



Department of
**Environment &
Conservation**



Division of Remediation

Annual Report

July 2014 – June 2015

Tennessee Department of Environment & Conservation | October 2015



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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 remedies to stabilize, remediate, contain, monitor, maintain, and close these sites. These efforts minimize chemical and radiological threats to public health, safety, and the environment.

Our areas of responsibility include:

- Inactive hazardous substance sites;
- Petroleum spills not associated with a regulated underground storage tank;
- Releases associated with an aboveground storage tank;
- Dry Cleaner Environmental Response Program (DCERP) and associated DCERP sites;
- U.S. Environmental Protection Agency (EPA) National Priority List (NPL) sites;
- Brownfield and Voluntary sites;
- U.S. Department of Defense sites;
- U.S. Department of Energy (DOE)'s sites including Oak Ridge Reservation (ORR);
- U.S. (EPA) Brownfield Grant assistance;
- Establishing cleanup standards, rules, and guidance for properties where methamphetamine was manufactured, as well as standards, training, certification and authorization for methamphetamine hygienists and methamphetamine cleanup contractors respectively; and
- Assisting parties interested in redeveloping and reusing properties with recognized environmental conditions.

DoR utilizes the Hazardous Waste Remedial Action Fund (HWRAF), the Voluntary Cleanup Oversight and Assistance Program (VOAP) Fund, and the Dry Cleaner Environmental Response Program Fund to investigate and remediate environmental problems caused by the release of hazardous substances into the environment. DoR also collects fees and recovers costs for services rendered.

Division of Remediation by the Numbers (During FY 2014-2015)

\$21,557,977

Expenditures reported paid by Responsible Parties with 38 parties reporting.

3,040,718,265 gallons

Volume of contaminated surface and ground water treated from 38 sites reporting.

141,609 pounds

Amount of hazardous substances treated and disposed from 38 sites reporting.

106

Number of sites that entered the Voluntary Program

396

Number of sites worked in a Voluntary Program

32

Number of No Further Action Letters issued by a Voluntary Program

29

Number of sites supported by Division's Brownfield Grant Assistance Program

\$500,000

Amount of U.S. EPA Brownfield Grants awarded to Tennessee entities

1206

Number of quarantined properties in the Methamphetamine inventory

300

Number of Dry Cleaners registered in DCERP

61

Number of Dry Cleaners participating in DCERP Environmental Response Activity

407

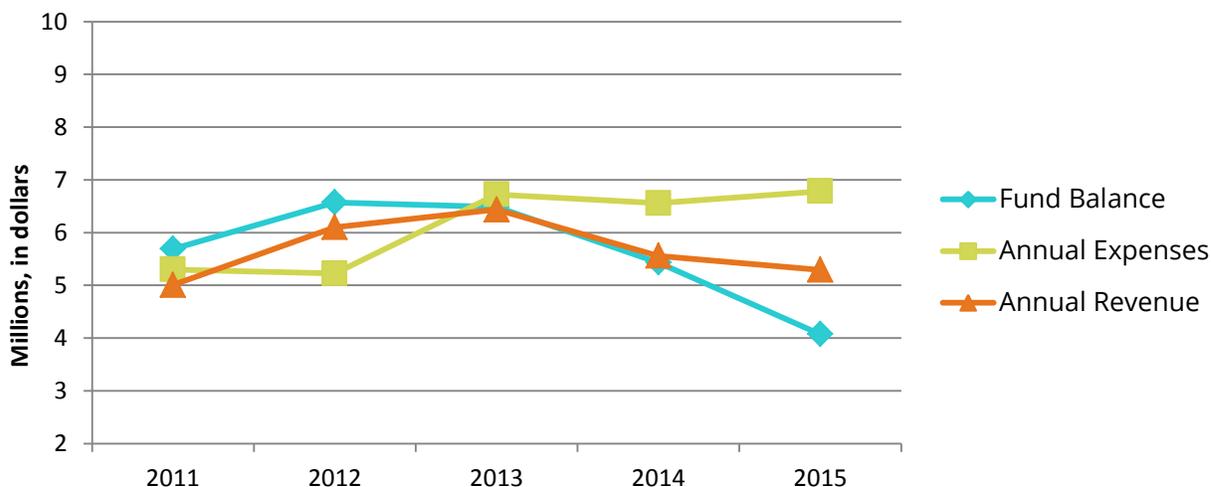
Number of Hazardous Substance sites the Division worked on this year not included above.

Hazardous Waste Remedial Action Fund

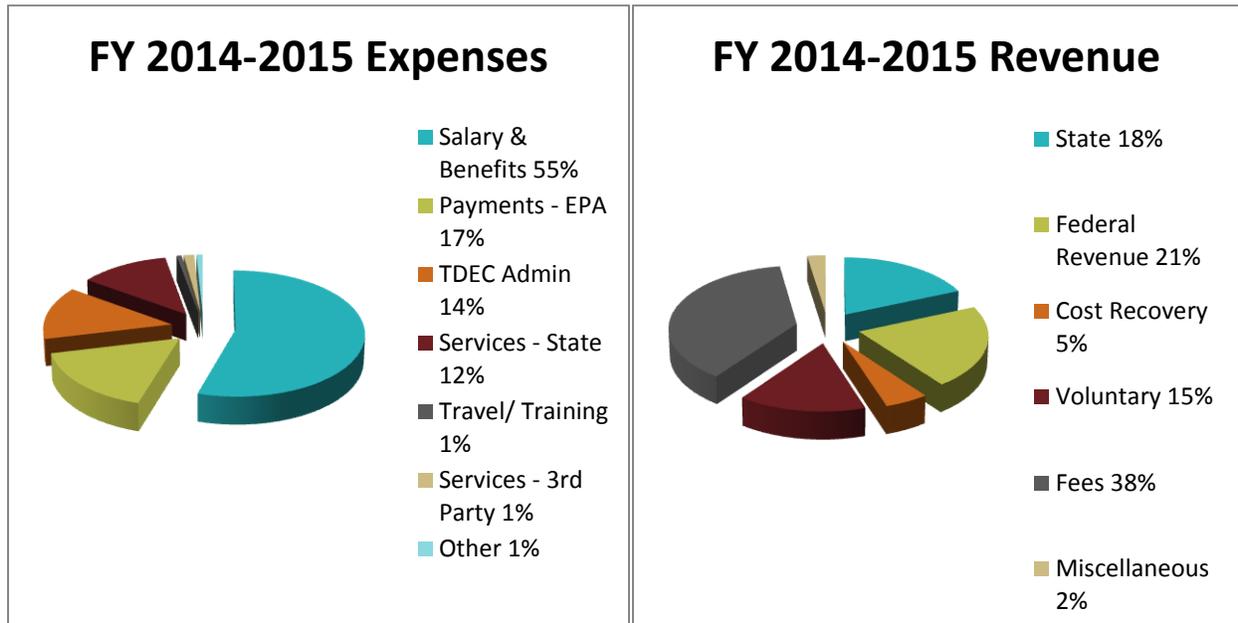
Per TCA § 68-212-205, the Hazardous Waste Remedial Action Fund is available for the purposes of identifying and investigating inactive hazardous substance sites for consideration for placement on the List of Inactive Hazardous Substance Sites, and for investigating and reasonably and safely containing, cleaning up, monitoring and maintaining such sites. This fund may also be used to match the funds of any federal agency, enable the state to receive federal funds to clean up hazardous substance sites, or provide for state financed clean up.

