ENERGY AND ENVIRONMENT CABINET

Steven L. Beshear
Governor

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DIVISION OF WASTE MANAGEMENT
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Leonard K. Peters
Secretary

August 16, 2012

Robert Sherman, Director
Legislative Research Commission
Room 300, Capitol
Frankfort, KY 40601

Mr. Sherman,

The Division of Waste Management submits a report on the expenditures and revenues of the Hazardous Waste Management Fund pursuant to KRS 224.46-580(13)(c). There was an incorrect graph in the original file.

Please find enclosed a hard copy of the report and an electronic version of the updated report. If you have questions or would like additional information, please contact Cassandra Jobe at (502) 564-6716 ext. 4621 or Cassandra.Jobe@ky.gov.

Sincerely,

Anthony R. Hatton, P.G., Director
Division of Waste Management

enclosures

ENERGY AND ENVIRONMENT CABINET

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

HAZARDOUS WASTE MANAGEMENT FUND

BIENNIAL REPORT ON REVENUES AND EXPENDITURES OF THE HAZARDOUS WASTE MANAGEMENT FUND
Fiscal Years 2011 and 2012

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Kentucky
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Introduction

In 1980 the General Assembly created the Hazardous Waste Management Fund (HWMF) to provide the Energy and Environment Cabinet (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 1980, nearly $50 million has been spent specifically for cleanup of more than 550 contaminated sites, making the Commonwealth of Kentucky a cleaner and safer place to live. The HWMF also has cumulatively provided more than $7.1 million in funding for the Kentucky Pollution Prevention Center (KPPC).

During the 2008 legislative session the HWMF was extended through June 30, 2016 and a requirement was added that tasks the Cabinet to submit a biennial report regarding HWMF revenues and related activities and expenditures. This biennial report is required by KRS 224.46-580(13)(c) and includes information from FY 2011 and FY 2012.

The Cabinet utilizes the monies created by the HWMF assessment for a variety of activities as follows:

1. Emergency response to address releases of hazardous substances, pollutants, and contaminants.

2. Small purchase removal projects with costs less than twenty thousand dollars.

3. Assessment and remediation of contaminated sites for which there is no viable responsible party.

4. As required by statute, transfer funds to the KPPC. KPPC provided a their biennial report which is attached as Appendix A.

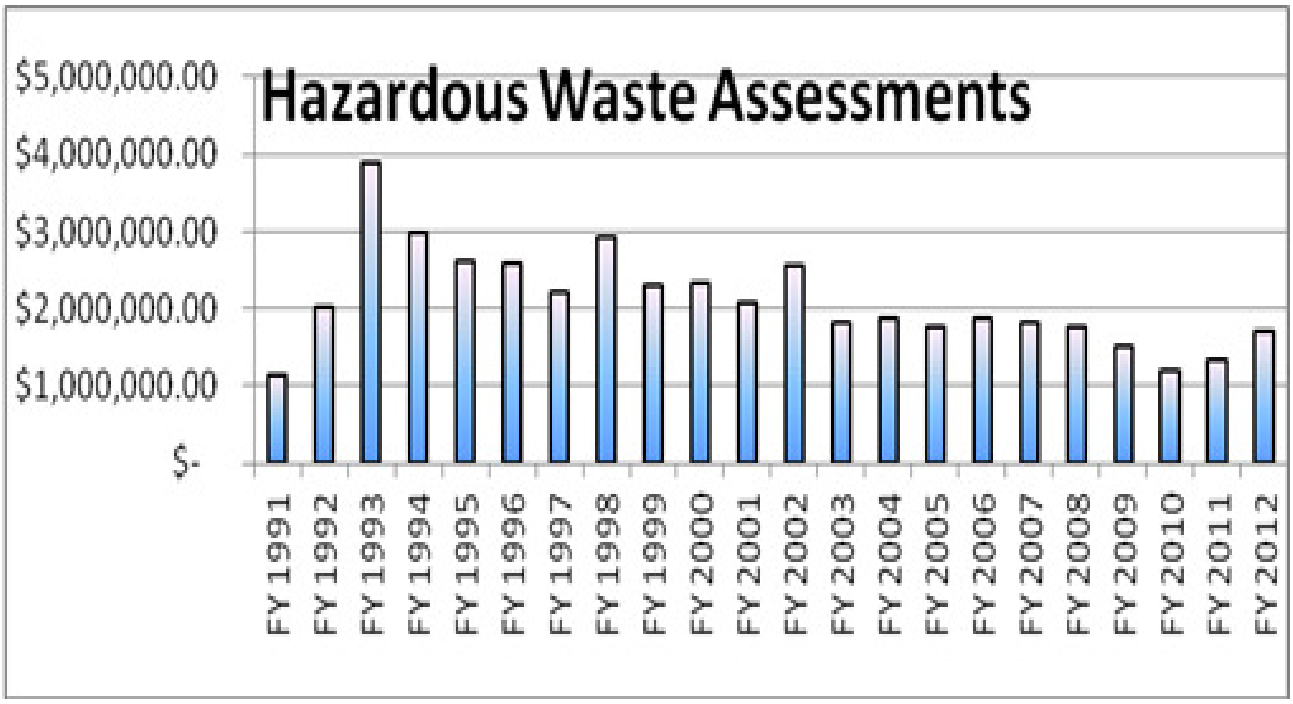
5. Technical oversight costs to conduct state-lead cleanups and to review cleanup documents submitted for sites for which there is a viable responsible party and technical oversight of environmental emergencies.

