

FY2024
HAZARDOUS WASTE
MANAGEMENT FUND
A Report to the General Assembly



ENERGY AND
ENVIRONMENT CABINET

Department for Environmental Protection
Division of Waste Management
502-564-6716

<https://eec.ky.gov/Environmental-Protection/Waste/Pages/default.aspx>

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EEC MANDATE

This report has been prepared as required by KRS 224.46-580(13)(c). The purpose of this report is to provide information related to the Commonwealth's Hazardous Waste Management Fund (HWMF). Specifically, the report includes information related to the expenditures and revenues of the Hazardous Waste Management Fund for Fiscal Years (FY) 2023 and 2024.

KRS 224.46-580(13)(c): "The cabinet shall file with the Legislative Research Commission a biennial report, beginning two (2) years after July 15, 2008, on the revenues and expenditures of the fund."

HISTORY AND PURPOSE OF FUND

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was enacted by Congress in 1980 in response to the threat of hazardous waste sites. The two sites that caused the need for this legislation were Love Canal in upper New York state, and A.L. Taylor, Distler Farms (also known as the Valley of the Drums) in Shepherdsville, Kentucky. Precipitated by the discovery of the A.L. Taylor, Distler Farms site, the Kentucky State Superfund Program was initiated in 1981. There have been more than 6,558 sites that have been investigated, characterized, cleaned up, or are being investigated, remediated, or under long-term management since the program started. The Superfund Program maintains an inventory of these Superfund sites (See Figure 1).

In 1980 the General Assembly created the HWMF to provide the Energy and Environment Cabinet with the funds necessary to protect the health of the citizens and environment of the commonwealth from threats associated with releases of hazardous substances, pollutants, and contaminants. Since then, almost \$85.0 million has been spent remediating 611 contaminated sites, making the Commonwealth of Kentucky a cleaner and safer place to live. In FY2023 and FY2024, the cabinet registered 79 new Superfund sites and oversaw remediation of 93 sites. In addition, the cabinet performed 692 technical site reviews, supervised managed closures for 320 sites, and designed and managed state-lead actions at 36 sites. Additionally, the cabinet finalized state-lead actions that resulted in the closing of 11 state-lead sites.

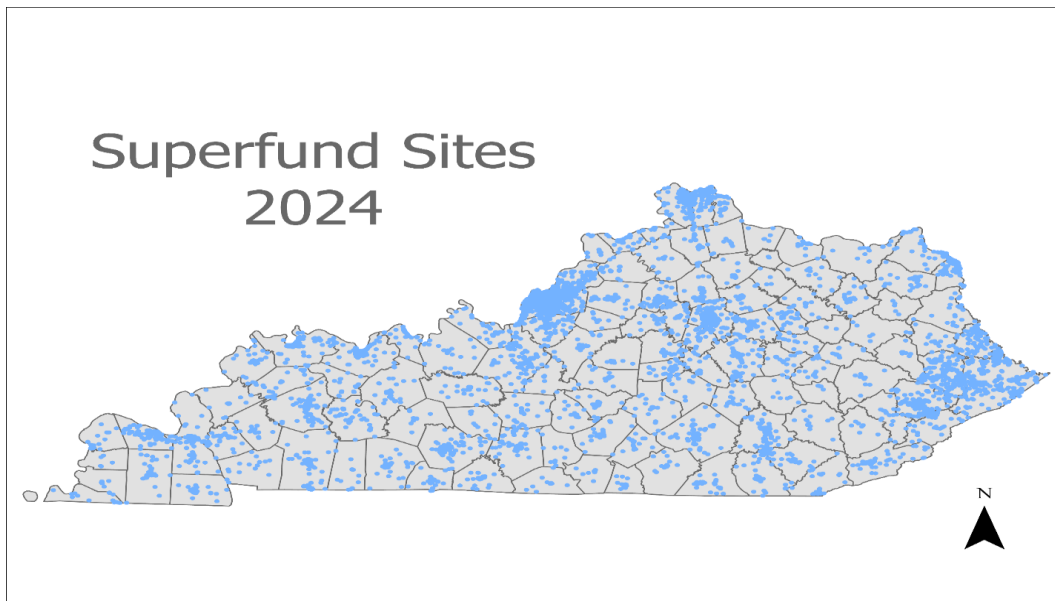


Figure 1: Active, Managed, and Closed Superfund Sites in Kentucky

With the exception of recent appropriated money from the legislature for high-cost remedial actions, the HWMF is the sole source of funding to clean up sites where a release of hazardous substances, pollutants, or contaminants has been discovered where no viable responsible party is available. Specifically, HWMF funds are used throughout the Commonwealth for:

- Response to emergencies with releases of hazardous substances, pollutants, and contaminants;
- Assessments and remediation of contaminated sites where a viable responsible party cannot be identified;
- Technical reviews and oversight of state-lead and responsible party-driven remediation projects; and
- Provision of core funding for the Kentucky Pollution Prevention Center’s (KPPC) technical assistance and outreach services as part of the University of Louisville’s J.B. Speed School of Engineering.

To date, the HWMF has cumulatively provided more than \$11.4 million in funding for the Kentucky Pollution Prevention Center (KPPC). KPPC was established in 1994 to provide technical assistance to business and industry and promote pollution prevention technologies and procedures. The HWMF contributes a percentage of the assessment fee receipts to KPPC annually per the statute KRS 224.46-330 (Appendix, Table 3). For specific activities performed by KPPC, visit <https://kppc.org/>.

During the 2008 legislative session, a requirement was added that tasks the cabinet to submit a biennial report regarding HWMF revenues, related activities, and expenditures. During the 2023

session, the General Assembly passed House Bill No. 222 to extend the HWMF assessment fee through 2032.

REVENUES

The HWMF sources of revenue include the hazardous waste generator assessment fees, transfers from the Petroleum Storage Tank Environmental Assistance Fund (PSTEAF), Brownfield Redevelopment Program application fees, interest earned on the HWMF account, cost recoveries (monies recovered from responsible parties), returns from investment and capital closeout accounts (Appendix, Table 2).