The Hazardous Waste Remedial Action Fund is funded via a variety of different sources (state appropriation, cost recovery, and hazardous waste remedial action fees). The State must appropriate a minimum of \$1 million annually or the current hazardous waste remedial action fee levels will drastically be reduced. Fees are collected from hazardous waste generators and transporters, based upon the volume of waste generated and transported. These fee rates have not changed since 2010. DoR makes every effort to recover reimbursement of its costs from the parties responsible for the contamination. Additionally, the Division has a series of Cooperative Agreements with the Federal Government to fund activities that are jointly beneficial to both the federal government and the state. These federal funds have declined and are expected to continue to decrease.

HAZARDOUS WASTE REMEDIAL ACTION FUND BALANCES



FY 2014-2015 HWRAF Expenses and Revenue



Known Future Financial Obligations (State - NPL Match)

- Smalley – Piper site \$700,000
- Velsicol/Hardeman County Soil Vapor Extraction \$255,159/ year / 17years
- Velsicol/Hardeman County Landfill Cap ~\$415,000
- Velsicol/Hardeman County Landfill Cap O&M 100% of all costs

GASB 49 State Liability

The 2015 Government Accounting Standards Board (GASB) 49 report calculates that the state's financial responsibility associated with hazardous substance sites that do not have a viable responsible party is approximately \$53,528,600. This amount will continue to rise as more sites are discovered, investigation and remediation costs increase, and the state match on NPL sites.



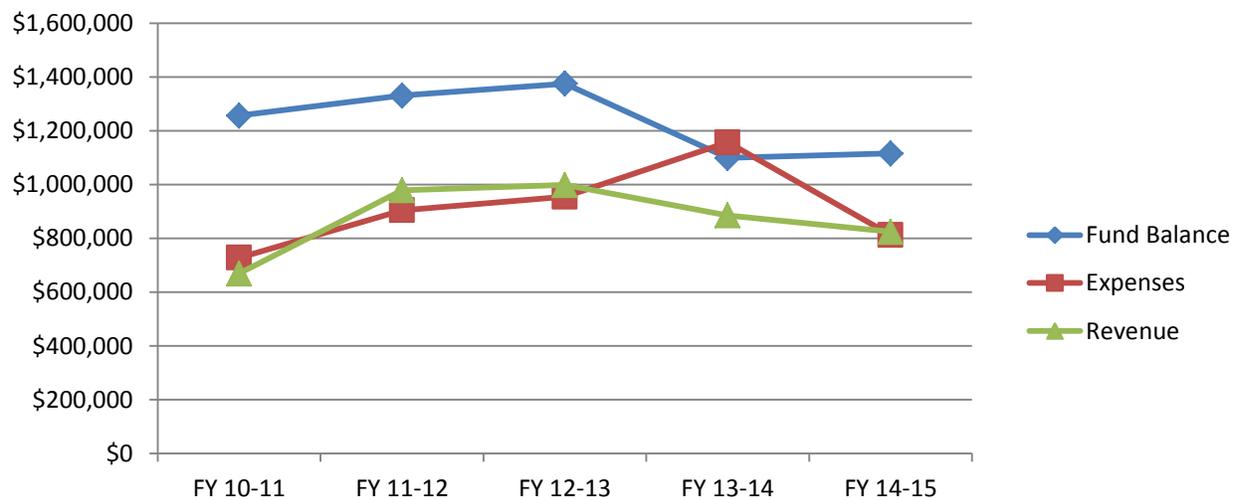
Chattanooga Residue Hill Landfill



Smokey Mountain Smelters Historical Photo

Dry Cleaner Environmental Response Fund

The Drycleaner's Environmental Response Fund can reimburse parties for the investigation and cleanup of sites contaminated by dry cleaning solvents. Environmental response activities through DCERP are voluntary and the program can authorize reimbursement of up to \$200,000 per year, per site. With few exceptions, all DCERP-funded work must be pre-approved by DCERP and performed by contractors selected from the DCERP's Drycleaner Approved Contractor list. The program typically maintains approximately \$900,000 of fund commitments in the form of Notices to Proceed (NTPs). Therefore, the unobligated fund balance is usually about \$200,000 or less. Due to very limited funding, the program is currently utilizing a priority ranking system and addressing only the higher ranked sites. A Response Complete letter is issued to applicants after all activities are completed at the site.



Historical Dry Cleaning Operations

Additional Divisional Programs

Voluntary Program

The Voluntary Program provides willing and able parties an opportunity to conduct an investigation and any necessary cleanup of property that may have been impacted by past uses in cooperation with the State. The Voluntary Program also offers participants a No Further Action letter for areas where investigation and cleanup are conducted and completed. A Brownfield is an abandoned or underused industrial or commercial property where redevelopment may be complicated by real or perceived environmental contamination.

DoR works with interested parties including developers to ensure that properties are safe for the intended use. The Voluntary Program is open to anyone, including local governments and private developers that are willing and able to address contamination. The statute allows for limiting environmental liability for contamination identified and addressed under the Voluntary Program.



Ribbon Cutting at Ascend Amphitheater



The Next Door Brownfield Redevelopment

In the past two years, the Division of Remediation has worked on over 25 major Brownfield redevelopment projects in the Nashville region alone, with both public and private developers totaling over \$1.5B in development. Projects include First Tennessee Park, Cumberland Park, West Riverfront Park (including the Ascend Amphitheater), the Gulch, Rolling Mill Hill, OneCity, the new Bridgestone headquarters, Capitol View, and The Next Door.

