for the contamination. Additionally, DoR has a series of cooperative agreements and grants with the United States Environmental Protection Agency (EPA) and the Department of Defense (DOD) to fund activities that are jointly beneficial to both the federal government and the state.

## U.S. EPA National Priorities List (NPL) Sites

The EPA Superfund Program lists sites to the NPL due to the threat or potential threat posed by the site to human health or the environment. To the extent practicable, EPA requires potential responsible parties (PRPs) to fund investigations and remedial actions. If no responsible party is identified to address a site, EPA may use federal Superfund dollars to investigate and address the threat(s). There are currently 19 NPL sites in the state. Ten of these sites, identified on the map shown below, are financed using federal Superfund monies and one additional site is currently funded by financial assurance (not shown). There are also ongoing discussions between EPA and PRPs at one or more of these sites to finalize who pays for cleanup. Other NPL sites are funded by PRPs for the site.

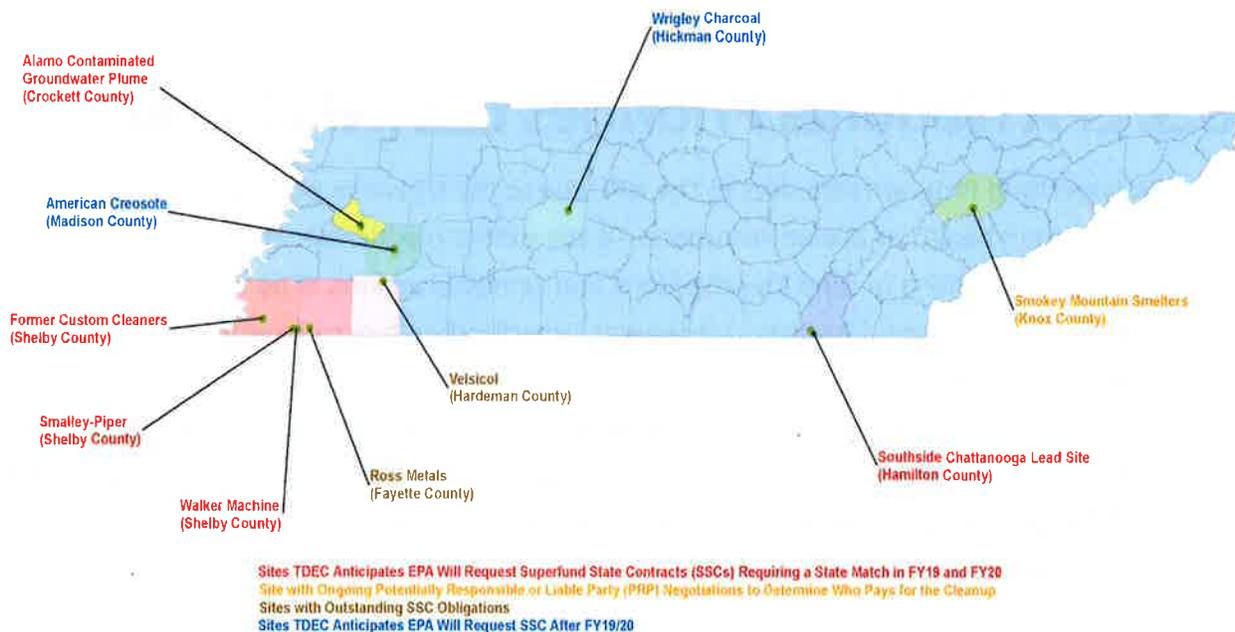
Under the federal process, when the NPL site is Superfund financed, EPA pays 100% of the cost of the investigation, feasibility study, proposed plan and record of decision, and remedial design. After the remedial design, EPA asks the state to enter into a Superfund State Contract (SSC) that requires the state to provide certain obligations including a state match, typically 10%, and for the state to fund and perform any long-term operation and maintenance (O&M).

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<sup>1</sup> Please see **Appendix A** for additional information related to the HWRA Fund's revenue and expenditures, shown in DoR's Five Year Funding Analysis.

Concurrent with EPA and the state signing an SSC, EPA also presents the site remedy to the National Priority Panel for prioritization of federal funding.

The state currently has four SSCs in place at the following NPL sites: Ross Metals, Smalley Piper, Velsicol Hardeman County, and Southside Chattanooga Lead. The total obligation to the state for these signed SSCs is \$6,710,463. In FY18-19 the state paid \$1,030,937 from the HWRA Fund to the EPA for the state matches or obligations on EPA Superfund financed. The \$1.0 million provided in the FY18-19 Supplemental Budget was used to pay the State's \$1,030,937 obligation to the EPA. The Division estimates that the State's obligations to EPA in FY19-20 will be \$915,159.



In addition to currently effective SSCs, EPA is at the proposed plan or record of decision point in the process for several additional sites. This indicates that additional SSCs will be needed in the near future for the Alamo Contaminated Groundwater Plume, Former Custom Cleaners, and Walker Machine. The current phase of remedial action at Smalley Piper will also end and there will be a determination of next steps and a corresponding SSC will be needed. If the State does not sign the SSC, then federal funds cannot be used for remedial actions to address the threat posed by the site.

### NPL Sites with Outstanding Requirements on Signed SSCs

Site	Remaining SSC Obligation
Ross Metals Rossville, TN	\$50,488 plus state funded groundwater study at an estimated cost of \$100,000.
Smalley Piper Collierville, TN	\$261,864
Velsicol Hardeman County* Toone, TN	\$3,317,081 (\$255,159 annual payment to EPA until match paid.)
Velsicol Hardeman County* Toone, TN	\$20,000 annual obligation for plus cap mowing and maintenance (20 year period used for estimates)
Southside Chattanooga Lead Site Chattanooga, TN	\$2,581,030 (\$400,000 to 500,000 payment annually to EPA until match paid.)

\* Velsicol Hardeman County has two entries because the cap extension and upgrading SSC includes state operation and maintenance requirements and the soil vapor extraction has no state operation and maintenance requirement.