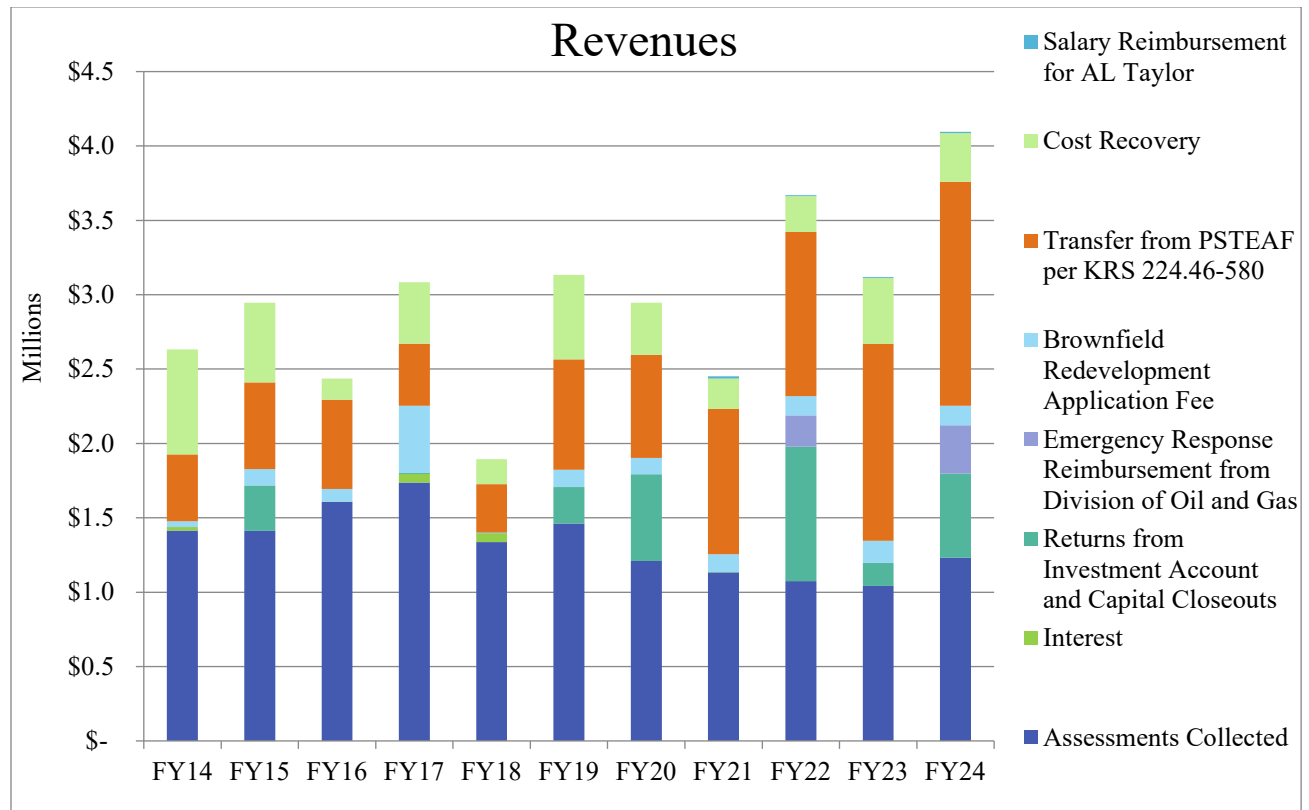


Figure 2: HWMF Revenues for FY2014 – FY2024

HAZARDOUS WASTE GENERATOR ASSESSMENT FEE

The hazardous waste generator assessment fee is authorized as established in KRS 224.46-580(8) and is collected from generators of hazardous waste at the rate of one and two-tenths cents (\$0.012) per pound for liquid waste and two-tenths of a cent (\$0.002) per pound for solid waste.

During the last twenty years, there has been an overall steady decline in revenue generated annually through the HWMF assessment fee.

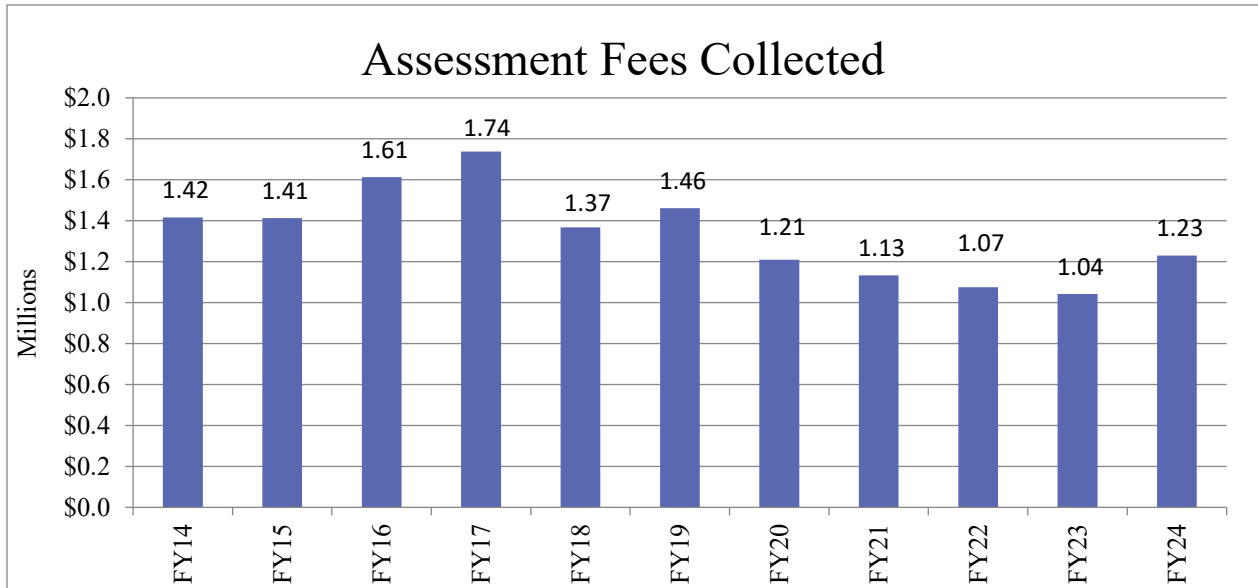


Figure 3: HWMF Assessment Fee Revenues FY2014 - FY2024

Factors which contribute to the decline in assessment fees include amendments to KRS 224.46-580 that provide these exemptions:

- Emission control dust and sludge from the primary production of steel that is recycled by temperature metals recovery or managed by stabilization of metals, effective 2004;
- Assessment fee waiver granted for hazardous waste generators owing less than fifty dollars (\$50), effective 2006;
- Waste that is delivered from the generator to an industrial boiler or furnace and burned for energy recovery shall be assessed at half the rate of the assessment, effective 2008.

Other declines in revenue can be explained by companies filing for bankruptcy, companies moving their operations out of state, a decline in the number of generators, and increases in waste minimization and recycling efforts. In recent years, the cabinet’s cost recovery efforts have assisted in offsetting some of the decline in assessment fee revenue.

EXPENDITURES

The Superfund Program, pursuant to KRS 224.1-400 and KRS 224.1-405, evaluates and oversees the cleanup of waste sites contaminated by the release of hazardous substances and petroleum, other than regulated underground storage tanks, that are risks to human health and the environment. In some cases, this means overseeing companies or individuals who have taken responsibility for cleaning up contamination found on their property. In many other cases where a responsible party cannot be found or is unable to act, the Superfund Branch takes a direct role in cleaning up a site. Abandoned hazardous waste sites are cleaned up using the Hazardous Waste Management Fund established under KRS 224.46-580. Additionally, pursuant to KRS 224.1-415, the Superfund Program is responsible for the safe and productive redevelopment and

reuse of sites and properties on which releases have occurred, residual contamination remains, or there is the perceived presence of releases. The program promotes and assures this by evaluating and approving voluntary remedial actions and property management plans.

The cabinet also utilizes HWMF monies to provide technical reviews and oversight of state-lead and responsible party-driven remediation projects. Many of these projects result from previous heavy industrial activities such as wood treatment, metals plating, chemical production, and dry cleaning.

The cabinet directly manages (state-lead) the cleanup of contaminated sites if there are no viable responsible parties. When a significant amount of remediation is necessary, a capital project account is created and utilizes the HWMF (Appendix, Table 4). A capital project may include site investigation, site remediation, or a declared environmental emergency; typical costs range from \$20,000 to several millions of dollars per site. The costs may extend over multiple years, and do not include expenses for long-term monitoring, maintenance, operation, or costs for resources required at sites unable to achieve acceptable clean-up levels (i.e. unrestricted use). Project scope reductions or completions below projected costs will result in transfers of dollars back into the HWMF. Currently, due to limited funding, capital project expenditures are very minimal. HWMF expenditures have declined in direct proportion to the decline in revenue available. Figure 4 displays FY2014-2024 HWMF expenditures from data in Appendix Table 3 and FY2023-2024 Emergency Responses derived from emergencies included in C1H6, CB2B and CAPR totals in Appendix Table 4.