Brownfield Grant Assistance

The Division also promotes and supports the EPA Brownfield Assessment, Cleanup and Revolving Loan Fund grants in Tennessee. In 2015, a \$500,000 Community Wide Assessment Grant was awarded by the EPA to the Southeast Tennessee Development District to assess properties hindered by real or perceived contamination. TDEC's Brownfield Program provided technical assistance to current EPA Brownfield Grantees including the City of Union City, Campbell County, the City of Chattanooga and the Upper Cumberland Development District. DoR staff collaborated with the Center for Creative Land Recycling, Memphis BioWorks, and EPA to host a Redevelopment Workshop in Memphis. Several EPA Brownfield Grant seminars were also held in Columbia, Jackson and Knoxville, hosted by DoR and EPA. DoR was also instrumental in providing technical guidance on the Targeted Brownfield Assessment for the Mountain Goat Trail project in Grundy and Franklin counties.



Rolling Mill Hill Redevelopment

Dry Cleaner Environmental Response Program (DCERP)

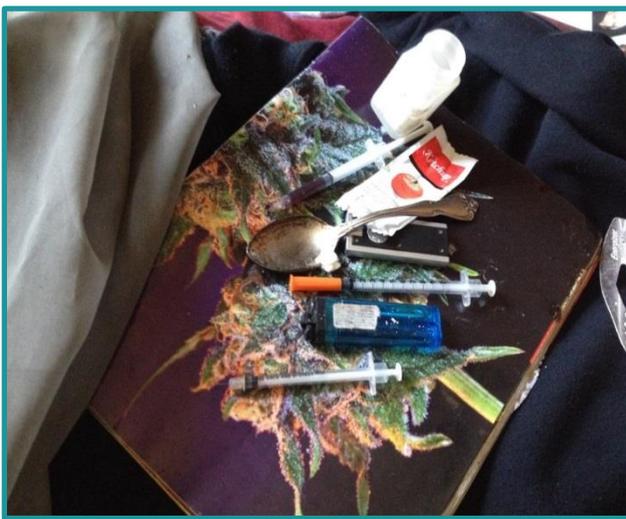
The Dry Cleaner Environmental Response Program (DCERP) registers all dry cleaning facilities and solvent distributors, as well as approves contractors for DCERP. Staff also conduct compliance visits at active cleaner facilities and provides oversight of Environmental Response Activity (ERA) at impacted sites. Annual registration fees and solvent surcharges provide funding for the program. The DCERP Fund provides reimbursement for approved investigation and remediation of released dry cleaning solvents at eligible facilities. Currently, there are approximately 300 registered dry cleaners with 61 participating in the ERA, and 95 Notices to Proceed were issued and 152 site inspections were conducted through DCERP during FY 14-15.



Soil Removal at former Dry Cleaner

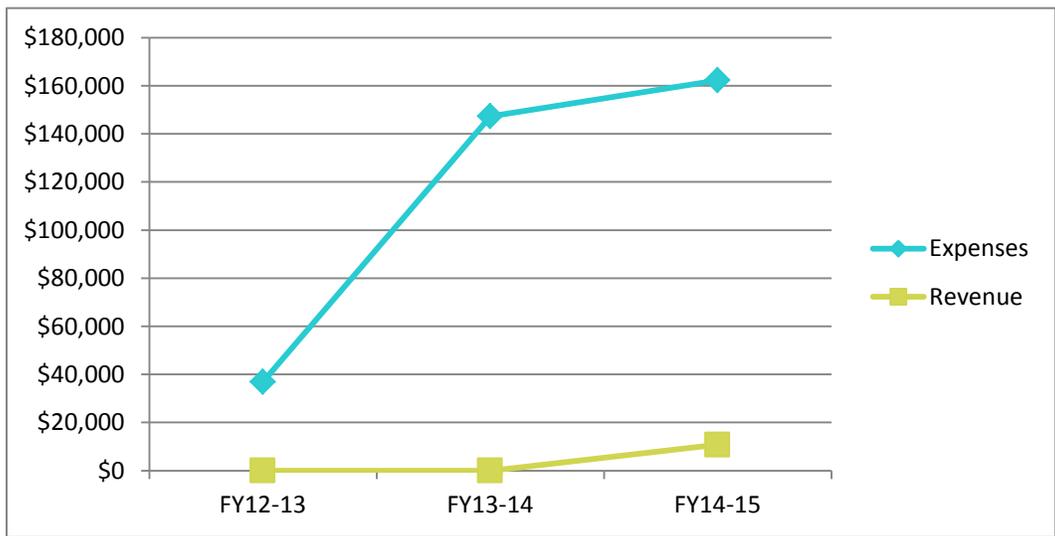
Methamphetamine Laboratory Cleanup Program

The abuse of methamphetamine has reached epidemic proportions in Tennessee, consistently placing the state in the top five nationwide for methamphetamine lab seizures. Methamphetamine may be manufactured at properties ranging from single-family homes, rental properties, hotel and motel rooms, recreational vehicles, and automobiles. When a methamphetamine lab is seized, law enforcement oversees removal of the lab chemicals and methamphetamine manufacturing apparatus. Law enforcement may also quarantine the property due to potential residual contamination and potential human health impacts to future property users. Residual contamination can be adsorbed into a variety of surfaces within the home, such as walls, carpets, drapes, bedding, furniture, appliances, clothing and toys.



DoR is responsible for developing cleanup standards, rules, and guidance to address properties quarantined due to the manufacture of methamphetamine. For the past couple of years, the Division has increased its efforts at evaluating methods for more cost effective yet protective mitigation. DoR also provides training and authorization for cleanup contractors; training and certification for methamphetamine hygienists; and maintains the registry of quarantined sites. Methamphetamine is not listed as a hazardous substance; therefore funds from the Hazardous Waste Remedial Action Fund are not used. Instead, DoR uses limited federal funding and the Voluntary Oversight and Assistance Fund to provide these services.

Methamphetamine Laboratory Cleanup Program Funding



Accomplishments and Success Stories

Alcoa High School/ Alcoa West Plant

The New \$33 million Alcoa High School site is a 26-acre portion of the former Alcoa Aluminum Co. West Plant in Alcoa, Tennessee. Historical industrial operations between 1920 and 1989 included manufacture of various aluminum products including foil, ingot casting, pigment and powder. As part of their operations, the facility operated underground storage tanks, waste oil storage areas, railroad spurs, landfills, and water treatment. Hazardous substances identified include volatile organic compounds, semi-volatile organic compounds, and metals.