The HWMF assessment fee is authorized under KRS 224.46-580(8) and is assessed on generators of hazardous waste at the rate of one and two-tenths cents ($0.012) per pound if the waste is liquid, or two-tenths of a cent ($0.002) per pound if the waste is solid.

During the last twenty years there has been a steady decline in the amount of dollars generated annually through the HWMF assessment fee. There are several factors that contribute to the general decline in receipts of assessment fees. This includes companies filing for bankruptcy, multiple rate reductions and waste exclusions for generators, and a decline in the number of generators due to waste minimization efforts.

In 2008, the General Assembly passed legislation allowing generators who burned hazardous waste for energy recovery to be assessed one-half the rate outlined above. In order to keep a

minimum balance of $1.8 million in the HWMF, the General Assembly also authorized the Cabinet to transfer money from the Petroleum Storage Tank Environmental Assurance Fund (PSTEAF) in any fiscal year where assessment fees collected total less than $1.8 million. The graph below depicts HWMF assessment fees from 1991 through 2012.



Revenues and Expenditures for FY2011 and FY2012

A summary of the revenues and expenditures for FY 11 and FY 12 is presented in Table I below.

Table I

	FY11	FY12
Revenues		
Assessments Collected	$1,325,392	$1,764,288
Cost Recovery*	$715,589	$410,101
Interest	$6,513	$16,363
Transfer from PSTEAF	$637,062	$554,562
Total Revenue	$2,684,556	$2,745,314
Expenditures		
Superfund Branch Oversight	$569,993	$521,378
Site Cleanups	$1,393,771	$2,313,965
KPPC**	$300,000	$360,000
Environmental Response Team (ERT)	$327,233	$171,991
Total Expenditures	$2,590,997	$3,367,334
Transfers ***		
Funds moved into Capitol Projects	$2,544,731	$2,100,000
Returns from Capitol Project accounts	$1,597,181	$335,760

NOTE: The expenditures and revenues displayed in Table I will not balance due to overlap from one fiscal year to the next.

*The Cabinet is authorized to cost recover HWMF dollars when a viable responsible party can be identified.

**KPPC provides assistance to industries, businesses, and other organizations to develop environmental solutions for improved efficiency. KPPC receives twenty percent of total assessments collected each year. See Appendix A.

***A Capitol Project may include a site remediation or a declared environmental emergency, typically costs more than $20,000 and may cover a multi-year time frame. Project scope reductions or completions below projected costs will result in transfers of dollars back into the HWMF.

Environmental Response Team (ERT)

The Cabinet's ERT is housed within the Department for Environmental Protection. The ERT is tasked with responding to a variety of environmental emergencies ranging from petroleum releases, landfill fires, train derailments and many other environmental issues that arise which require immediate attention.

In FY11 the ERT received 15,946 notifications; 557 of which required a response. In FY12 the ERT received 5033 notifications; 578 of which required a response. In FY12, 25 declared emergencies were addressed using the HWMF. When possible, the ERT pursues cost recovery for emergency projects to help offset administrative and equipment costs.