The cabinet provides a service to the citizens of Kentucky through technical and professional oversight activities ensuring emergency response and cleanup projects are properly conducted. Cabinet personnel response typically includes the following:

- Contracting for and conducting state-lead cleanups in the role of an absentee responsible party;
- Assisting responsible parties in the cleanup of their sites, and
- Participating in emergency responses.

With the exception of the AL Taylor site, which utilizes an established fund by the Responsible Parties and the Consent Decree, the HWMF is also used to fund oversight and maintenance activities on federal Superfund sites that have been delisted by the United States Environmental Protection Agency (EPA). These sites are known as National Priority List (NPL) sites. The expenditures are likely to increase over time as more federal sites are delisted or reach the legal lifespan of federal oversight.

Large capital projects are a key component of state-lead oversight that the cabinet performs, but small, remedial actions can be equally important; they constitute a substantial volume of the remediation work performed. These corrective actions include anything from site

characterization to remediation. Sites requiring cleanup can range from causes such as wire burning operations, collection, and disposal of mercury waste and transformer spills, to industrial chemical spills, and the removal and disposal of abandoned drums. Some of the contaminants discovered at these sites include toxic heavy metals, including lead, arsenic, and mercury, or toxic or cancer-causing chemicals, such as polychlorinated biphenyls, benzene, and trichloroethylene. These sites have a strong potential to be immediately dangerous to residents, wildlife, and vegetation, and they pose long-term threats to both the public and the environment. To compound the problem, these sites are typically located along highways or waterways, which are easily accessible to people.

The Emergency Response Team (ERT) is tasked with responding to environmental emergencies including petroleum releases, landfill fires, train derailments, tanker truck releases, industrial chemical releases, crude oil releases, and many other environmental issues requiring immediate attention. During FY2023 and FY2024, ERT received 20,934 notifications; 817 required an emergency response. Of those, 9 were declared an emergency and addressed using HWMF monies. Superfund site remediation and responses to emergencies throughout the commonwealth are costly expenditures.

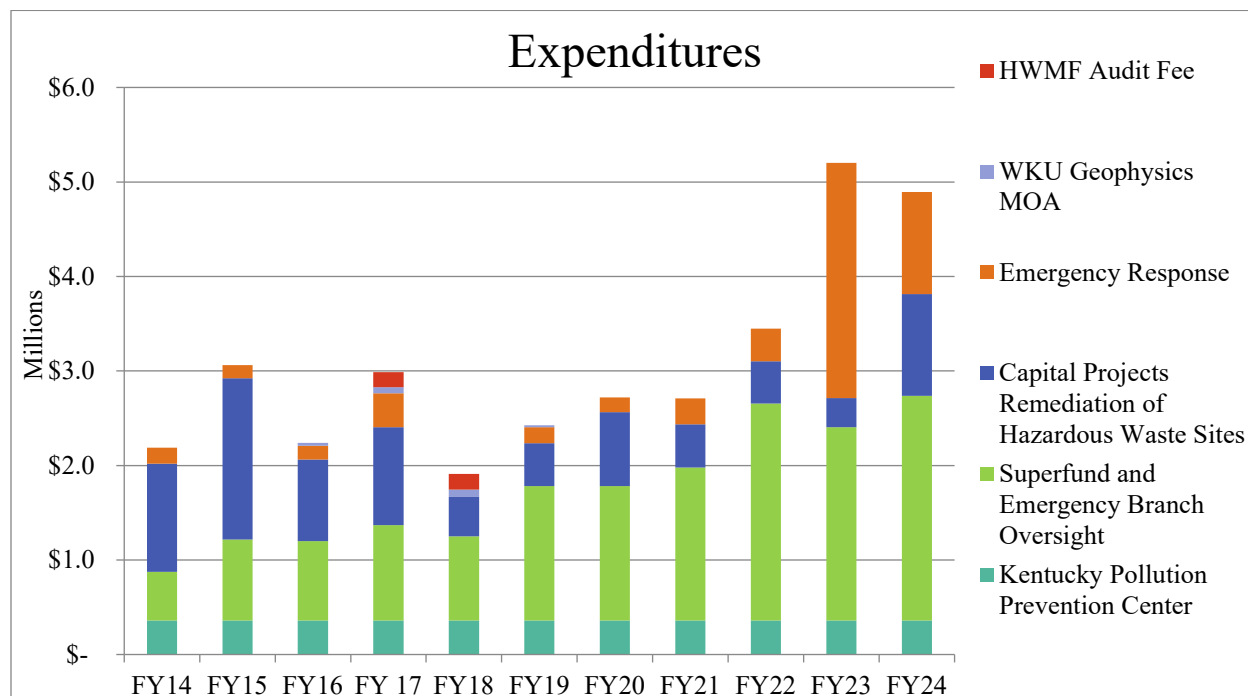


Figure 4: HWMF Expenditures FY2014 - FY2024

EMERGENCY PROJECTS

These projects typically consist of short-term immediate actions to contain and, if necessary, remediate a release that poses an immediate hazard to human health or the environment. The following are examples of emergency incidents where the cabinet performed emergency actions to abate the immediate threat to human health and the environment.

***Fess Halcomb Lease Crude Oil Spill
Wentz, Perry County
Expenditures FY2024 - \$61,965.65***

This incident occurred because the loadout piping for the oil well’s storage tank had sustained damage during a previous, unreported incident. This caused crude oil to be released into Little Leatherwood Creek when the tank contents were offloaded. The release was discovered by a local resident and reported to the Cabinet on November 1, 2023. The identified responsible party (RP) declined to perform the measures necessary to contain and remediate the release, so the Cabinet initiated emergency containment and cleanup actions. The Cabinet also notified the United States Environmental Protection Agency (USEPA) to advise them of the situation and that Kentucky would be seeking financial assistance to address the release. An estimated 1,000 gallons of crude oil was released directly into Little Leatherwood Creek and impacted approximately 0.6 mile of the stream. An environmental contractor was hired to conduct cleanup of the impacted stream and recovered and disposed of approximately 12,000 gallons of crude oil impacted water. The Cabinet has sought, and received, recovery of monies expended through the United States Coast Guard via a Pollution Removal Funding Authorization (USCGPE24402).



Photo 1: Fess Halcomb Lease Crude Oil Spill, impact to Little Leatherwood Creek.