**Appendix B** contains more information on these National Priority List Sites.

### *Southside Chattanooga Lead Site – Hamilton County*



On September 9, 2019, EPA Administrator Andrew Wheeler visited Chattanooga to announce the beginning of remedial efforts for the Southside Chattanooga Lead Site. The announcement was made at a new community park, which is a former brownfield itself, in the heart of the Southside Chattanooga. The site is located in the Alton Park, Cowart Place, East Lake, Highland Park, Jefferson

Heights, Oak Grove, Richmond and Southside Gardens neighborhoods of Chattanooga. Administrator Wheeler noted that the Southside Chattanooga Lead Site serves as a beacon of success for EPA's Superfund program. Also in attendance at the announcement were EPA Regional Administrator Mary Walker, Commissioner Salyers and Deputy Commissioner Young.

EPA's Emergency Response and Removal Branch (ERRB) began providing assistance to the state and local health departments in 2011. The first assessments, conducted in May and October 2012, suggested that the source of lead is associated with historic foundry operations across Chattanooga. Over the course of several months, numerous residential yards were sampled as part of a phased investigative emergency response. In total, 84 backyards identified as containing elevated lead concentrations were remediated in 2013. The EPA added the site to the NPL, with state concurrence in September of 2018. The addition of the site to the NPL provided EPA with the funding needed to address a project with the magnitude of this site. The total cleanup is expected to cost up to \$26 million, with the state obligated to pay ten percent of this cost. Currently, 1,122 yards have been sampled but more than 4,000 remain.



Of note is the work of DoR's project manager Troy Keith. In May 2019, Troy was awarded the 2018 National Notable Achievement Award for his work with the EPA Region IV Superfund Field Demonstration Team.

## Inactive Hazardous Substance Sites

The HWRA Fund may also be used to investigate and remediate sites where a release of hazardous substances into the environment has occurred and to reasonably and safely contain, clean up (as needed), monitor, and maintain these sites.

The Governmental Accounting Standards Board (GASB) is a national organization charged with establishing and improving standards of government accounting. GASB Statement No. 49, *Accounting and Financial Reporting for Pollution Remediation Obligations* include accounting and financial reporting standards for obligations the state has at hazardous substance sites. The Division of Remediation's 2019 GASB 49 report estimates a state liability for remediation at non-NPL sites at \$4,106,431.

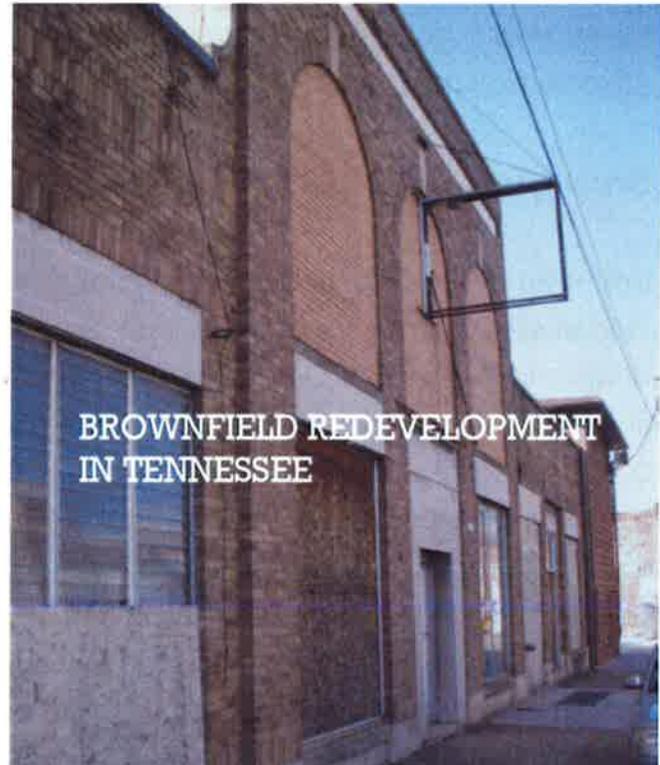
Due to limited funding, investigative or remedial work at these non-NPL sites is prioritized and during FY18-19 payments from the HWRA Fund to state contractors to perform site work was

limited to \$110,685. **Appendix C** contains a list of non-NPL sites with GASB 49 obligations and examples of inactive hazardous substance sites.

## Other Division of Remediation Programs

### *The Voluntary Oversight and Assistance Program*

The Voluntary Oversight and Assistance Program (VOAP) provides willing and able parties an opportunity to conduct an investigation and any necessary cleanup of a property that may have been impacted by past activities. DoR works with interested parties, including developers and local governments, to ensure that properties are evaluated, remediated, and made safe for the intended reuse. The VOAP can offer innocent parties an agreement that 1) gives liability protection for real or perceived contamination; 2) provides protection for third party contribution; and 3) concurrence



from the state's regulatory experts that a property meets the appropriate risk criteria. Voluntary agreements can be completed with parties who did not release, generate or transport contamination at the property. Consent orders can be entered into with entities wishing to voluntarily clean up a site, including responsible parties, which can result in a letter of completion.

Tennessee Code Annotated section 68-212-224 establishes the VOAP Fund that is funded by fees for participation in the VOAP and reimbursement of the department's oversight costs. The VOAP Fund pays the department's oversight costs for program sites, including program-related overhead. The VOAP Fund also pays costs associated with the obligation to implement department responsibilities under Tennessee Code Annotated Title 68, Chapter 212, Part 5, relative to properties where methamphetamine is manufactured.

TDEC and the Tennessee Department of Economic and Community Development (TNECD) published a white paper in October 2017 on the economic impact of brownfields redevelopment in Tennessee. The report shows that from 2011 to the date of publication, there were 104 projects located on a brownfield site. These projects created over 18,500 new jobs and \$4.3 billion in capital investment. A link to the report is provided below and **Appendix D** provides specific examples of the VOAP in action.