Small Purchase Removals

Large capital projects are a key component of state-lead oversight that the Superfund Branch performs, but small purchase removals as just as important and constitute a substantial volume of the removal work performed. Throughout the Commonwealth, the Department, largely the Superfund Branch, is called upon to perform or facilitate characterization and/or cleanup on sites ranging from contaminated wire burning operations, to industrial chemical spills, to removal of abandoned drums. These sites are typically easily accessible to the citizens of Kentucky, particularly abandoned drums, illicit dumping sites or spills occurring along our highways or waterways. They are frequently contaminated with toxic heavy metals such as lead and arsenic, as well as toxic or cancer-causing chemicals, like polychlorinated biphenyls and other industrial wastes. Without the assistance and oversight provided in characterizing and remediating or managing these sites or incidents, they have a high potential to be immediately dangerous to local residents, wildlife, vegetation and they pose a very real long-term threat to both the public and to the environment.

In FY11, small purchase remedial actions directed and/or conducted by Superfund Branch personnel led to the removal of 8,205 pounds of waste with a cost of $34,681.00. In FY12, HWMF expenditures on small purchases decreased to total expenditures being only $18,526.26, resulting in 3,303 pounds of waste disposed of at appropriate disposal facilities.

In the past two fiscal years, the Superfund Branch has characterized and remediated 12 contaminated properties using small purchase authority. Total expenditures for these cleanups were $53,207.26.

Division of Waste Management Superfund Branch

The Superfund Branch utilizes HWMF dollars to provide technical oversight/cleanup and document review for responsible parties conducting cleanup of contaminated properties. Many of these properties result from previous heavy industrial activities such as wood treatment facilities and former chemical plants and other sources such as dry cleaners.

The Superfund Branch utilizes HWMF monies to directly manage (state-lead) the cleanup of contaminated sites for which there is no viable responsible party. 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. These expenditures are likely to increase over time as more federal sites are delisted.

In FY 11 the Superfund Branch registered 103 new sites and remediated 224 sites. In addition, 2,144 technical site reviews were completed in FY 11. In FY 12 the Superfund Branch registered 111 new sites and remediated 176 sites. Also in FY 11, the Superfund Branch completed 4,283 technical site reviews.

A positive outcome related to cleanups conducted under state-lead is that formerly contaminated properties have been remediated to either unrestricted residential use or industrial use with institutional controls in place. As a result, these properties are potentially available for redevelopment/reuse.

A list of capital projects is presented below in Table II. These projects will require a significant amount of funds from the HWMF.

Table II	
Capitol Project Name	**County**
Familee Laundry	Larue
Various Projects (under $20,000)	Varies
Middleboro Tannery	Bell
KY Tire & Timber	Graves
Kim's Dry Cleaners	Jefferson
Bluegrass Industrial Services	Rockcastle
Quality Cleaners	Marshall
Louisville Environmental Services	Jefferson
Distler Brickyard	Jefferson
Jefferson Forest Drum Site	Bullitt
Lee's Lane Landfill	Jefferson
Walgreens/Hogan	Daviess
Black Leaf Project	Jefferson
Schendley Distillers	Jefferson
Jackson's Pronto Cleaners	Daviess

Site Information

Below are brief summaries of six sites the Superfund Branch remediated under state-lead authority using HWMF monies from FY11 through FY12. Each of these sites are examples where there were no viable responsible party to conduct the necessary cleanup.

Barrel Services

The Barrel Services site is located in Jefferson County and was used as a solvent recovery, paint manufacturing, and barrel refurbishing and recycling facility. Sample results indicated volatile organic compounds, semi-volatile organic compounds, polychlorinated biphenyls (PCBs) and metals contamination in the soil. The property had thousands of containers, including drums and large plastic totes, filled with solid and liquid wastes. The site presented a mosquito control problem, a fire hazard, and a threat for additional releases. Areas of visual soil contamination were scraped and graded with crushed stone. Total expenditures for the cleanup were $209,684. The business owner abandoned the property just prior to the state-lead removal action and has not returned.