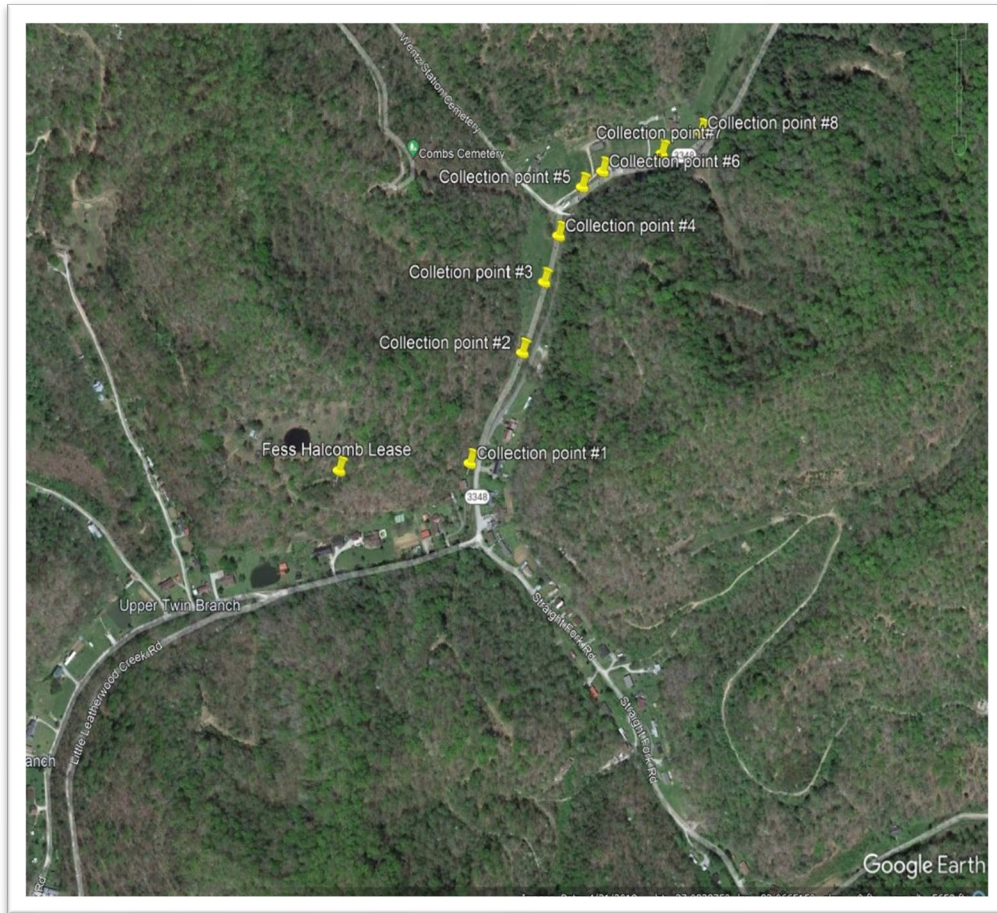


Photo 2: Fess Halcomb Lease Crude Oil Spill, map of impacted area.

***Kentucky Processing / Bowie Refined Coal
Irvine, Estill County
Expenditures FY2023 - \$673,726.01***

The Energy and Environment Cabinet’s (EEC) Emergency Response Branch and Superfund Branch took emergency action to address both confirmed and threatened releases identified at the abandoned KY Processing Prep Plant Bowie Refined Coal facility. This immediate action was taken due to active vandalism resulting in the uncontrolled release of poly chlorinated biphenyl (PCB) oil. The existing unsecured transformers at this site contained up to 30% PCB oil and one transformer was identified as having been partially scavenged resulting in a release of an estimated 100 – 200 gallons of the PCB oil. The release occurred adjacent to ponds that flow into the Kentucky River. PCB oil-impacted surface soils and sediment were mechanically transported by overland runoff resulting in an impact to the surface water drainages. In addition to the PCB transformers, numerous unsecured degraded chemical drums, open sumps containing petroleum- based products, degraded totes containing unknown oils, and PCB-containing electrical capacitors were also identified at this site and actions taken to secure the materials to prevent future release due to the active trespassing and vandalism identified at the facility. The

environmental clean-up contractor recovered approximately 400 gallons of PCB oil and 75 PCB containing electrical capacitors. All abandoned chemicals identified at the facility were secured, contaminated soils excavated and disposal performed.

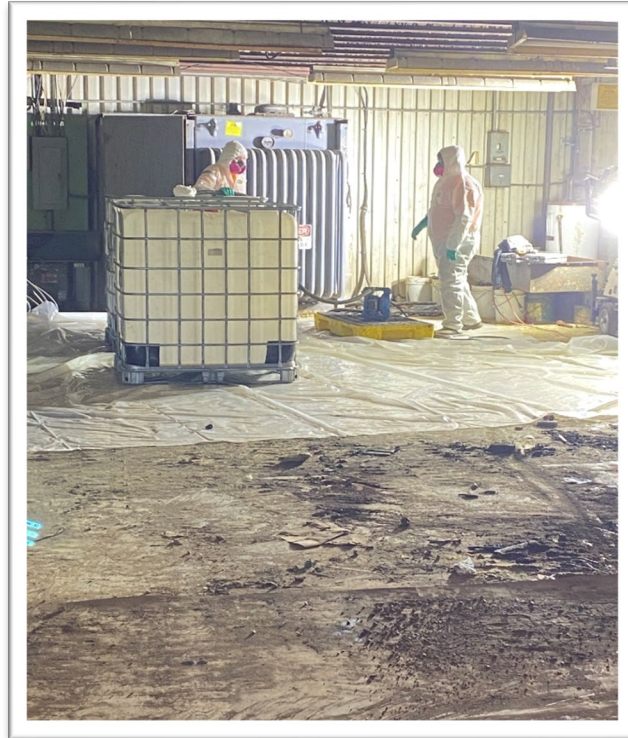


Photo 3: Kentucky Processing and Bowie Refined Coal, removal of PCB oil.



Photo 4: Kentucky Processing and Bowie Refined Coal, PCB contaminated soil excavation.



Photo 5: Kentucky Processing and Bowie Refined Coal, PCB contaminated soil excavation.

CAPITAL PROJECTS

These projects have ongoing remedial activities necessary to protect human health and the environment. Several projects are presented on the subsequent pages of this section. Figure 5 summarizes capital projects with expenditures for the period of FY2023-2024 with expenditures over \$20,000.