<https://www.tn.gov/transparenttn/jobs-economic-development/openecd/tneecd-performance-metrics/openecd-business-development-quick-stats/project-activity-on-brownfield-sites.html>

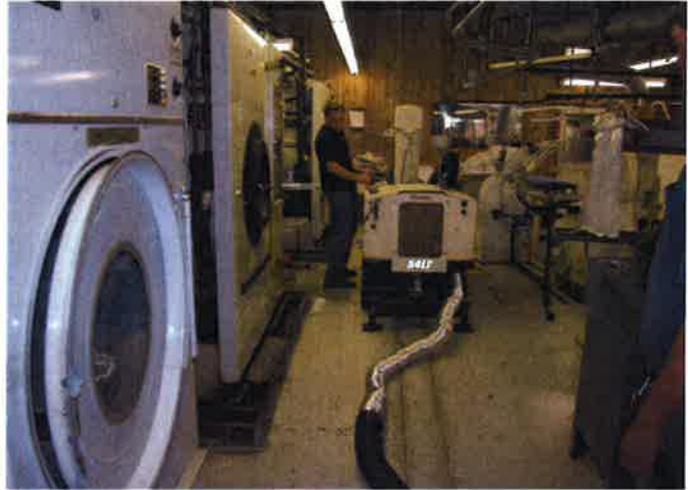
### ***Brownfield Grant Assistance***

DoR uses federal funds provided through EPA 104(k) grants to promote brownfield redevelopment across the state. DoR also provides technical oversight for EPA 128(a) Brownfield Assessment, Cleanup and Revolving Loan Fund grant award winners in Tennessee and technical assistance to those communities who may apply for 128(a) funding. In FY 2018-2019, DoR staff spoke with several communities including, but not limited to: Memphis Blight Authority, Claiborne County, City of Clarksville, Tennessee State Parks, City of Chattanooga, Southeast Tennessee Development District, Memphis Tilth, City of Bolivar, City of Bristol, Greater Nashville Regional Council, Southeast Tennessee Development District, , City of Johnson City, the Northeast Tennessee Regional Economic Partnership, First Tennessee Development District, Woodland Community Land Trust, and City of Columbia regarding EPA 104(k) brownfields grants.

In June of 2019, the city of Columbia was selected for a Brownfields Assessment Grant in the amount of \$300,000 (\$200,000 for hazardous substances and \$100,000 for petroleum) targeting the A.J. Morton Funeral Home, tobacco warehouse, and vacant drycleaner sites in its downtown target area. This EPA grant funding will be used to conduct Phase I and Phase II environmental site assessments in the city's downtown area, and develop at least four cleanup plans. The community-wide petroleum grant funds will also be used to conduct environmental site assessments at priority sites.

## ***Drycleaner's Environmental Response Program and Fund***

The Drycleaner Environmental Response Program (DCERP) registers all drycleaning facilities in Tennessee and solvent distributors, as well as approves contractors providing work at impacted sites. DCERP staff conducts compliance visits at active drycleaner facilities and provides oversight of Environmental Response Activity (ERA) at impacted sites. Annual registration fees and solvent surcharges provide funding for the



program. The DCERP Fund can reimburse eligible facilities for the investigation and cleanup of sites contaminated by drycleaning solvents. Environmental response activities through DCERP are voluntary and the program can authorize reimbursement of up to \$200,000 per year, per site. The cleanup work must be pre-approved by DCERP and performed by contractors selected from the DCERP's Drycleaner Approved Contractor list. Due to limited funding, the program uses a risk-based priority ranking system and addresses the higher risk sites first. A Response Complete letter is issued to applicants after all activities are completed at the site. For the July 1, 2018 - June 30, 2019 period, the DCERP Fund received revenue of \$674,971, expended \$808,848, and had an ending fund balance of \$649,102. This ending balance includes an obligated amount for DCERP cleanups of \$548,727 and a required statutory reserve of \$100,000.

Due to funding limitations, DCERP has evolved into a program that focuses on identifying and addressing areas containing sufficient released chlorinated drycleaning solvent to be an ongoing source of vapor intrusion into a building. An ongoing benefit of this program is protection of human health through the installation and maintenance of vapor mitigation systems.

## ***Methamphetamine Laboratory Cleanup Program***

Tennessee remains in the top five states for clandestine methamphetamine lab seizures nationwide. The Methamphetamine Laboratory Cleanup Program (Program) provides a

number of services to the public, including maintaining a Registry of Quarantined Properties (Registry); maintaining a list of authorized cleanup contractors and hygienists; training for law enforcement and decontamination personnel; conducting field audits; and routinely serving as a consultant to the public, municipalities, law enforcement, the real estate industry, and attorneys regarding quarantine and decontamination issues. The Program compiles and maintains lists of qualified individuals and companies and makes them available to the public on our webpage. Links to these resources are available at: <https://www.tn.gov/environment/program-areas/rem-remediation/meth.html>



The Program works closely with the Tennessee Bureau of Investigations (TBI), Dangerous Drugs Task Force to update the aforementioned Registry monthly in an effort to provide the most current and accurate information to the public. Any property that has been quarantined for greater than 60 days without obtaining a release is placed on the Registry for public review. The Program developed and implements a training program for

cleanup contractors, hygienists and specialists based on actual decontamination experience and clandestine drug lab investigations. The training is provided to qualified individuals through at least two training classes each year.

To illustrate the importance of DoR personnel conducting in-field audits, the photo to the right illustrates a one-pot meth lab which was discovered during a routine audit of contractor and hygienist performance. The home had undergone decontamination by an authorized contractor, and a certificate of fitness was inappropriately issued for this property by a clandestine methamphetamine specialist. It is likely that the property would have been released from quarantine if not for DoR's diligence and attention to detail in discovering



the lab. Inadvertent exposure by an innocent tenant or owner could have resulted in serious injury.

TDEC's Commissioner is delegated authority to promulgate rules concerning the inspection, testing, quarantine, and cleanup of property quarantined due to the manufacture of methamphetamine. Rule amendments are in process that will provide a more realistic and achievable cleanup standard that increases protection of human health, and establishes clearer requirements to hold hygienists, specialists, and cleanup contractors more accountable.