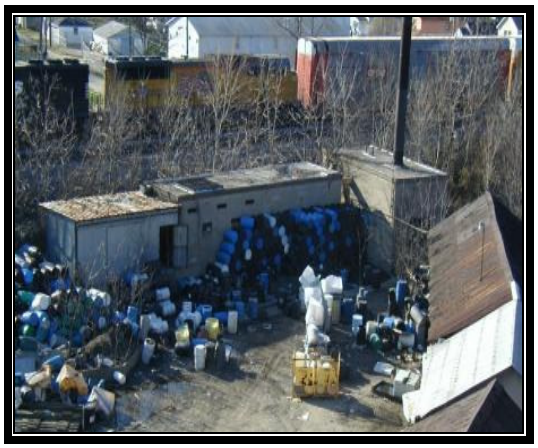
During mid to late 2005, the Louisville Metro Development Authority (LMDA) conducted additional assessment of the site using funds obtained through an EPA brownfields assessment grant. The sampling confirmed that volatile organic compounds (VOCs), semi-volatile organic compounds, polychlorinated biphenyls (PCBs) and metals contaminants were present throughout the site above residential & industrial screening levels. Monitoring wells were installed during the project which also confirmed the presence of VOC and PCB compounds in the groundwater, including in two wells located west of the property. The LMDA had also been working with an adjacent business interested in using Barrel Services property for parking and improving ingress/egress for delivery trucks. To that end, the assessment report included a site management plan for the prospective buyer to use in their redevelopment of the property.

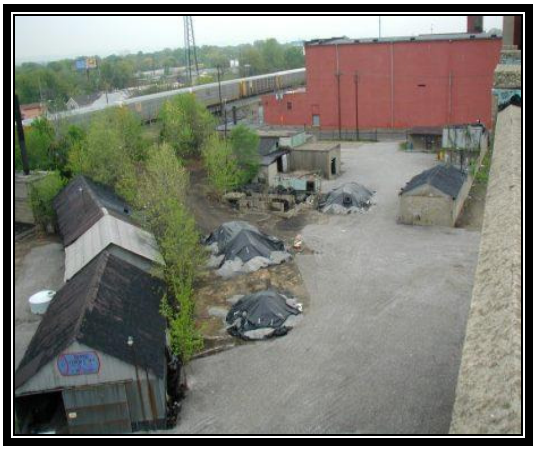
DWM reviewed the submitted information and requested additional assessment of elevated VOCs found in soil and groundwater at the north and south ends of the property. The LMDA indicated that its funding was exhausted. In addition, LMDA indicated that any funds generated by foreclosure/sale of the property would go into the Louisville Land Bank and not be available for DWM to recover its costs from. The interested party never approached DWM to discuss their proposed use of the property.

During 2011, DWM elected to use funding to conduct the additional assessment. A consulting firm was contracted to sample the LMDA-installed wells and to install soil borings/temporary groundwater wells on the north and south ends of the property. DWM also had the contractor install a new locking front gate to discourage trespassers. The samples collected from the off-site LMDA wells indicated that the VOC concentrations had dropped below DWM's screening levels. The north and south temporary wells indicated some VOC contamination was present though the levels suggested contamination would extend only a short distance below the bordering streets. Soil and groundwater contamination remain on-site though the contaminants could be managed in-place if the property were redeveloped using a site

management plan with appropriate institutional controls. During the additional investigation, some asbestos containing materials were found in one of the abandoned buildings. In addition, a large number of tires had been dumped on the abandoned property. DWM had the contracted firm to abate and remove these materials. In addition, DWM had the contractor abandon the monitoring wells so the casings would not provide a source for contaminants to enter the groundwater should the wells be damaged by trespassers. The cost for the 2011 work was $28,109.30.

The property remains vacant and could be subject to future trespassing and open dumping.





Familee Dry Cleaners

The Familee Dry Cleaners site is located in Hodgenville, Larue County. In 1997 tetrachloroethylene (TCE) was discovered in soil and groundwater at the facility. Attempts to characterize TCE, and other volatiles in groundwater by the site's contractor continued until July 2011. The July 2011 samples indicated an unexpectedly high level of TCE in groundwater in a monitoring well that was previously non-detect. The site owners did not to have money for additional sampling and delineation of the groundwater TCE plume, so Superfund Branch personnel took additional groundwater samples in April, 2012. Sample results showed that the TCE contaminant plume was no longer defined and had possibly reached the Nolin River.