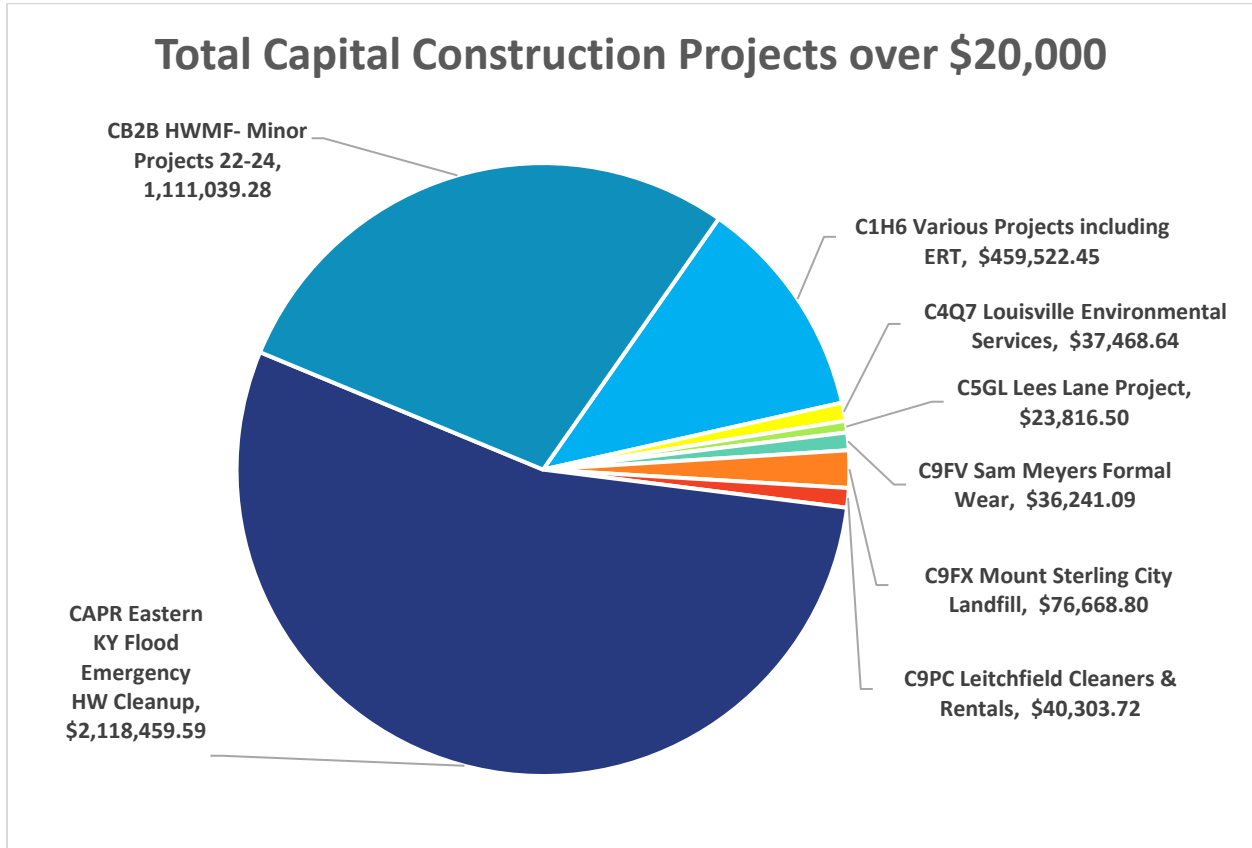


Figure 5: HWMF Active Capital Project Expenditures over \$20,000 FY2023-2024

SUPERFUND CAPITAL CONSTRUCTION PROJECTS

Capital Construction Projects are state lead projects that clean up properties with no viable owner. During this biennial much of the funding of capital construction was shifted to the temporary funds set aside by the legislature. This has allowed the Superfund Branch to start more projects and implement more costly projects. To spend the appropriated money in a timely manner, projects that were using HWMF were switched when possible. The Superfund Branch is in the process of shifting capital construction expenditures to temporary funds. This frees up more HWMF money to be utilized in emergency responses. During this biennial, over one million dollars were spent on projects that would have normally charged the HWMF. A few of the following sites were in progress and payments continued to charge HWMF.

Mount Sterling City Landfill (C9FX)

Mount Sterling, Montgomery County

Expenditures FY2024 - \$76,669

The site was initially assessed by DWM's Solid Waste Branch using funding from the Orphan Landfill fund. Historic documents suggested that considerable industrial wastes, particularly chlorinated solvents and barium, had been accepted by the landfill. Trichloroethene (TCE), an industrial solvent, was detected in a small seep located on the south end of the landfilled area. During 2021, Wood Environment & Infrastructure Solutions, Inc. was contracted to investigate the landfill under a Master Services Agreement. Although TCE was detected during the investigation, the concentrations and occurrence did not indicate removal actions and groundwater remediation were necessary. However, it was determined that improvements to the site grading and protective soil cap were necessary in order to limit infiltration of surface water and prevent exposures of buried waste. During early 2023, Tetrattech, Inc. was selected through an RFP to design and prepare bid specs for an improved site cover. To date, Tetrattech has completely approximately 60 percent of the design. So far, two invoices totaling approx. \$76,000 of the \$147,400 approved budget have been submitted. Once this phase of construction is complete, the construction phase will bill the appropriated funds set aside by the legislature.

Louisville Environmental Services (C4Q7)

Louisville, Jefferson County

Expenditures FY2024 - \$37,469

In-situ groundwater remediation was conducted during early 2021 using the HWMF. Post-remediation sampling indicated the groundwater monitoring wells were no longer necessary. The Superfund Branch contracted a certified well driller using a small construction purchase contract to abandon the 5 groundwater wells during early 2024 (\$32,700). Superfund employees continue to monitor the site by sampling the groundwater seeps present along the Ohio River Shoreline.

The results in Table 1 below are benzene shown in parts per billion. River Gauge is relative stage measurement in feet. The in-situ remediation project that was conducted during early March 2021 (marked in Table 1 as a bold red line).

Ohio River Shoreline Sampling				
Date	North Seep	Center Seep	South Seep	River Gauge
9/06/2023	0.389	< 0.5	< 0.5	10.38
10/19/2022	42	111	50.2	11.16
7/25/2022	23.1	11.5	45.5	11.22
9/14/2021	<0.5	45.5	64.4	11.47
5/27/2021	16.4	1.03	0.46	11.56
8/30/2019	190	25	38	10.69
7/15/2016	360	130	24	10.88
11/11/2011	750	<0.00018	180	11.79
11/9/2010	500	620	<5.0	11.32

Table 1: Ohio River Shoreline Benzene Sampling

Sam Meyer Formal Wear (C9FV)

Louisville, Jefferson County

Expenditures FY2024 - \$36,241

Groundwater impacted with perchloroethylene (PCE), a dry-cleaning solvent, was detected at the site during 2017 by a prospective purchaser. The property owner at the time was not financially able to address the site. The property was later purchased by an applicant to the brownfield redevelopment Program. The new owner was required to have a property management plan to safely use the property. However, the property owner was not required to address the contaminated groundwater. The Superfund Branch contracted GeoScience Environmental Consultants, Inc. during mid-2022 to conduct additional site characterization under a Master Services Agreement. During August 2022, GeoScience conducted soil and groundwater sampling at the site. Five (5) groundwater monitoring wells were installed during the project. During late 2023, Superfund also collected sub-slab soil gas and indoor air samples from the building above the groundwater contamination. The results did not indicate there was a risk for vapor intrusion into the building. The Superfund Branch determined that further groundwater assessment was unnecessary. Chase Environmental Group was contracted using a small purchase construction contract to abandon the monitoring wells in 2024. The abandonment work was performed for approximately \$4,000.

BROWNFIELD REDEVELOPMENT SITES

Brownfield Redevelopment is governed by KRS 224.1-415 and 401 KAR Chapter 102. This program allows for prospective purchasers and owners that have or had met the bona fide prospective purchaser defense as defined in 42 U.S.C. §§ 9601 (40), 9607 (r) to submit their environmental assessments and management plans to the Superfund Branch. The management

plans are based on the environmental assessments and certified by a registered engineer or geologist in the state of Kentucky. If the Superfund Branch concurs that the management plan allows for safe reuse, a notice of eligibility (prospective purchaser) or notice of concurrence (owner) is issued to the applicant. Application fees generated are allocated to the HWMF and pay for audits.

Lexington Community Land Trust Property – Davis Bottom

Lexington, Fayette County

Program Entry: 2014

The Newton Pike extension project had been planned for decades and sought to alleviate traffic and congestion by linking Newtown Pike with South Broadway Street and the University of Kentucky campus. The main obstacle to extending the road was strong opposition from groups, including Davis Bottom residents, who didn't want the road to pass directly through their community. Eventually, residents worked successfully with the Kentucky Transportation Cabinet (KYTC) and the Lexington Fayette Urban County Government to agree upon a path forward for the project.