### ***Department of Energy - Oak Ridge Reservation***

The Oak Ridge Reservation (ORR) was added to the EPA NPL in November 1989. Subsequent to the listing, DOE, EPA, and the State of Tennessee entered into the Federal Facility Agreement (FFA) for the ORR. The FFA establishes a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions on the ORR. A goal of the FFA is to ensure the environmental impacts associated with past activities are thoroughly investigated and appropriate remedial action is taken to protect the public health and environment. On-site activities at ORR during fiscal year 2019, include and are not limited to:



- Oversight of numerous soil remediation projects at East Tennessee Technology Park (ETTP) (formerly known as K-25) including excavation of Technetium 99 soil remediation project
- Planning for a proposed new Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) waste disposal facility (Environmental Management Disposal Facility, EMDF) on the ORR. Work

included:

- Scoping and review of site characterization data provided by DOE;
- Review of proposed plan; and
- Hosting public information session on proposed landfill; and
- Review and monitoring of DOE operational activities at the existing CERCLA waste disposal facility;

- Waste management reviews for surveillance and maintenance activities at ORR (including those at the Molten Salt Reactor Experiment Facility);
- Planning and oversight of demolition activities at Y-12 National Security Complex including the COLEX mercury facility and Biology Complex;
- Reviews of both annual monitoring reports and five-year reviews for completed CERCLA actions on the ORR;
- Annual establishment of FFA cleanup priorities and milestones for both ongoing and upcoming remediation projects;
- Approved final Remedial Design Work Plan for the Outfall 200 mercury treatment facility, and initiation of site prep work. Construction of the treatment plant and headworks is underway with operations slated to begin in 2022;
- Conducting independent field verification environmental sampling to validate protectiveness of DOE environmental management program;
- Maintaining in-house radiological monitoring program that includes conducting radiological surveys of DOE haul road used to transport hazardous and radioactive waste to landfill and radiological surveys of DOE's surplus material disposition program;
- DoR-OR office serving as TDEC liaison to multiple government and community organizations concerned with environmental cleanup activities on the ORR including: Oak Ridge Reservation Communities Alliance (ORRCA), Oak Ridge Site Specific Advisory Board (ORSSAB), Roane County Environmental Quality Advisory Board (EQAB), Oak Ridge City Council, Anderson County Commission and Watts Bar Interagency Working Group; and
- Participating and assisting DOE in the Covenant Deferral Requests (CDR) activities in support of re-industrialization activities at East Tennessee Technology Park (ETTP).



**DoR's work is important to Tennessee because:**

- **DoR's efforts protect human health and the environment from release of hazardous substances**
- **DoR's efforts protect, maintain, and improve Water Quality – many sites impact drinking water sources or surface water use**
- **DoR's work leads to economic and community development with improved environmental outcomes**

# Division of Remediation Contact Information

<https://www.tn.gov/environment/program-areas/rem-remediation.html>

**Address: William R. Snodgrass Tennessee Tower**

**312 Rosa L. Parks Ave, 14<sup>th</sup> Floor**

**Nashville, TN 37243**

**Phone: (615) 532-0900**

## **Division of Remediation**

James S. Sanders	Director	(615) 532-8599
Robin Heriges	Deputy Director, Central Office Operations	(615) 741-4936
Ahmet Bulbulkaya	Deputy Director, Field Office Operations	(615) 532-0227
Colby Morgan	Deputy Director, Oak Ridge Office	(865) 220-6576

## **Environmental Field Offices**

Christina McNaughton	Regional Manager - East	(865) 594-5445
Ken Johnson	Regional Manager - Middle	(615) 687-7032
Jordan English	Regional Manager - West	(901) 371-3039

## **Brownfield Voluntary Program**

Evan Spann	Brownfield and Voluntary Program Coordinator	(615) 532-0919
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## **Brownfield Grant Assistance**

Paula Middlebrooks	Grants & Outreach Coordinator	(615) 532-0926
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## **Drycleaner Environmental Response Program (DCERP)**

Charles Rowan	Program Lead	(615) 532-7823
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## **Methamphetamine Laboratory Cleanup Program**

Chris Andel	Program Lead	(865) 594-5444
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# Appendix A

## Division of Remediation Five Year Funding Analysis

Revenue	FY15	FY16	FY17	FY18	FY19
Appropriations	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Supplemental Appropriations (SA)					\$1,000,000 unobligated and \$700,000 obligated
Fees on Hazardous Waste	\$2,040,842	\$1,754,267	\$1,918,761	\$2,299,969	\$1,964,939
Federal Revenue	\$1,155,190	\$1,441,771	\$1,454,567	\$1,228,256	\$1,221,288
Brownfield Program, Cost Recovery, Other	\$1,415,613	\$1,456,406	\$1,583,001	\$1,636,831	\$1,436,548
<b>Total Revenue (unobligated)</b>	<b>\$5,611,645</b>	<b>\$5,652,444</b>	<b>\$5,956,329</b>	<b>\$6,165,056</b>	<b>\$6,622,775</b>
<b>Revenue (obligated)</b>					<b>\$700,000 SA</b>
<b>Expenses</b>					
Personnel (Salary & Benefits)	\$3,753,305	\$3,712,935	\$3,626,260	\$3,686,856	\$3,739,470
Misc. (travel, printing, training, supplies, equipment, etc.)	\$222,573	\$282,498	\$245,501	\$88,301	\$162,525
State Contractor Expenses	\$26,128	\$21,613	\$86,429	\$94,541	\$110,685
NPL (State 10% Match)	\$1,016,150	\$755,387	\$502,931	\$255,159	\$1,030,937
Rent	\$357,865	\$311,368	\$302,318	\$320,503	\$301,055
Other Services from State Agencies	\$1,486,755	\$1,702,337	\$1,811,755	\$1,466,693	\$1,358,468
<b>Total Expenses</b>	<b>\$6,862,776</b>	<b>\$6,786,138</b>	<b>\$6,575,194</b>	<b>\$5,912,053</b>	<b>\$6,703,140</b>