The Hodgenville Waterworks intake is located approximately 400 yards downstream from the area adjacent to the most distal monitoring well. Therefore, several drinking water samples were taken by Division of Water field personnel at the plant intake. There were no detections for any constituents of concern.

Further work is necessary at the site to delineate the extent of contamination. Most of the groundwater monitoring wells at the site had damage or significant problems and need to be replaced so the wells can be used to obtain valid groundwater samples. Additional groundwater wells also need to be installed.

There are two residences and two businesses within the known contaminant plume. There are numerous other homes in the area that could be potentially affected. Vapor risks will need to be assessed through sampling to determine the vapor risk to nearby residents and workers.

The water intake at the Hodgenville Water Works will require periodic sampling, particularly during times of low stream flow or drought. DWM's actions at this site will ensure the safety of the more than 5,000 people who use the Hodgenville Water Works for their primary drinking water source. It is essential that funding is available for the Division of Waste Management to define and abate the potential vapor intrusion and drinking water problems associated with this site.

Kentucky Wood Preserving

This project was initially set-up with $75,000 in order to handle investigations and any necessary emergency actions. These funds were eventually increased to $405,000 in order to ensure that sufficient resources were available for anticipated remedial actions. Through extensive use of the SFB XRF field screening capabilities and the willingness of Superfund Branch staff to assist in the screening and sampling activities of both the impacted waterway, adversely affected adjacent residential properties and right-of-ways, the initial investigation monetary costs were $3,391.85.

The eventual remediation removals and restoration activities conducted under contract resulted in the expenditure of $71, 474.10.
Total monies expended on this project were $74,865.95. A total of $330,134.05 was to other returned to the HWMF to be used in other projects.

Louisville Environmental Services

The facility is a twenty-seven acre property located along the Ohio River in southern Jefferson County. The Spur Oil Company originally constructed the facility during 1947 for use as a storage & distribution terminal for leaded gasolines, diesel and kerosene. A series of companies operated the facility for distribution purposes until the facility was purchased by WECO in 1975. WECO leased the facility to B.T. Energy. B.T. Energy operated the facility as a refinery from 1976 to 1985. Louisville Environmental Services (LES) took ownership of the property during 1993 for use as a hazardous waste storage/treatment facility. The president of LES died before the operations of the permitted hazardous waste storage/treatment facility began.

Remaining facility structures included numerous aboveground storage tanks (ASTs) as large as 25,000 gallons. Also present were industrial boilers, heaters and oil/water separators as well as the associated pipes and valves. Many of the ASTs were installed on the ground surface with no secondary containment beneath.

During February 2001, USA EPA Region IV inspected the site and found that two of the large ASTs were leaking. A considerable volume of oil/water mixtures remained in the tanks and represented a threat to the Ohio River. EPA's legal council determined that the Vice President of LES was financially unable to perform the necessary actions to mitigate further releases. The EPA began a series of remedial actions that included temporary repairs to leaking ASTs, separation & disposal of the oil water mixtures and eventual dismantlement of the facility. Nearly all of the tanks, process equipment and structures were removed by the EPA actions that concluded during August 2004.

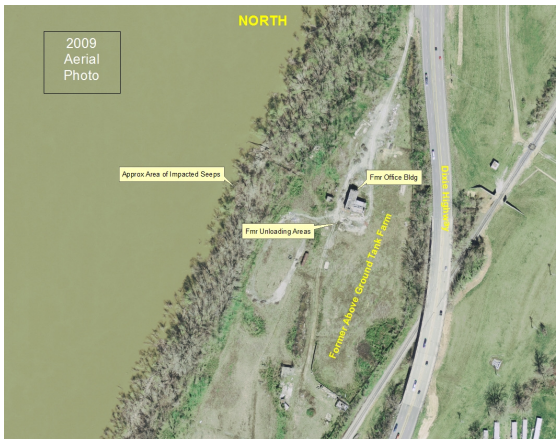
Numerous areas of visibly impacted soils and oil seeps were observed during the removal process. EPA excavated over 2,000 tons of saturated soils during the removal of below-ground piping. Surface soil samples collected by EPA and Superfund detected the presence of lead and polynuclear aromatic hydrocarbons in excess of allowable residential and industrial standards. The EPA also installed two groundwater monitoring wells. Product was not observed in the wells although petroleum odors and sheen were observed.