*2015 Award
Winner for
Land Use*

The City of Alcoa and the Alcoa School District entered into a Brownfield Voluntary Agreement with the Department outlining the steps needed to address the contamination at the site. Clean up efforts focused mainly on the 2.5 acre Storm Water Management Area that had been impacted with PCBs and hydrocarbons. Infrastructure that included an oil water separator, associated piping, and two settling ponds were removed. Approximately 104,000 gallons of rain diluted sludge was hauled off site for proper treatment and disposal. Demolition of all the structures on site generated around 1,500 cubic yards of debris and soil that was disposed of as a special waste. Excavations were backfilled with an average of five feet of clean clay fill.



During Construction



Alcoa High School Today

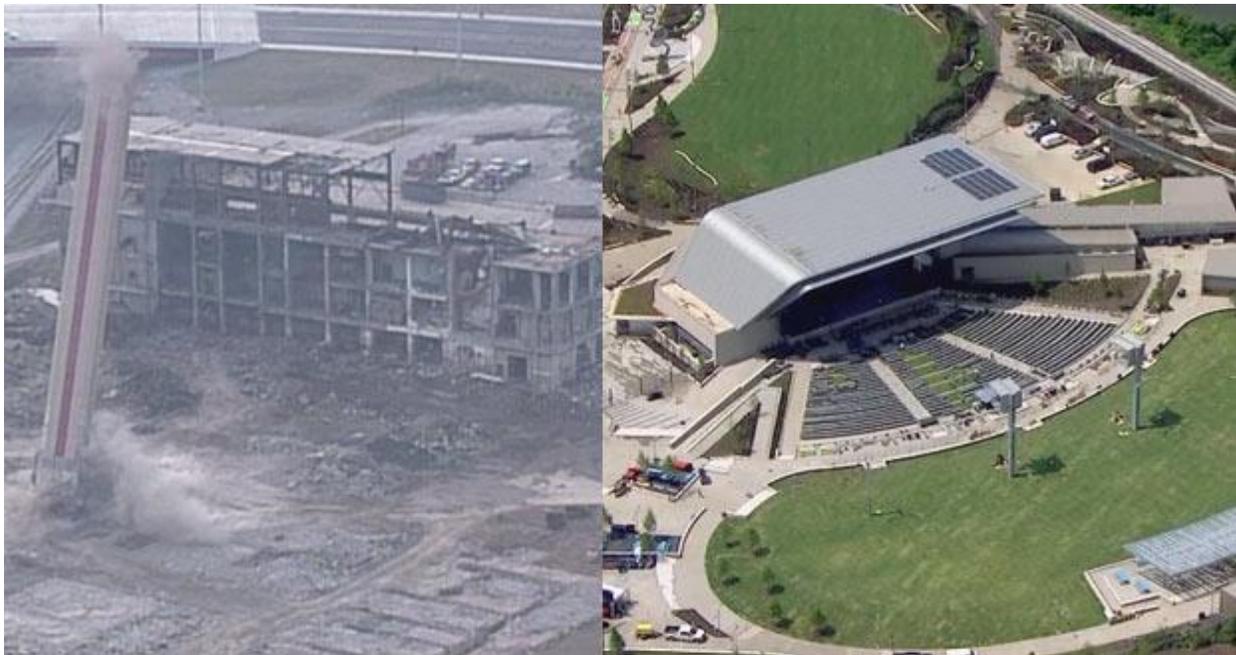
Ascend Amphitheater and Riverfront Landing - Nashville

Metro Nashville, in coordination with DoR, has redeveloped the 12-acre property along the downtown riverfront formerly utilized by the Nashville Thermal Plant into the Ascend Amphitheater. The 6,800 capacity amphitheater features a large stage providing panoramic views and terrific sight-lines from every seat in the venue. After multiple investigations, the city's plans for remediation and redevelopment of the Site were reviewed and approved. To facilitate redevelopment of the Site, DoR approved the removal of certain impacted soils for off-site disposal and the covering of other soils with a 24-inch clean cap or buildings and sidewalks.

Nashville will continue redevelopment on the east bank with construction of a riverfront landing as part of a new 4.5-acre park in front of Nissan Stadium to include new green space, pedestrian and bike paths and attractive, easy access to the river for boaters.



Riverfront Redevelopment Concept



Transformation of former Thermal Transfer Plant into the new Ascend Amphitheater

Copper Basin Project, Lower North Potato Creek

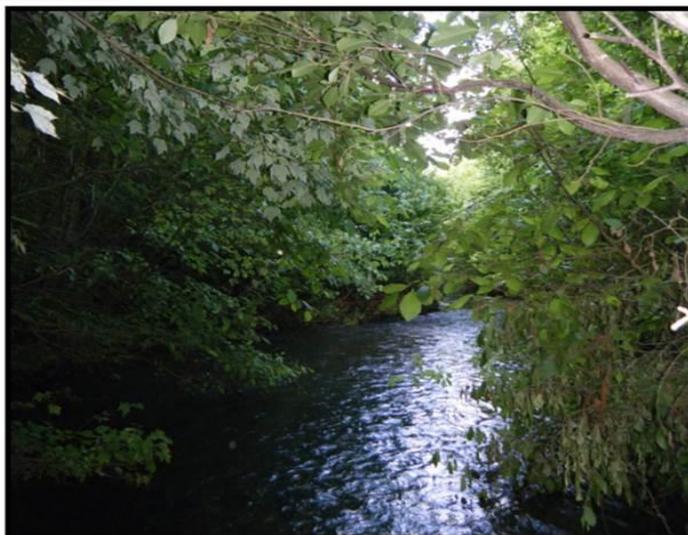
Dating back to the 1850s, the Lower North Potato Creek watershed, part of the Copper Basin in Polk County, was a site of extensive copper mining and processing. To improve water quality, biological integrity, and diversity, Glenn Springs Holdings Inc. removed and isolated waste materials, constructed passive and active water treatment systems, captured poor quality water for treatment, diverted water of good quality, enhanced vegetation and wildlife habitat, and restored stream segments and wetlands. Fences have also been installed and are maintained to restrict access to designated subsidence areas. In 2014, modifications were made to allow North Potato Creek to flow directly to the Ocoee River without treatment. This was the first time since the 1800s that North Potato Creek has flowed to the Ocoee River without polluting it.