<b>Revenue - Expenses</b>	<b>(\$1,251,131)</b>	<b>(\$1,133,694)</b>	<b>(\$618,865)</b>	<b>\$253,003</b>	<b>(\$80,365) Without OSA/ \$619,635 With OSA</b>
<b>Fund Balances</b>					
HWRA Fund Unobligated Balance	\$3,510,139	\$2,418,030	\$1,226,371	\$2,014,557	\$2,523,504
Voluntary Fund Obligated SA	\$730,433	\$830,769	\$1,073,358	\$538,174	(\$51,139) \$700,000
<b>Combined Fund Balances</b>	<b>\$4,240,572</b>	<b>\$3,248,799</b>	<b>\$2,299,729</b>	<b>\$2,552,731</b>	<b>\$3,172,365</b>

## Appendix B

### EPA National Priority List Sites in Tennessee

Site Name	Location	State Legislators
<b>Chattanooga Southside Lead Site</b>	Chattanooga, Hamilton	Rep. Yusuf Hakeem Sen. Todd Gardenhire
<b>Smalley-Piper</b>	Collierville, Shelby	Rep. Kevin Vaughan Sen. Paul Rose
<b>Former Custom Cleaners</b>	Memphis, Shelby	Rep. G.A. Hardaway Sen. Reginald Tate
<b>Velsicol Hardeman County Landfill</b>	Toone, Hardeman	Rep. Johnny Shaw Sen. Dolores Gresham
<b>Alamo Contaminated Groundwater</b>	Alamo, Crockett	Rep. Chris Hurt Sen. Ed Jackson
<b>Walker Machine</b>	Collierville, Shelby	Rep. Kevin Vaughan Sen. Paul Rose
<b>American Creosote Works, Inc.</b>	Jackson, Madison	Rep. Johnny Shaw Sen. Ed Jackson
<b>Wrigley Charcoal Plant</b>	Wrigley, Hickman	Rep. Michael Curcio Sen. Kerry Roberts
<b>Murray-Ohio Dump</b>	Lawrenceburg, Lawrence	Rep. Clay Doggett Sen. Joey Hensley
<b>Smokey Mountain Smelters</b>	Knoxville, Knox	Rep. Gloria Johnson Sen. Becky Duncan-Massey
<b>Ross Metals</b>	Rossville, Fayette	Rep. Ron Gant Sen. Dolores Gresham
<b>Arlington Blending &amp; Packaging</b>	Arlington, Shelby	Rep. Tom Leatherwood Sen. Paul Rose
<b>Carrier Air Conditioning</b>	Collierville, Shelby	Rep. Kevin Vaughan Sen. Paul Rose
<b>Clinch River Corporation</b>	Harriman, Roane	Rep. Kent Calfee Sen. Ken Yager
<b>Mallory Capacitor</b>	Waynesboro, Wayne	Rep. David Byrd Sen. Joey Hensley
<b>Memphis Defense Depot</b>	Memphis, Shelby	Rep. London Lamar Sen. Raumesh Akbari
<b>Milan Army Ammunition Plant</b>	Milan, Carroll	Rep. Chris Hurt Sen. John Stevens
<b>Murray-Ohio Dump</b>	Lawrenceburg, Lawrence	Rep. Clay Doggett Sen. Joey Hensley
<b>Oak Ridge Reservation (USDOE)</b>	Oak Ridge, Anderson	Rep. John Ragan Lt. Gov.. Randy McNally
<b>Smokey Mountain Smelters</b>	Knoxville, Knox	Rep. Gloria Johnson Sen. Becky Duncan-Massey
<b>Tennessee Products</b>	Chattanooga, Hamilton	Rep. Yusuf Hakeem Sen. Todd Gardenhire

## Southside Chattanooga Lead Site

- ❖ Listed on the NPL September 11, 2018
- ❖ Focus is cleaning up residential properties to protect children.
- ❖ Historically, many foundries operated in this area of Chattanooga.
- ❖ Foundry material was used to fill low areas and is also found as a veneer at the surface of the ground in a number of residential yards.
- ❖ Lead poses the highest threat to young children and priority for cleanup is given to properties with children that have the highest concentrations of lead.
- ❖ EPA is evaluating Chattanooga neighborhoods including: Alton Park, Cowart Place, Jefferson Heights, Richmond, Southside Gardens, East Lake, Highland Park, and Oak Grove.

**Cost Update:** EPA's August, 2018 Focused Feasibility Study estimates about \$26,000,000 to clean up a total of 1,100 properties. State will have a 10% match of federal cleanup costs.

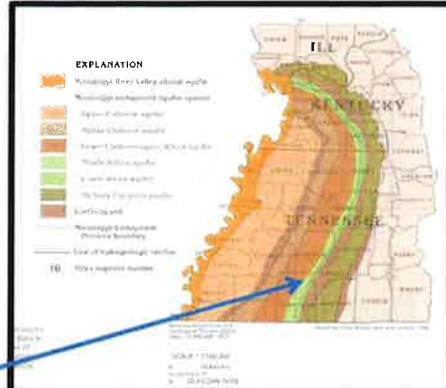


The Southside Chattanooga Lead Site is characterized by soil contaminated with lead as a result of the historic use of foundry waste material, including spent foundry sand and bag house dust as fill in the Southside area of Chattanooga. About 60 foundries, typically iron and brass, have operated in this area since the mid-nineteenth century. In the early 20th century, it was common practice for foundries to give nearby residents spent foundry material to use as fill material to elevate flood-prone areas, channelize Chattanooga Creek and fill building sites. Foundry material was also disposed of in local debris landfills. Foundry material has been found in residential and commercial properties in various locations in and around the Southside Chattanooga area.

The site is comprised of contaminated residential properties. EPA estimates that at least 1,100 residential properties with lead at levels elevated above urban background conditions will need to be addressed. Some of the properties are contaminated with lead at levels that far exceed health-based benchmarks. Because lead poses the highest threat to young children, priority for cleanup will be given to properties that have the highest concentrations of lead which also have children present. The remedy that will be implemented is to remove lead-contaminated soil at the residential properties.