In addition to extending the road, the plan was to construct a new neighborhood in stages referred to as the Southend Park Neighborhood Development. Many of the old homes in need of repair would be removed to make way for newly constructed modern homes that could be either purchased or leased at affordable prices. To ensure that the area would remain affordable, a new entity was created in 2008 called the Lexington Community Land Trust, a first of its kind trust in Kentucky. The trust would own and maintain the land thereby lowering the cost of home ownership in the area. Former residents would be given the first opportunity to purchase a home or rent one at a reasonable cost. The KYTC was responsible for preparing the site for residential use by grading the land, installing a sound barrier between the railroad and the subdivision, and installing the necessary infrastructure.



Photo 6: Recently Constructed Single Family Homes at Davis Bottom, Lexington, KY

Due to past and current industrial use of certain parts of the neighborhood, it was necessary to perform an environmental characterization of the site. Environmental investigations determined that certain portions of the site contained levels of lead and polyaromatic hydrocarbons that exceeded residential soil screening levels. Consequently, it was necessary for the KYTC to remove some surface contaminated soil. These areas were then covered with a minimum of three feet of certified clean soil. Since some contaminated soils likely remain beneath the clean soil cover, the land trust elected to enter the Kentucky Brownfields Program in 2014 soon after it had been established by regulation. In addition to providing the trust with CERCLA liability protection, the program placed Phase I of the development under a property management plan to help ensure that clean covered soils remain in place.

Since the start of the project much has happened. The Newtown Pike extension is complete and is named after the first man to win the Kentucky Derby, African American jockey Oliver Lewis. In addition, approximately 14 new residential developments have been completed in accordance with Phase I of the Southend Park Neighborhood Development plan and a new community park is in the works. Future phases of construction will serve to enlarge the neighborhood further and will provide additional amenities. Importantly, continued oversight that is an integral part of the brownfield's program will help to ensure that soil in the neighborhood remains safe for residential use.

***West Broadway YMCA & Perry Elementary School
Louisville, Jefferson County***

***Program Entry: YMCA of Greater Louisville 2017 and Jefferson County Public School Corp
2020***

The Republic Bank Foundation YMCA and Dr. William H. Perry Elementary School are located in the 1700 block of West Broadway in the West End of Louisville. These two redevelopments exemplify the mission of the Brownfield Redevelopment Program by showing that the Program allows for the revitalization of areas to the benefit of local communities.

From the early 1900s to 1995, a cigarette manufacturing facility operated on the lot. Afterwards, the property remained vacant through the early 2010s, when the on-site structures were demolished, and the site was regraded. As a result of the historical operations at the site, environmental site assessments revealed some contaminants of concern in soil. Lead foundry sand was also present in soils on-site.

Rather than continue to let the site remain vacant, plans were set in motion to revitalize the space into an area that would benefit the surrounding community. Two applicants applied for entry into the Brownfield Redevelopment Program and were approved: the YMCA in 2017 and Jefferson County Public Schools in 2020. The plan was to construct a new YMCA for the West End on the northern part of the site and a new elementary school on the southern portion. Because they entered into the Brownfield Redevelopment Program, developers ensured that the site would be safely redeveloped by following the actions set out in their Property Management Plans. These

included proactively installing vapor barriers in the newly constructed buildings, testing and properly disposing of any potentially contaminated soil found during construction efforts, and removing lead-impacted soils in areas where lead foundry sand was present.



Photo 7: Republic Bank Foundation YMCA, Louisville, KY

Now, both projects are complete, and the once empty site provides a multitude of services to the community. The YMCA opened in 2019. According to the YMCA website, the Republic Bank Foundation YMCA is a 77,000 square foot building that houses exercise facilities including an indoor pool and sports facilities. There are also community meeting spaces, a bank, and childcare facilities present at the Y. According to the Courier Journal, the Dr. William H. Perry Elementary School opened its doors in 2023 and provides education for around 700 students in the community. In effect, the Brownfield Redevelopment Program has allowed for the safe and productive reuse of this area, bringing both educational and health services to the surrounding community of the West End of Louisville.



Photo 8: Perry Elementary School, Louisville, KY

*330 Newtown Pike LLC
Lexington, Fayette County
Program Entry: 2021*

Like most U.S. cities, Lexington, Kentucky needs more affordable housing. Rent increases over the last several years have only served to increase this need. In 2023, the Lexington Herald Leader noted that rental rate growth in Lexington in July of that year exceeded the national average. The paper also noted that most of apartment units for rent in the city ranged in price from \$1000 to \$1500 and that units renting for less than \$1000 were difficult to find. High rents may be pricing some out of the market, leading to increases in homelessness. In 2023, WKYT, a Lexington-based television station, reported that about 815 homeless persons could be found in the city, an increase of 100 people compared to the previous year.

This is why construction of a new affordable housing development at 330 Newtown Pike is such welcome news. Without the existence of the Kentucky Brownfield's Program and incentives provided by the city of Lexington, this new development may have never happened. The new apartment complex is located on a brownfield site in a portion of the city populated by mostly low-income residents. The site is situated near the intersection of Third Street and Newton Pike, not far from the Bluegrass Community and Technical College's Newton Campus. Like most of the surrounding area, the 3.78-acre site was originally commercial use. Approximately 10 buildings in various states of decline were originally present at the site. Businesses that once operated onsite included an auto repair shop, a dry cleaner and storage/warehouse facilities. These structures were demolished in 2015 to make way for new development.

During the site investigation phase of this project, oil-stained soil was found at various locations onsite. In addition, elevated levels of arsenic and lead were detected in some areas. Approximately 139 tons of soil containing elevated metals (i.e., lead and arsenic) and petroleum-based compounds were removed from the site prior to construction activities taking place; however, some soil contamination likely remains.

Following its entry into the brownfield's program, the site was purchased in 2021 by the current owner who subsequently constructed a five-story, 208-unit apartment complex on the property. According to the WKYT report, these units are to be priced at \$883 for a one-bedroom unit up to \$1227 for a three-bedroom unit and are intended to be affordable for those making less than 60% of the local median income. A vapor barrier underlies the building and most of the site that is not covered by the building is covered with impermeable pavement. The remaining unpaved areas have been covered with clean soil that will be maintained in accordance with the site's Property Management Plan. Routine audits will ensure that this protective barrier remains in place.



Photo 9: Apartments under construction at 330 Newtown Pike, Lexington, KY

The 330 Newtown Pike development is yet another example of how the Kentucky Brownfield's Program continues to make a difference in the lives of ordinary Kentuckians. Without this program, underused properties such as the 300 Newtown Pike site might never reach their full potential. In this case, the program helped to facilitate the construction of a much-needed apartment complex that will provide decent and affordable housing to those who need it the most.

FY2023-2024 BROWNFIELD INITIATIVES

The Superfund Branch has an established audit process for Brownfield sites. An audit requires staff to review the existing property management plan to determine specific site management requirements. The participant is contacted by an auditor who arranges a site visit. The audit stresses compliance assistance rather than creating a confrontational inspection. Fines are not generated from the audits. If mismanagement is noted, the participant is allowed to correct the issue and submit verification of the correction. If extreme or blatant mismanagement of a subject site is noted, the authority to void brownfield status (concurrency) resides with the Director of the Division of Waste Management, as established in 401 KAR 102:010, Section 7. During FY2023 and FY2024, DWM conducted 87 audits. A total of 166 total audits have been conducted since the program's inception representing approximately 47% of all sites in the program. To date, there have been no sites referred to the Director's Office for possible voiding of brownfield status.