*2015 Award
Winner for
Natural
Heritage*



Before



After

Former Manufacturing Plant - LaVergne

A North American plumbing and building products manufacturer announced in July that it will build its first new U.S. manufacturing facility in 25 years in middle Tennessee. The manufacturer of bathroom and kitchen fixtures and fittings plans to invest \$22 million and create about 600 new jobs at the distribution and manufacturing complex in LaVergne. The Division of Remediation played a key role in facilitating the readiness of a former manufacturing facility into a brownfield-ready site. From the Nashville Business Journal: "The fact that there was an available facility shortened the time frame," the company CEO said. "Building a facility was an additional 18 to 24 months." The plant should be operational late this year and at full capacity by late 2016, employing around 600.

Redevelopment efforts bring 600 new manufacturing jobs to TN

South Knoxville Waterfront Redevelopment

Several properties along the South Waterfront of the Tennessee River in Knoxville are currently in the demolition and redevelopment stages, where former uses of these properties included gas stations, car repair stops, various industries and a major hospital facility. The former hospital facility sat idle and vacant since 2008. Environmental assessments of the properties



South Knoxville Waterfront during Demolition

were critical to spur redevelopment and were done under the City of Knoxville's EPA Community Wide Brownfield 104(k) Assessment grant, where DoR staff provided technical oversight of this grant. These environmental assessments were vital to the purchase of the properties by the private sector and subsequent redevelopment efforts that are currently underway. Several of these

properties are now entered into the Voluntary Program as a direct result of the EPA grant and DoR technical oversight. Some of the plans for the properties are to include a mixture of uses such as extending the city's river walk, increasing open space, and allowing more access to the river, in addition to mixed use commercial redevelopment.

The Standard at Knoxville

The Standard at Knoxville is a brownfield redevelopment in the Fort Sanders area near the University of Tennessee Campus. Formerly occupied by Neel's Produce and an automotive service garage, the site has been converted into a multi-residential apartment complex. The developer worked with the Division to properly segregate and manage the impacted soils and storm water runoff during construction. Approximately 25,000 tons of soil were hauled off-site and disposed of in a special waste landfill, and approximately 227,000 gallons of excavation



Former Neel's Produce

and illegal dumping, it is now an appealing feature of the Fort Sanders community, fitting nicely into a neighborhood that has undergone tremendous redevelopment in the previous decade as the nearby University of Tennessee continues to grow, and housing of this type is highly sought after by the student population.

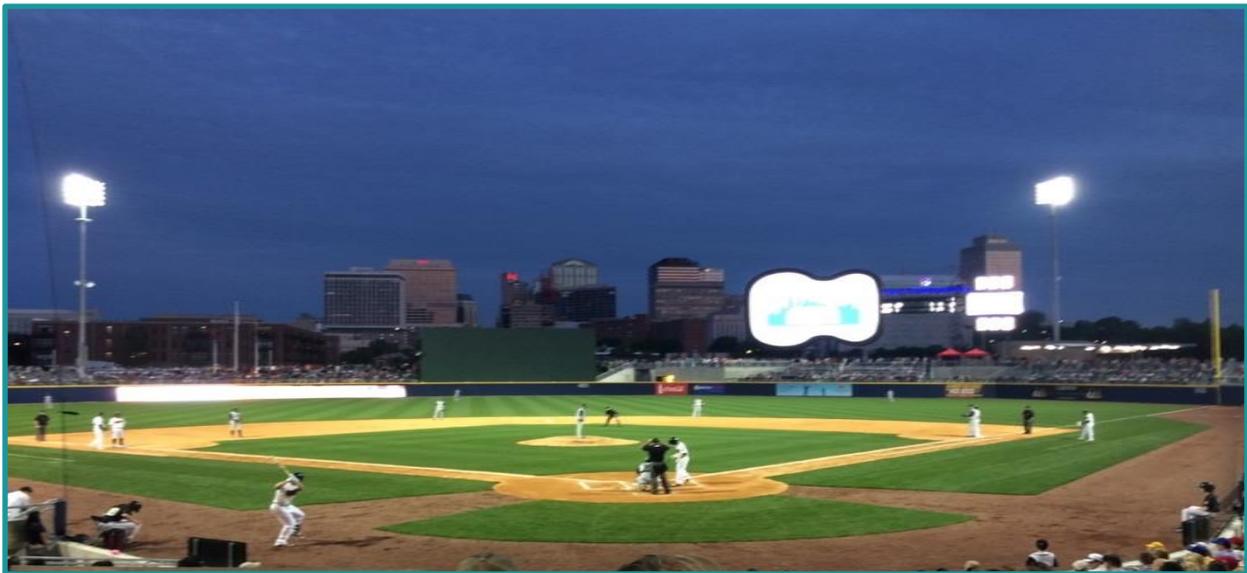
water was discharged under permit to the municipal sanitary sewer system. Areas not covered by asphalt or concrete construction or building foundations were covered with a cap of compacted low permeability clay. All buildings intended for human occupancy were equipped with an engineered vapor barrier and venting system designed to intercept any subsurface vapor and prevent it from migrating into the structures. Formerly a blighted property attractive to vagrants



The Standard at Knoxville Today

Nashville Germantown Area Redevelopment

In the 1840s, the Germantown community in Nashville began flourishing by blending its German heritage with Irish, Italian, Swiss and Jewish neighbors. With this, North Nashville became the focus of German immigration in Tennessee, and its leaders influenced the architecture, politics, and history of the city and state. A 1970 study by the Metropolitan Historical Commission stated: "A large percentage of structures are still intact and it can become a viable neighborhood. The quality of architecture is exceptional, and the condition of the structures is, for the most part, quite sound."



Opening Night for the Nashville Sounds at First Tennessee Park

The eight-block area contains a wide variety of styles and types of residences built between the 1840s and 1920s. In recognition of its historical and architectural significance, Germantown was listed on the National Register of Historic Places in 1979.

There are currently seven active or completed Brownfield voluntary projects in the Germantown area, including First Tennessee Park, the Carillion Apartments, a new State parking garage, the Broadstone Germantown apartments, the former Nashville Gas Co. Storage lot property, 909 Flats, and the former Stockyards property. At each of these projects, DoR worked with or is currently working with the owner or developer to identify contamination which may have had the potential to delay or complicate the redevelopment work, and to develop strategies to address the contamination (both during and after construction). DoR anticipates working on at least five future projects, including the proposed new State Archives and State Museum buildings.