During the summer of 2008, the DWM investigated an anonymous report indicating that groundwater seeps entering the river from the LES shoreline carried a petroleum sheen. Inspections during August 2008 confirmed the report. Laboratory analysis of a sample collected from the seeps indicated the presence of numerous petroleum compounds including benzene in excess of safe drinking water levels.

As viable responsible parties were not available to clean up the site, the Division established a capital construction account within the Hazardous Waste Management Fund for the site. During late 2009, an environmental engineering firm to investigate the site and develop a cleanup plan for the groundwater.

The contractor first cleared the site of overgrowth and debris that obstructed parts of the property. The contractor also researched the property's operational use in order to identify potential "hotspot" sources of the contaminants. The contractor used research and observations to conduct a subsurface soil & groundwater investigation during 2011 that focused on the potential areas for the contaminants entering the Ohio River. The contractor's investigation identified significant petroleum contamination in soil and groundwater in proximity to the former product loading/unloading areas and oil/water separators located in the approximate center of the property.

Costs for clearing and investigating the site to date have totaled approximately $149,000. At DWM's request, the contractor recently submitted a scope of work and budget for a Remedial Evaluation. The Remedial Evaluation will review remediation alternatives in light of the project's goal, the relative costs, and the nature and volume of the contamination. DWM will review the Remedial Evaluation to determine if a particular remediation method can be successful given the site conditions and available budget.



Middlesboro Tannery

The Kentucky Leather site (Middlesboro Tannery) is located in Bell County, Kentucky. From the 1890's the facility tanned hides, first using techniques involving vegetable tannins until switching to chromium-based methods in about 1970. The tanning was accomplished within various buildings on site with numerous settling ponds on site for waste derived from the tanning process. The site owners lost a lawsuit brought by a local citizen's group in 1995, and declared bankruptcy. The facility sat vacant until late 2010 when the illegal removal of scrap metal caused the main building to partially collapse, releasing asbestos.

The site presented an immediate danger from the asbestos release. The deteriorating buildings, open pits and drainage ditches, and open sediment ponds containing tanning process derived waste also presented a significant hazard to trespassers and other site visitors. In early 2011, an emergency was declared by the Energy & Environment Cabinet. A contractor was hired to abate the asbestos, remove the structures, and drain, fill, and cap the sediment ponds. These actions are a positive step toward protecting citizens from potential contact with hazardous substances and have reduced the hazard to trespassers. The total project budget was $1,384,695, total expenditures were $1,383,778.

The efforts conducted under the declared emergency have not completely addressed the problem at Middlesboro Tannery. Future work at the site will further reduce risk by addressing remaining waste and improving the conditions of the capped waste ponds. The Division will monitor groundwater to ensure protection of human health and the environment. When ownership is sufficiently rectified, the new owner will be required to place an environmental covenant to ensure that it is only used for non-residential purposes and that engineering controls employed remain in place.

Thanks to the Division of Waste Management the imminent dangers posed by the site have been abated. The property is currently suitable for redevelopment in cooperation with the Division. The former Tannery property constitutes much needed flat land that can be developed to generate tax revenue, such as by retail stores or light industrial use. Because of the high unemployment rates in the southeastern portion of the state, having the property available for a job-creating use in this economically challenged region is particularly welcome news.

Aerial view of the Middlesboro Tannery looking south. Taken during the summer of 2011.

View of Collapsed portion of main building where asbestos was released into the environment. Taken November 2010.

Building demolition and asbestos removal, Fall 2011.

Filling and capping sediment ponds. Late winter, 2012.