The Superfund Branch has also established an audit program for the 320 managed closure sites. During FY 2023 and 2024, 38 managed closure sites were inspected by central office staff. Although Environmental Covenants require the owners of these properties to certify that conditions of management are being met, no actual inspection or audit of site conditions by DWM had been occurring until 2019. This verification project has discovered noncompliance

but has not necessitated any notice of violations as problems are corrected and documentation of those corrections are submitted back to the Superfund Branch.

COSTS OF CLEANUP

The Kentucky Superfund program currently is working with a total of 303 active Superfund sites. Many variables affect the cost to complete a cleanup. Site-specific characteristics such as the mass of the contamination, the character of the contaminant, the geological setting, and the physical location of the site all influence costs. Using the historic Kentucky Superfund cost information site costs range from \$10,000 to several million dollars. Certain category sites such as former wood treating facility average cleanup costs over 20 million dollars per site. Additionally, larger industrial type sites range in cost from one million to tens of millions of dollars per site. Additionally, the state has 18 existing and delisted CERCLA National Priority List (NPL) Superfund sites whose long-term annually cyclic monitoring and maintenance liabilities, in one form or another, eventually fall to the state. Internal estimates of the annual cyclic, in perpetuity costs range from over \$10,000 to over \$500,000 per site, based on the CERCLA NPL Records of Decision (RODs).

Based on the superfund's HWMF current level of funding in 2023 and 2024 Fiscal Years, emergency sites addressed and other annual state-led remedial actions, the superfund program is currently unable to adequately address the increasing number of state-lead clean-ups without continued supplemental funding.

EMERGING CONTAMINANTS PER-AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Per- and polyfluoroalkyl substances (PFAS) are a group of over 5,000 man-made, fluorinated chemicals that, because of their unique chemical characteristics, are used in a large number of consumer products and industrial applications. The widespread use of PFAS in many consumer, commercial and industrial products over the last seventy (70) years and recent concerns about the health effects of PFAS create challenges for federal and state agencies to address these emerging contaminants. The PFAS compounds are ubiquitous and persistent in the environment and do not break down easily or within measurable timeframes. This group of chemicals impacts all the environmental media for which the Department for Environmental Protection regulates, including air, water, and land. Six PFAS are now regulated by EPA's Clean Water Act (CWA), and two are listed as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Risk thresholds for individual PFAS are routinely updated or added to the EPA's Regional Screening Level table. There are now twenty-six PFAS listed in the table.

PFAS REMEDIATION, TREATMENT, DISPOSAL AND LAND USE MANAGEMENT ANNUAL COSTS - COMMONWEALTH OF KENTUCKY

In the Commonwealth of Kentucky, many PFAS impacted sites will depend partially or entirely on Kentucky's Hazardous Waste Management Fund (HWMF) to protect human health and the environment in the Commonwealth of Kentucky. In many PFAS impact cases there are or will be no financially viable responsible party(s). Also, many responsible party sources of PFAS have very limited financial resources that are insufficient to carry out the characterization and remediation necessary to address the complexity of PFAS impacts. Such sites would also need to be addressed through the HWMF. Lastly, PFAS is not the sole contaminant impact that utilizes the HWMF but will be a *potentially overwhelming* strain on the already overburdened HWMF.

Finally, due to the ubiquitous and persistent nature of PFAS (centuries to millennia) in the environment and natural resources; extremely low concentration levels of risk (part per trillion and parts per quadrillion) and complexity of PFAS; most if not all PFAS impacted sites will require long-term land and groundwater use management as part of their remedial design and implementation. Furthermore, if the regulatory enforceable limits for PFAS remain at their present low values, land and groundwater use management for PFAS will effectively be “forever” per site.

During FYs 2023-24, Superfund Branch staff sampled 46 sites for PFAS. This included various industry types within the brownfield redevelopment program and a few sites within the orphan landfill program. Every site that had monitoring wells contained PFAS. PFAS typically exceeded CWA thresholds at dry cleaning sites and orphan landfill sites.

FUTURE OF THE FUND

The HWMF was created to provide the Energy and Environment Cabinet with necessary funds to protect the health of the citizens and natural resources of the Commonwealth from threats associated with releases of hazardous substances, pollutants, and contaminants. The cabinet uses the HWMF to provide technical reviews, oversight of responsible party-driven, and state-lead remediation projects. The HWMF is the Commonwealth's primary source of financial support for contaminated sites where there are either no known responsible or financially solvent parties available to take action. The HWMF finances regulatory oversight, emergency responses, state-lead, and time-critical remediation projects at sites throughout Kentucky. These projects range from large industrial sites and persistent dry cleaner plumes to small projects including roadside drums, orphan wastes, and transformers. There are no other current available funding sources to conduct emergency response, state-lead cleanup actions, or regulatory oversight.

In addition to evaluation and mitigation measures, HWMF funds are used to purchase leading-edge equipment to complement time-critical projects. The Superfund Branch also routinely

purchases passive soil gas vapor monitors to screen vapor at sites with the potential of releases from volatile constituents. These purchases allow this branch to quickly mobilize to screen or perform maintenance and operations on-site.

The HWMF has experienced challenges since 2008 resulting from decreases from exemptions and reductions of general, and federal funds available to the cabinet. Additional negative impacts include increased costs for:

- Cleanup;
- Growing numbers of non-viable and financially insolvent responsible parties from which to recover cost;
- Cyclic annual in perpetuity cost for the long-term maintenance and monitoring of NPL sites;
- Potential large-scale sites and the number of RCRIS sites, and new superfund sites; and
- Future PFAS sites of varying industry type.

These impacts have resulted in the HWMF no longer being able to sustain and manage all existing and projected superfund backlogs. Insufficient funding to support large scale emergency remedial projects that arise unpredictably year-to-year, and the inability to reasonably fulfill its statutory mandate to protect human health and the environment continue to burden the funds.

CREDITS AND ACKNOWLEDGEMENTS

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The mission of the Kentucky Division of Waste Management is to protect human health and the environment by minimizing adverse impacts on all citizens of the Commonwealth through the development and implementation of fair, equitable and effective waste management programs.