# Velsicol Hardeman County Landfill

- ❖ Site is in the general recharge area of West Tennessee Aquifers. (Areas where water enters the aquifers.)
- ❖ Estimated 130,000 to 300,000 buried drums, containing pesticide manufacturing waste with volatile organic compounds (VOC), including carbon tetrachloride were disposed..
- ❖ Carbon tetrachloride is now banned for many uses because of its affects on the Cardiovascular (Heart and Blood Vessels), Hepatic (Liver), and Neurological (Nervous System). It is also reasonably anticipated to be a human carcinogen.
- ❖ Site includes an estimated 3.3 linear miles of trenches containing drums within 24 acres capped.



Band of units across TN forming recharge zone. (Lloyd, O. and Lyke, W., 1995. Ground Water Atlas of the United States: Segment 10. U.S. Geological Survey Hydrologic Investigations Atlas 730-K, pp. 32., figure 126)



## Current Superfund State Contracts

Total Cost: \$ 57,528,680  
 State Match: \$ 5,752,868  
 Match Paid: \$ 1,765,477  
 Due FY19: \$ 670,312  
 Future Annual Payment: \$ 255,159

## Purpose:

- (1) Maintain Protective Cap and
- (2) Remove an estimated 5-6 million pounds of VOC source materials.

Approximately 130,000 to 300,000 drums of waste containing pesticides, carbon tetrachloride and other pollutants were disposed of in ten to fifteen foot deep, unlined trenches at the Velsicol Hardeman County Landfill site near the town of Toone, Tennessee. The burial trenches have been capped. Erosion of the cap and exposing of the waste in the trenches could create an imminent and substantial danger. Pilot studies have shown that soil vapor extraction along with access restrictions, and cap maintenance should be effective in controlling the source area. Additionally, the new remedy is expected to reduce surface water, air and groundwater pollution by removing an estimated 5,000,000 to 6,000,000 pounds of carbon tetrachloride and other volatile organic compounds.

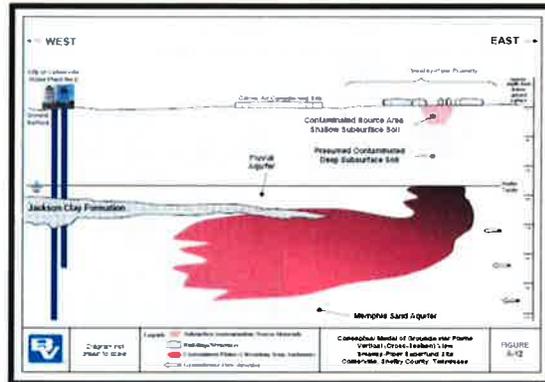
# Smalley Piper NPL Site (Collierville, TN)

- ❖ Collierville extracts water from the Memphis Sand aquifer.
- ❖ Hexavalent chromium contamination polluted Collierville's water supply, well field #2. Water Plant #2 was closed on December 3, 2003.
- ❖ Hexavalent chromium is:
  - ❖ Toxic
  - ❖ Mobile
  - ❖ Hard and expensive to treat (ion exchange)
- ❖ Additional actions are needed to prevent migration to another nearby wellfield.



Current Superfund State Contract (SSC)  
 Total: \$13,515,000  
 State 10% Match Paid: \$973,998  
 Match Due FY19/20: \$377,501  
 Ongoing monthly treatment cost: \$116,809  
 (6 month average)  
 Current SSC treating the source area will run out of funds in FY19.

Funds will be needed for additional treatment.  
 Feasibility study for additional treatment is ongoing.

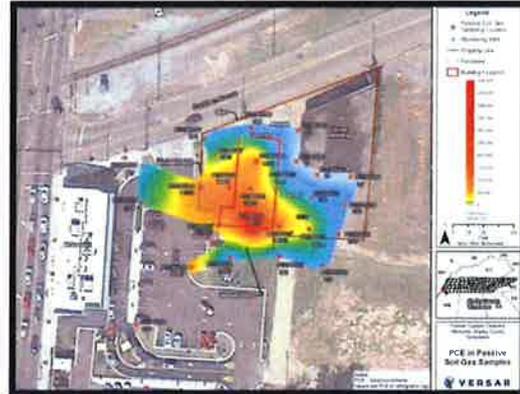


From the 1950s through the 1980s, the nine acre Smalley-Piper Site conducted magnesium battery casing manufacturing. Battery casing treatment used caustic soda, acetic acid, chromium acid and water. Wastes generated from facility operations were treated in unlined on-site equalization ponds with liquid sulfur dioxide. However, the waste in the unlined ponds resulted in contamination of soils, surface water, and groundwater in the Memphis aquifer. This contamination caused the shutdown of the nearby Collierville Water Plant #2 in December 2003. The on-site equalization ponds were closed in the early 1980s and all on-site operations at the facility ceased in 2007.



# Former Custom Cleaners (Memphis, TN)

- ❖ The goal of the site is to protect the Memphis aquifer and Memphis' water supply.
- ❖ Dry-cleaning location from 1950s to mid 90s.
- ❖ Large quantities of a dry cleaning solvent, tetrachloroethylene (PCE), were used and released at the site.
- ❖ PCE is likely to be carcinogenic to humans and has a maximum contaminant level (MCL) in drinking water of 5 parts per billion (ppb).
- ❖ Groundwater from the site flows towards the Memphis Light, Gas, and Water (MLGW) Sheahan Well Field.
- ❖ The confining clay, which prevents pollution of the drinking water aquifer, is absent within 2 miles of the site. The confining clay may also be absent directly beneath the site.



Initial cleanup phase to remove contaminant mass has an estimated cost of \$2,514,000 including 10% state match of \$251,400.

Former Custom Cleaners Site

Two interpretations of where the confining clay may be absent. Additional work is needed to know for sure.



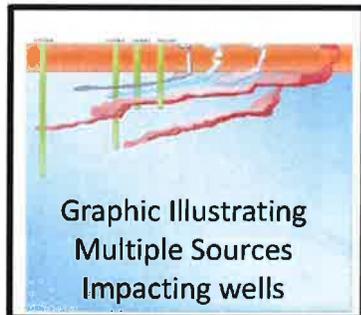
In August of 2016, EPA initiated a time-critical removal action to address the source area of tetrachloroethylene (PCE) soil contamination since it was determined to be a potential threat to nearby municipal drinking water wells for the City of Memphis. The former drycleaner building was demolished in August and September 2016 and approximately 980 tons of PCE-contaminated soils located beneath and near the former building footprint were excavated and hauled to an off-site disposal facility in September and October 2016.