University Commons Retail Center - Knoxville

The former Robert Shaw/ Fulton Bellows and Components manufacturing plant site in Knoxville has been reborn as the new University Commons Retail Center and has brought life back to the former metal workings and foundry location. For 88 years, the plant churned out industrial bellows used in machinery, aircraft, and medical equipment before shutting down in 2005. All that remained of the site after 2005 was a large concrete slab and a lot of memories. With the goal of revitalizing a blighted brownfield site into a productive retail center that would bring much-needed jobs and businesses to the area, the one-of-a-kind University Commons was born. Along with new Publix and Walmart stores and many more businesses, University Commons will serve as a depot for “Lindy,” a 1925 Baldwin Steam Engine train operated by Three Rivers Rambler, which conducts historical train journeys.



Environmental Timeline (Courtesy of www.shopuniversitycommons.com)

During years of heavy manufacturing, the site became contaminated with metals and solvents in both soil and groundwater. DoR worked with the developers to address contamination through a combination of remediation, land use restrictions, and unique building design elements. University Commons will make a positive impact on the community for years to come.



Aerial Photo of the new University Commons

U.S. Environmental Protection Agency

The Hazardous Waste Remedial Action Fund has historically funded the State match on EPA Fund Lead National Priority List (NPL) sites. A number of EPA Fund Lead sites are ongoing or anticipated in the very near future. Therefore it is anticipated that significant resources from the Hazardous Waste Remedial Action Fund will be required not only to support ongoing program activities but to also cover State matches on EPA Fund Lead NPL sites.

Superfund State Contracts (SSC)

Investigation and remediation of sites listed on the U. S. Environmental Protection Agency (EPA) National Priority List (NPL) may be financed by either the Potential Responsible Party (PRP), or in some cases by the EPA. Except for a special case where either the State or a political subdivision of the State operated the site during disposal of the waste, EPA finances 100% of the investigation of EPA-financed NPL sites. After investigation, remedy selection, and remedial design are complete, Federal law requires that for sites financed by Federal funds, the EPA and the State effectuate a Superfund State Contract (SSC) prior to EPA obligating or expending funds for remedial action. The SSC must include the percentage of the remedial action financed by EPA (typically 90%) and by the State (typically 10%), and other assurances, such as the State committing to finance 100% of operation and maintenance (O&M) for as long as O&M is needed.

*NPL sites
require a 90/10
Federal-State
funding match.*

“The President shall not provide any remedial action...unless the state in which the release occurs first enters into a contract or cooperative agreement with the President providing assurances...”
CERCLA § 104(c)(3)

An SSC is a joint, legally binding contract between the EPA and a State and is enforceable in federal court. The Department of Environment and Conservation reports estimated costs in Government Accounting Board Standard 49 (GASB 49) reporting for SSCs and anticipated SSCs. The Department strives to manage and budget State obligations for SSCs through the Hazardous Waste Remedial Action Fund. Currently, two federally-financed NPL sites are being remediated through negotiated SSCs with U.S. EPA.

Smalley-Piper - Collierville

The Smalley-Piper Site is nine acres in size and is comprised of a self-storage facility, concrete buildings, metal storage buildings, a vacant lot and a paved parking area. From the 1950's to the 1980's, various industrial activities, including magnesium battery casing manufacturing, were conducted at the site. Battery casing treatment performed by previous owners used caustic soda, acetic acid, chromium acid and water. These wastes generated from facility operations were treated in unlined on-site equalization ponds with liquid sulfur dioxide. However, the waste in the ponds received inadequate treatment resulting in contamination of soils, surface water, and groundwater in the Memphis aquifer, culminating with the shutdown of the nearby Collierville Water Plant #2 in December 2003.



Soil Flushing

These on-site equalization ponds were closed in the early 1980s and all on-site operations at the facility ceased in 2007.

The second amendment of the Smalley-Piper SSC addresses soil remedy and a soil flushing component. These remedies have a current total estimated cost of \$9,000,000, with the State's 10% match being \$900,000. As of June 30, 2015, the State has paid \$209,848 of the matching funds. Contaminated groundwater is extracted and treated by chemical reduction, precipitation and ion exchange modules. Much of the treated water will then be re-injected into the former source area via the infiltration gallery. The intent of the soil flushing remedy is to reduce the contaminant concentrations that remain in soil which may continue to leach into groundwater.

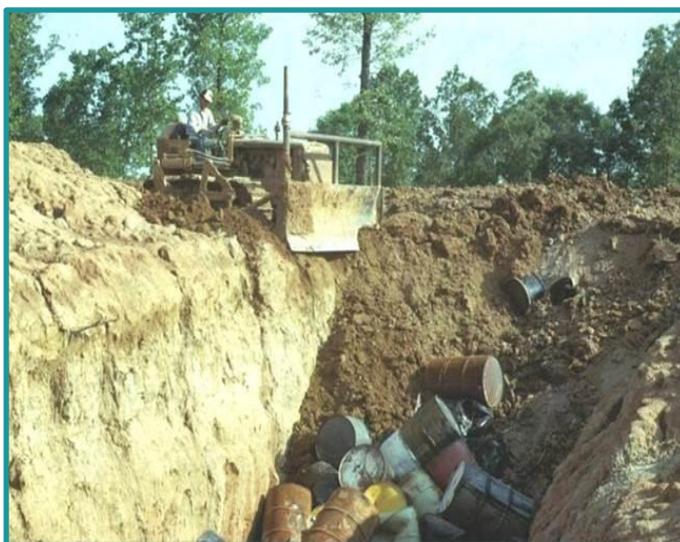


Remedial Action On-Going

Velsicol/Hardeman County Landfill - Toone

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. Most of 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. Around 2003, a Groundwater Extraction and Treatment System (GETS) was determined ineffective and was discontinued in order to evaluate other remedial alternatives. Additional pilot studies have shown that soil vapor extraction along with access restrictions, cap extension and cap maintenance should be effective in controlling the source area. Additionally, the 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.