July 2024

APPENDIX

Table 2: Hazardous Waste Management Fund Revenues, FY1993-2024

	Assessments Collected	Cost Recovery	Interest	Return on Investment Account & Capital Closeouts	Brownfields Application Fees	Transfer from PSTEAF per KRS 224.46-580	DOG Reimbursement	Salary Reimbursement for AL Taylor	Transfer to ERT Mobile command unit capital project fund	TOTAL
FY93- FY02	\$26,497,996.00	\$3,623,784.00	\$1,114,921.00	\$5,663,178.00	-	-	-	-	-	\$36,899,879.00
FY03	\$1,831,535.00	\$579,544.00	\$81,162.00	\$65,735.14	-	-				\$2,557,976.14
FY04	\$1,876,572.00	\$293,420.00	\$37,370.00	\$1,295,046.00	-	-				\$3,502,408.00
FY05	\$1,766,239.12	\$311,827.28	\$17,565.74	\$812,841.38	-	-				\$2,908,473.52
FY06	\$1,871,802.74	\$119,138.54	\$11,916.21	\$404,327.01	-	-				\$2,407,184.50
FY07	\$1,804,954.42	\$407,829.27	\$28,873.17	\$457,975.78	-	-				\$2,699,632.64
FY08	\$1,760,870.25	\$331,372.35	\$16,201.64	\$711,505.58	-	-				\$2,819,949.82
FY09	\$1,506,853.23	\$126,314.75	\$8,238.64	\$178,204.44	-	-				\$1,819,611.06
FY10	\$1,205,801.18	\$309,757.11	\$10,645.88	\$300,000.00	-	\$318,346.77				\$2,144,550.94
FY11	\$1,325,342.34	\$715,588.96	\$6,512.49	\$1,597,180.97	-	\$637,062.05				\$4,281,686.81
FY12	\$1,764,288.24	\$410,100.86	\$16,362.73	\$335,760.36	-	\$554,562.44				\$3,081,074.63
FY13	\$1,515,949.68	\$725,993.60	\$1,098.03	-	-	\$170,697.75				\$2,413,739.06
FY14	\$1,415,327.98	\$704,332.51	\$683.31	-	\$38,500.00	\$450,932.31				\$2,609,776.11
FY15	\$1,413,123.93	\$536,705.15	\$1,052.53	\$303,833.88	\$110,131.00	\$582,465.64				\$2,947,312.13
FY16	\$1,612,788.65	\$143,713.98	\$1,218.62	\$188,137.62	\$70,000.00	\$599,253.59				\$2,615,112.46
FY17	\$1,738,004.00	\$413,625.00	\$7,087.00	\$452,080.00	\$125,000.00	\$417,421.00				\$3,153,217.00
FY18	\$1,336,545.00	\$166,246.00	\$6,461.00	\$0.00	\$82,500.00	\$325,337.00				\$1,917,089.00
FY19	\$1,461,476.11	\$569,243.99	\$16,323.96	\$245,527.38	\$115,000.00	\$742,352.26				\$3,149,923.70
FY20	\$1,210,200.01	\$351,178.36	\$22,149.92	\$582,785.07	\$110,000.00	\$692,012.36				\$2,968,325.72
FY21	\$1,133,180.39	\$204,277.25	(\$117.80)	\$6,268.66	\$115,000.00	\$976,882.88				\$2,435,491.38
FY22	\$1,074,648.86	\$240,070.37	\$995.09	\$903,700.00	\$130,000.00	\$1,104,205.41	\$209,411.38	\$7,121.67		\$3,670,152.78
FY23	\$1,041,873.49	\$444,369.32	\$56,091.10	\$155,068.87	\$147,500.00	\$1,323,214.30	\$0.00	\$5,854.36		\$3,173,971.44
FY24	\$1,230,628.16	\$327,569.91	\$58,439.16	\$566,428.27	\$130,000.00	\$1,506,138.15	\$325,826.50	\$7,291.51	(\$64,500.00)	\$4,087,821.66
GRAND TOTAL	\$59,396,000.78	\$12,056,002.56	\$1,521,251.42	\$15,225,584.41	\$1,173,631.00	\$10,400,883.91	\$535,237.88	\$20,267.54	(\$64,500.00)	\$100,264,359.50

Table 3: Hazardous Waste Management Fund Expenditures, FY1993-2024

	Capital Projects Remediation HW Sites	Maxey Flats Site	WKU Geophysical MOA	Superfund & ERT Technical/Professional Oversight *FY21-24 Salaries for SFB and HWMF %-ERT staff	Kentucky Pollution Prevention Center	HWMF Audit Fee
FY93-FY02	\$19,800,000.00	\$6,258,654.00	-	\$7,131,214.00	\$3,514,900.00	-
FY03	\$1,000,000.00	-	-	\$797,991.00	\$420,000.00	-
FY04	\$2,200,000.00	-	-	\$1,215,955.00	\$420,000.00	\$11,033.00
FY05	\$1,684,853.34	-	-	\$809,567.75	\$420,000.00	-
FY06	\$853,900.00	-	-	\$1,055,581.73	\$420,000.00	-
FY07	\$1,734,387.89	-	-	\$606,379.41	\$362,080.00	-
FY08	\$1,338,707.98	-	-	\$772,847.34	\$351,793.85	-
FY09	\$500,000.00	-	-	\$929,296.70	\$299,705.39	-
FY10	\$850,000.00	-	-	\$1,100,956.70	\$247,078.50	-
FY11	\$2,544,731.00	-	-	\$897,226.30	\$300,000.00	-
FY12	\$2,100,000.00	-	-	\$693,369.49	\$360,000.00	-
FY13	\$737,000.00	-	-	\$773,016.63	\$360,000.00	-
FY14	\$1,142,160.94	-	-	\$886,037.02	\$360,000.00	-
FY15	\$1,706,300.00	-	-	\$994,676.38	\$360,000.00	-
FY16	\$855,500.00	-	\$29,830.35	\$758,065.20	\$360,000.00	-
FY17	\$1,037,253.50	-	\$63,441.87	\$1,166,497.72	\$360,000.00	\$157,996.74
FY18	\$414,500.00	-	\$79,156.12	\$1,057,079.65	\$360,000.00	\$165,800.00
FY19	\$454,500.00	-	\$17,991.00	\$1,592,245.63	\$360,000.00	-
FY20	\$782,500.00	-	-	\$1,640,874.92	\$360,007.96	-
FY21	\$458,351.85	-	-	\$1,275,427.12	\$360,000.00	-
FY22	\$447,195.06	-	-	\$1,812,635.57	\$360,000.00	-
FY23	\$309,382.99	-	-	\$2,044,058.41	\$360,000.00	-
FY24	\$1,077,343.69	-	-	\$2,377,766.89	\$360,000.00	-
GRAND TOTAL	\$44,028,568.24	\$6,258,654.00	\$190,419.34	\$32,388,766.56	\$11,435,565.70	\$334,829.74

Table 4: Cumulative Expenditures on Active Capital Project Accounts FY2023-2024

		Engineering	Construction	Analytical
C1H6	Various Projects including ERT	\$16,650.00	\$384,967.22	\$57,905.23
C4Q7	Louisville Environmental Services	\$4,688.64	\$32,780.00	\$0.00
C52F	HWMF- Distler Brickyard	\$0.00	\$2,600.00	\$0.00
C52G	HWMF- Distler Farm	\$0.00	\$1,600.00	\$0.00
C5GL	Lees Lane Project	\$0.00	\$23,816.50	\$0.00
C6AM	HWMF- Jackson's Pronto Cleaners	\$0.00	\$0.00	\$2,346.62
C7TR	HWMF- Parrish Avenue	\$0.00	\$0.00	\$3,715.49
C83A	HWMF- Former West Point Bank Property	\$7,500.00	\$0.00	\$0.00
C83G	HWMF- Kings Cleaners	\$674.31	\$0.00	\$0.00
C95Q	HWMF- Southern Wood Treatment- Long's Lane Op. & Maint Phase	\$3,100.00	\$0.00	\$2,815.00
C9FV	Sam Meyers Formal Wear	\$31,451.49	\$3,785.00	\$1,004.60
C9FX	Mount Sterling City Landfill	\$76,668.80	\$0.00	\$0.00
C9PC	Leitchfield Cleaners & Rentals	\$40,303.72	\$0.00	\$0.00
CA4U	Sanders Cleaners	\$0.00	\$0.00	\$6,750.00
CALD	Southern Wood Treatment Sites	\$244,432.64	\$685,123.10	\$0.00
CALE	Superfund Sites	\$16,975.00	\$19,595.00	\$76,483.57
CAPR	Eastern KY Flood Emergency HW Cleanup	\$0.00	\$2,104,617.21	\$13,842.38
CB2B	HWMF- Minor Projects 22-24	\$1,700.00	\$1,102,884.97	\$6,454.31
GRAND TOTAL		\$444,144.60	\$4,361,769.00	\$171,317.20



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