# Alamo Contaminated Groundwater (Alamo, TN)

- ❖ Alamo's city water supply wells produce drinking water from the Memphis Sand
- ❖ Chlorinated solvents including tetrachloroethylene (PCE) and trichloroethylene (TCE) were discovered in groundwater from municipal water production wells.
- ❖ TCE is carcinogenic to humans and PCE is likely to be carcinogenic to humans. Both TCE and PCE have maximum contaminant levels (MCLs) in drinking water of 5 parts per billion (ppb).
- ❖ There are many potential sources for the pollution.



EPA is evaluating a remedial option with an estimated total present worth cost of \$1,383,000.



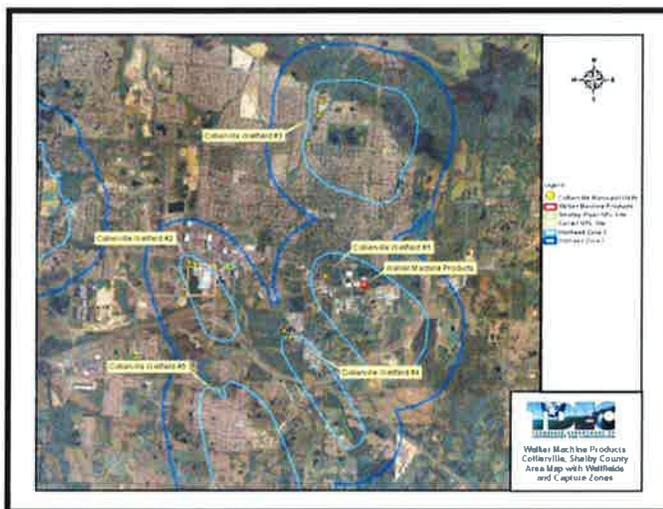
The Alamo Contaminated Groundwater site consists of a groundwater contaminant plume in the area of the Alamo municipal well field, which is part of the Memphis Sands Aquifer. The well field consists of four municipal wells located near the Alamo water treatment plant. Chlorinated volatile organic compounds (VOCs) above EPA's Maximum Contaminant Level (MCLs) drinking water standards were detected in well water in 1988. The Alamo Water Department installed an air stripper to remove the pollution and remain in compliance with TDEC's and EPA's Safe Drinking Water Act (SDWA) MCL's.

There are multiple potential sources for this groundwater pollution. Because no single source or combination of source(s) can be identified as having caused the ongoing contamination in the municipal well field, the plume itself was considered to be a site for National Priority list (NPL).

# Walker Machine (Collierville, TN)

- ❖ Chlorinated solvents including tetrachloroethylene (PCE) and trichloroethylene (TCE) are present in onsite groundwater.
- ❖ TCE is carcinogenic to humans and PCE is likely to be carcinogenic to humans. Both TCE and PCE have maximum contaminant levels (MCLs) in drinking water of 5 parts per billion (ppb).
- ❖ Town of Collierville wellfield #1 is within ½ mile west of former Walker Machine
- ❖ Memphis Sand Aquifer is the primary drinking water for the area.
- ❖ No confining clay is present

Initial cleanup estimated at \$6,260,000 including a 10% state match



Walker Machine produced automated machine screw products from 1953 until approximately 2002. Walker Machine used chlorinated solvents, including tetrachloroethene (PCE) and 1,1,1-trichloroethane (TCA), to clean the finished products. A 1987 Tennessee Occupational Safety and Health Administration (OSHA) Inspection Report stated the company was draining spent solvent onto the ground and into the sewer drain in the rear of the building. An oil/water separator was used by Walker Machine Products which handled solvent waste. The primary source of soil and ground water contamination is found in the area of the oil/water separator.

Soil and ground water at the site have been contaminated with PCE, TCA, and their degradation products. The groundwater contaminant plume has migrated off-site. The contaminated aquifer is the Memphis Sands Aquifer, which is the main aquifer for west Tennessee. The City of Collierville provides drinking water to residents from five drinking water plants that pump water from twelve wells. Well field #1, consisting of 3 wells, is approximately ½ mile from the site, and only ¼ mile from the documented edge of the ground water contaminant plume.

# APPENDIX C

## NON-NPL GASB 49 Sites

Site Name	County	State Legislators	Site Name	County	State Legislators
<b>Atomic City Auto Parts</b>	Anderson	Rep. John Ragan Lt. Gov. Randy McNally	<b>Red Ridge Landfill</b>	Monroe	Rep. Lowell Russell Sen. Mike Bell
<b>Wall Tube and Metal</b>	Cocke	Rep. Jeremy Faison Sen. Steve Southerland	<b>Rockwood Iron and Metal</b>	Roane	Rep. Kent Calfee Sen. Ken Yager
<b>Velsicol Residue Hill</b>	Hamilton	Rep. Yusuf Hakeem Sen. Todd Gardenhire	<b>Joyner Scrap Yard</b>	Roane	Rep. Kent Calfee Sen. Ken Yager
<b>Morning Side Chemical</b>	Hamilton	Rep. Yusuf Hakeem Sen. Todd Gardenhire	<b>Chromasco</b>	Shelby	Rep. Barbara Cooper Sen. Raumesh Akbari
<b>Henry County Boneyard</b>	Henry	Rep. Bruce Griffey Sen. John Stevens	<b>Chapman Chemical</b>	Shelby	Rep. London Lamar Sen. Raumesh Akbari
<b>Roscoe Fields Site</b>	Knox	Rep. Justin Lafferty Sen. Becky Massey	<b>John Little</b>	Shelby	Rep. John DeBerry Sen. Raumesh Akbari
<b>Dixie Barrel &amp; Drum</b>	Knox	Rep. Rick Staples Sen. Becky Massey	<b>Creotox</b>	Shelby	Rep. John DeBerry Sen. Raumesh Akbari
<b>Murray Ohio Plant</b>	Lawrence	Rep. Clay Doggett Sen. Joey Hensley	<b>Fiberfine</b>	Shelby	Rep. Barbara Cooper Sen. Raumesh Akbari
<b>Boone Cleaners</b>	Madison	Rep. Johnny Shaw Sen. Ed Jackson	<b>Old Waynesboro City Dump</b>	Wayne	Rep. David Byrd Sen. Joey Hensley