During September 2014, The Department negotiated two SSCs with the EPA on the Velsicol Hardeman County Landfill, with combined capital costs and remedial action treatment and monitoring costs of \$55,378,775. EPA will fund 90% of these



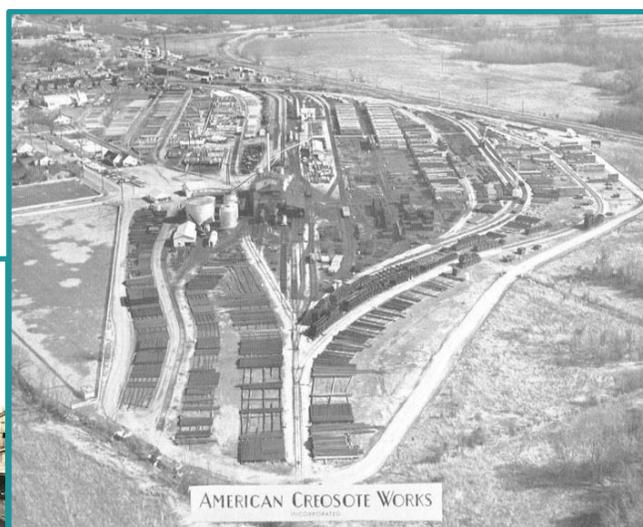
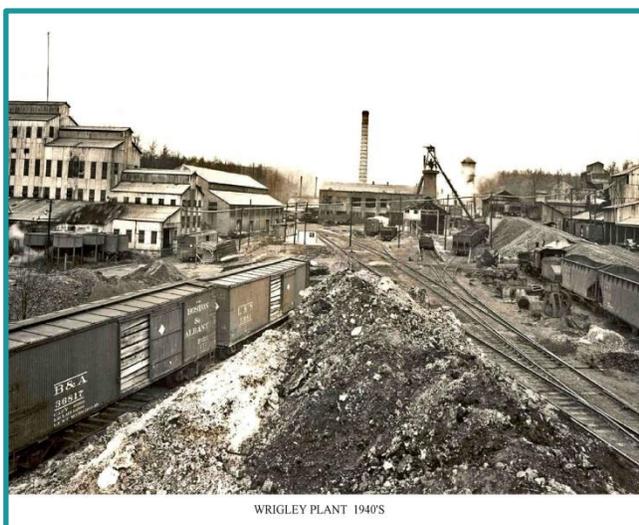
Historical Photo from Landfill

costs and the State will fund the remaining 10% (about \$5,537,877). The State portion is broken down into an initial \$1,000,000 payment that was paid in FY 2014-2015 and an additional seventeen annual payments of \$255,159 plus approximately \$415,000 for cap extension and repair. The Department also provided assurance in the SSC that it will inspect, mow, and maintain the CERCLA-funded landfill cap and fence throughout its expected life. The soil vapor extraction SSC also includes a monitoring component to help understand whether additional future remedial actions will be needed.

Currently, the landfill cap extensions and drainage improvements are being constructed. Additionally, a previously undiscovered landfill trench was found and added to the project scope. This new area has been capped and soil vapor extraction has effectively been implemented to address this new disposal area.

U.S. EPA National Priorities List (NPL) Sites in TN

County	City	Site
Anderson	Oak Ridge	Oak Ridge Reservation
Carroll	Milan	Milan Army Ammunition
Crockett	Alamo	Alamo Contaminated Groundwater
Fayette	Rossville	Ross Metals
Hamilton	Chattanooga	Tennessee Products
Hardeman	Toone	Velsicol
Hickman	Wrigley	Wrigley Charcoal
Knox	Knoxville	Smokey Mountain Smelters
Lawrence	Lawrenceburg	Murray- Ohio
Madison	Jackson	American Creosote
Shelby	Arlington	Arlington Blending
Shelby	Memphis	Carrier
Shelby	Memphis	Memphis Defense Depot
Shelby	Collierville	Smalley-Piper
Shelby	Collierville	Walker Machine Products
Wayne	Waynesboro	Mallory Capacitor



Department of Energy - Oak Ridge Reservation

The Oak Ridge Reservation (ORR) site is approximately 34,000 acres and includes three major U.S. Department of Energy (DOE) facilities: the East Tennessee Technology Park (formerly K-25), the Y-12 National Nuclear Security Complex, and the Oak Ridge National Laboratory (ORNL). The ORR is listed on both the U.S. Environmental Protection Agency's (EPA) National Priority List (NPL) and Tennessee's promulgated hazardous substance site list as a result of waste disposal and operations. Oak Ridge was an important part of the effort to win World War II and a key player in Cold War era weapons research and production. As a result of DOE's activities, many environmental challenges exist at the reservation today.



Oak Ridge National Laboratory



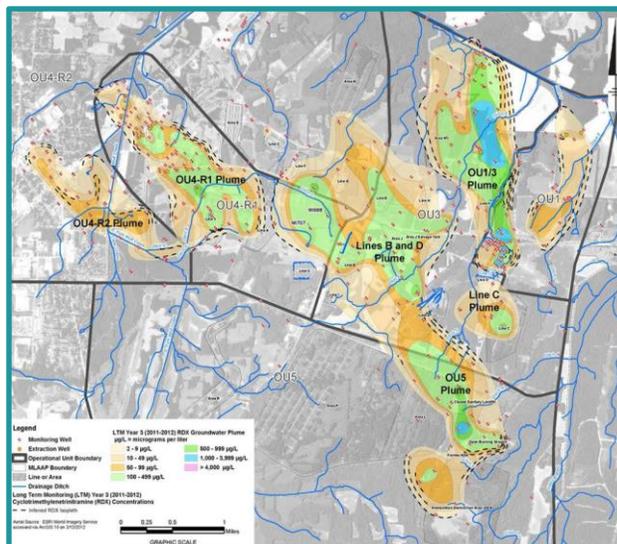
Y-12 National Nuclear Security Complex

DOE, EPA, and TDEC worked under a Federal Facilities Agreement on a number of items including building decommissioning and demolition, waste disposal, developing a path forward to limit additional downstream mercury pollution during the decommissioning and demolition of a portion of the former mercury use area at Y-12 and sampling of select offsite residential water wells near the Oak Ridge Reservation. TDEC also performed additional oversight of DOE activities under the Tennessee Oversight Agreement and waste treatment under the site treatment plan.

Department of Defense

Milan Army Ammunition Plant (MAAP)

In July, 2014, the Final Site-Wide Groundwater Record of Decision was signed for the Milan Army Ammunition Plant site in Milan. This document, signed by the Army, EPA, and TDEC, implements a groundwater remedy across 4,500 acres that establishes a national cleanup standard for RDX, a munitions related contaminant and restores groundwater across the site to unrestricted use in 60 years. The team was awarded a 2015 Bronze Award by EPA Region IV for this remedy.