## ***Inactive Hazardous Waste Sites***

### ***Swan Pond Recreational Complex – Roane County***

Following a concern received from the the Roane County Executive through the Roane County Environmental Review Board (RCERB) regarding the safety of the fields for children playing



soccer, TDEC staff collaborated with staff from the Tennessee Department of Health (TDH) to develop a sampling plan to assess the potential for exposure to children playing on or around the athletic and festival fields. The request indicated that community concerns were focused on the potential for residual coal ash being present on the fields, either remaining following the remediation activities from the Kingston TVA spill or

blowing from trucks that were hauling the released coal ash after the spill. The community was concerned that children could be exposed to coal ash and its many components while playing on or using the Swan Pond Complex Recreational Area. Roane County made the decision to close the complex until a health evaluation could be conducted.

Following the approval of a sampling work plan, DoR staff collected a total of 36 composite samples throughout the Swan Pond Complex Recreational Area. Laboratory results were sent to TDH for evaluation of potential exposure to children. No coal ash was detected in the 36 samples and metals concentrations were well within



background values for Tennessee. Both arsenic and chromium were further evaluated for their cancer risk and using the highest concentration detected in both, resulted in no excess cancer risk in the population.

The results of the health consultation were presented to the RCERB in September and were met with applause. Equipped with the results from the study, Roane County has the information they need to reopen the complex for use with the knowledge that people using the park for recreational activities are safe from coal ash exposure. A copy of TDH's Health Consultation can be found at the following link; [https://www.tn.gov/content/dam/tn/health/documents/healthy-places/appletree/env\\_docs/hc-e-Swan-Pond-Recreation-Areas-090519.pdf](https://www.tn.gov/content/dam/tn/health/documents/healthy-places/appletree/env_docs/hc-e-Swan-Pond-Recreation-Areas-090519.pdf)

### ***Columbia Oil Company – Maury County***

In May of 2016, the Maury County Emergency Management Agency reported a release of gasoline from an aboveground storage tank facility located in Columbia. After DoR was made aware of the report of release, staff conducted a site visit to investigate the reported release and recommended that the responsible party deploy booms and pads in the adjacent creek to contain the release of gasoline and seek the services of an emergency response contractor.



DoR completed an additional site visit in August 2016 and observed a petroleum odor near and within the creek and observed a sheen on the surface water. After the sheen was noted in the creek, DoR and the Division of Water Resources (DWR) sent an unauthorized discharge letter to the responsible party requesting they take all necessary steps to contain and locate the source of the release.

Because the responsible party had not fully complied with TDEC's directive, in May of 2017 TDEC received a letter from Maury County Government requesting TDEC's immediate assistance in addressing the site. Results of DoR involvement have identified the source, reduced the amount of released product, identified groundwater is not impacted above MCL's, retrofitted the leaking AST, identified the soil plume, and current plans include the completion of a soil gas survey and subsequent soil and groundwater monitoring activities.

This series of events illustrates the difficulty DoR has working with petroleum contamination sites. Currently, releases of petroleum not otherwise regulated by the Division of Underground Storage Tanks can be addressed by the Division of Solid and Hazardous Waste Management

(specifically transportation related spills) or DoR (when addressed voluntarily by a responsible party). However, state law does not provide enforcement authority under the Hazardous Waste Management Act of 1983. Further, because of the petroleum exclusion and the Hazardous Waste Management Act of 1983 the use of funds from the HWRA Fund at petroleum sites is prohibited.

# APPENDIX D

## Voluntary Oversight and Assistance Program

### *Music City Solar Array – Nashville*



The Due West Landfill site is a 37-acre parcel located in commercial and residential areas of Nashville, Tennessee near Skyline Medical Center. The landfill operated from 1958 until it was closed in 1973. Metro Nashville monitored the closed landfill until 2002. DoR issued a No Further Action Letter for the site in July of 2016. On March 5, 2018, Nashville Electric Service (NES) broke ground for the Music City Solar Array (MCSA) located

on the former Due West Landfill site.

The MCSA will use approximately 25 acres of the former landfill as Nashville’s first community solar park and is an initiative of the Livable Nashville Committee. The solar park will give NES customers access to sustainable, maintenance-free solar energy and is the first project completed under TVA’s Renewable Energy Program. The 2-megawatt facility will use over 17,000 solar panels. It is estimated each panel will generate 14 kilowatt hours of energy for Nashville’s electric grid. Division of Remediation staff worked with NES and Metro Nashville on the project to ensure safe re-use of this property.



The remaining twelve acres of the former landfill are to be used by Hospital Corporation of America (HCA) for a parking lot to support the expansion of

Skyline Medical Center. The parking expansion was proposed as part of an overall hospital expansion project and will be located on the southern end of the former municipal dump site. It will be a surface parking lot and will hold approximately 475 vehicles.

### ***Capitol View - Frankie Pierce Park - Nashville***



In 2008, approximately 32 acres of property located below the Tennessee State Capitol was enrolled in the State's voluntary program. The Capitol View property had previously been used as a car dealership with an auto body shop, cold storage, and coal storage. As the redevelopment of the Capitol View project nears completion, the developer and Metro Nashville Parks Department are collaborating on the expansion of the

greenway system, which will connect the Gulch to Metro Nashville's greenway system. The 2.5-acre park, located within view of the state Capitol and the planned future home of Amazon, will be open to the public and offer sand volleyball courts, a playground, a dog park and a yoga lawn. The park is also a trailhead for the Gulch Greenway, completing a link in the system and connecting Capitol View to a system of over 190 miles of biking and running trails throughout Davidson County. Frankie Pierce Park, as it will be known, is being jointly funded by a grant from the Nashville Parks Foundation, the Capitol View ownership/development team, and a grant of \$100,000 from TDEC.