MAAP Contaminated Plume Map

Photos Credits:

Cover page: Train Derailment photo by Michael Patrick, Knoxville News Sentinel.
 Page 4: Atmos Energy Photo courtesy of Atmos Energy
 Page 4: Memphis Defense Depot Photo courtesy of wikimapia.org.
 Page 12: Riverfront Landing Concept by Nashville Parks.
 Page 12: Ascend Amphitheater courtesy of NewsChannel5.com.
 Pages 17 and 23: Photos courtesy of www.shopuniversitycommons.com.
 Page19: Remedial Action courtesy of U.S. EPA.
 Page 21: Both courtesy of U.S. Department of Energy.
 Page 23: Wrigley Charcoal courtesy of wrigleytennessee.com.
 Page 26-28: Photos courtesy of U.S. Department of Energy.



University Commons Retail Center

State List of Inactive Hazardous Substance Sites

List of Inactive Hazardous Substance Sites

Similar to the U.S. EPA National Priority List, TCA 68-212-206e establishes a state Inactive Hazardous Substance Site list. This list, promulgated as of April, 2015, includes the following:

County	City	Site
ANDERSON	Oak Ridge	DOE Oak Ridge
	Oak Ridge	Dupont Smith/ Atomic City
	Clinton	Anderson County Landfill
BLOUNT	Alcoa	Aluminum Co. of America
	Alcoa	Aluminum Co. of America
BRADLEY	Cleveland	Duracell Inc.
CARTER	Elizabethton	American Bemberg Plant
	Elizabethton	Old Bemberg Bldg.
COCKE	Newport	Arapahoe/ Rock Hill Labs
	Newport	Newport Dump
	Newport	Wall Tube and Metal
DAVIDSON	Nashville	Stauffer Chemical
	Nashville	Municipal Landfill
FAYETTE	Rossville	Ross Metals
FRANKLIN	Tullahoma	AEDC
GIBSON	Milan	ITT Telecommunications
HAMBLEN	Morristown	BASF/ Stauffer Chemical Co.
	Morristown	Old Morristown-Hamblen Co. Landfill
	Morristown	Neblett Road Dump
	Morristown	Pine Brook Road Dumb
HAMILTON	Chattanooga	Velsicol/ Residue Hill
	Chattanooga	Montague Park
	Chattanooga	Hamill Road Dump #3
	Chattanooga	Chattanooga Coke
	Chattanooga	North Hawthorne Dump
	Chattanooga	USVAAP
	Chattanooga	Chattanooga Creek
	Chattanooga	Mor-Flo Industries, Inc.
HARDEMAN	Chattanooga	Morningside Chemicals
	Chattanooga	National Microdynamics (Lutex Chemical)
	Chattanooga	Tennessee Transformer
	Chattanooga	Electro-Lite Battery
	Toone	Velsicol Chemical
HENRY	Paris	Henry County Boneyard
HICKMAN	Wrigley	Wrigley Charcoal

County	City	Site
JEFFERSON	Jefferson City	Hodgson, Hollis
KNOX	Knoxville	Witherspoon Landfill
	Knoxville	Badgett Road Landfill
	Knoxville	Southern Rail/ Coster Shop
	Knoxville	Foote Mineral/ Cas Walker (Dante)
	Knoxville	Screen Art, Inc.
	Knoxville	Witherspoon Recycling
	Knoxville	Sanitary Laundry & Dry Cleaning
	Knoxville	Roscoe Fields Property
	Knoxville	Smokey Mountain Smelters
	Knoxville	Dixie Barrel & Drum Co.
LAWRENCE	Lawrenceburg	Murray-Ohio Landfill
	Lawrenceburg	Lawrenceburg Horseshoe Bend
	Lawrenceburg	Former Murray Ohio Plant
LOUDON	Greenback	Greenback Industries
	Lenoir City	Lenoir City Car Works
MADISON	Jackson	American Creosote Works
	Jackson	Porter Cable
	Jackson	Boone Dry Cleaners
MARION	Whitwell	North American Environmental
MARSHALL	Lewisburg	Heil Quaker Corp.
	Lewisburg	Lewisburg Dump
MAURY	Mt. Pleasant	Stauffer Chemical Co.
	Columbia	Monsanto
MONROE	Madisonville	Red Ridge Landfill
POLK	Copperhill	Apache Blast
PUTNAM	Cookeville	Putnam County Landfill
ROANE	Rockwood	Roane Alloys
	Rockwood	Rockwood Iron & Metal
	Rockwood	Joyner Scrap Yard
RUTHERFORD	Murfreesboro	Old Murfreesboro City Dump
SHELBY	Arlington	Arlington Blending
	Memphis	Bellevue Avenue Landfill
	Memphis	Cypress Creek
	Memphis	International Harvester
	Memphis	W. R. Grace & Co.
	Memphis	Chickasaw Ordinance Works
	Memphis	Carrier Corporation
	Memphis	Nilok Chemical Company
	Memphis	Chapman Chemical Co.
	Memphis	Diesel Recon Co.
Memphis	North Hollywood Dump	
Memphis	Memphis Public Works/ Jackson Pits	
	Collierville	Smalley-Piper

County	City	Site
	Millington	Pulvair Corporation
	Memphis	Old Osmose Chemical
	Memphis	John Little/ Drum
	Memphis	61 Industrial Park Site
	Memphis	Tennessee Air National Guard
	Memphis	Creotox Chemical Company
	Memphis	Fiberfine of Memphis
	Memphis	Warfield Place/ Pulvair
SULLIVAN	Bristol	Sperry/Unisys
	Bristol	Earhart
UNICOI	Embreeville	Bumpass Cove Landfill
	Erwin	Bumpass Cove - Fowler
	Erwin	Morrell Electric, Inc.
WARREN	McMinnville	Century Electric Facility
WASHINGTON	Johnson City	Cash Hollow Dump
WAYNE	Waynesboro	Mallory Capacitor Co.
		Waynesboro City Dump
WILSON	Lebanon	TRW/ Ross Gear Division



Lenoir City Car Works Historical Photo



Lenoir City Car Works Post-Remediation

Division of Remediation Contact Information

www.tn.gov/environment/section/remediation

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Regional Offices located in:

Knoxville, Oak Ridge, Chattanooga, Nashville, Jackson, Memphis

Division of Remediation

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Oak Ridge Office (Oak Ridge Reservation)

Chris Thompson	Deputy Director	(865) 220-6598
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Environmental Field Offices

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Ken Johnson	Regional Manager - Middle	(615) 687-7032
Jordan English	Regional Manager - West	(901) 371-3039

Voluntary Program

Evan Spann	Program Coordinator	(615) 532-0919
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Brownfield Grant Assistance

Paula Larson	Grants & Outreach Coordinator	(615) 532-0926
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Dry Cleaner 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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