Quality Dry Cleaners

The initial account request resulted in a HWMF balance of $150,000 dollars for this project. Superfund staff conducted two rounds of geoprobe subsurface investigations and sampled temporary wells to determine the general scope/extent of the groundwater contamination. A consultant was hired to perform any further investigations deemed necessary prior to the installation of six permanent groundwater monitoring wells. There were four permanent groundwater wells installed by one of the property owners involved prior to the six wells being installed. Contracted services for well installation and sample analysis for this project have resulted in expenditures of $37,038.68. A remedial action proposed by the superfund branch was conducted under contract by a separate consultant who specializes in injecting various treatments into the sub-surface. The cost of this consultant sampling the wells on-site and performing the remedial injections resulted in a cost of $17,230. Total outlay is currently $54,268.68. Barring unforeseen problems arising with this project, it is estimated that a minimum of an additional $10,500 will be required for another two groundwater sampling events being performed by superfund staff in addition to that which was conducted in 2011 as well as the eventual proper abandonment of the six groundwater monitoring wells by a drilling contractor. If only one additional sampling event is necessary to reach the appropriate contaminant levels an additional $2,200 will be available for the HWMF at the close of this project.


STOP

Summary and Recommendations

The HWMF is the primary source of funding for emergency response and state-lead remediation of contaminated sites ranging from large projects such as industrial facilities and dry cleaners to small projects such as roadside drums, orphan wastes left in parks or pick up and proper disposal of orphan transformers.

The HWMF is the Commonwealth's fail-safe for contaminated sites where there is no party to take action, but where a failure to act could cause harm to human health or the environment. Although receipts have been in general decline since 1993, the HWMF has enabled the Cabinet to continue to carry out its statutory duties. There are no other funding sources to conduct emergency response or state-lead cleanup actions and regulatory oversight.

There are currently an estimated twenty sites which will result in significant expenses to the HWMF. There are over three-hundred additional sites with the potential to be state-lead sites. Additionally, there are numerous sites where viable responsible parties are conducting cleanups and the HWMF supports the necessary regulatory oversight.

It is the recommendation of the Cabinet that authorization of the HWMF continues to provide funding to ensure protection of human health and the environment.

As seen in this report, there are multiple times when the HWMF is used to help with releases at dry cleaning facilities. There are currently at least 50 facilities in the state that have dry cleaning contamination that are being reviewed by the superfund branch. Other states have funds set aside specific to dry cleaning facilities. Currently, 13 states have a dry cleaning fund, with 5 of those states being in United States Environmental Protection Agency Region IV.

Appendix A

KPPC
Kentucky's Resource Center for Environmental Sustainability

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KPPC – Kentucky Pollution Prevention Center FY 11 & 12 Biennial Report

Established in 1994, KPPC is a state-mandated technical assistance resource center. As part of the J.B. Speed School of Engineering at the University of Louisville, KPPC has the resources, expertise and experienced engineering and technical staff to help Kentucky's businesses, industries and other organizations stay environmentally sustainable and competitive. KPPC has been recognized on both state and national levels as a Center of Excellence. Since its inception, the Center has conducted more than 771 workshops, seminars and training sessions, and nearly 39,439 attendees have benefited from these learning opportunities. KPPC's on-site assessments have helped more than 826 Kentucky businesses and organizations improve environmental performance and lower their operating costs. The Center's services are free, confidential and non-regulatory.

For the third consecutive fiscal year, KPPC delivered its environmental technical assistance services to all 120 counties in Kentucky. This is thanks in large part to the continued support of the Kentucky General Assembly and funding provided by various grants and contracts through state and federal agencies. This support allows KPPC to leverage available resources and find new ways to efficiently and effectively help its clients reduce operating expenses through sound environmental sustainability principles and energy management practices.

KPPC's technical assistance and outreach services offer clients on-site assessments, training, technology demonstrations, assistance with identifying project implementation resources, recognition of achievements and online resources to help develop a systems approach to pollution prevention. KPPC is a voluntary service and by focusing on its clients' needs, KPPC provides comprehensive services that help Kentucky's facilities achieve improved environmental performance and significant cost savings. With the Center's support, Kentucky organizations are establishing sound environmental management programs, changing the way they operate, turning to less toxic material use and realizing year-over-year reductions in operational expenses making environmental sustainability a component of sound business practices.

Fiscal Year 2010–2011 Results

KPPC's on-site pollution prevention (P2) and energy efficiency (E2) assessments are a key component of helping industrial and commercial clients develop and implement an environmental management process at their facilities. In Fiscal Year 2010-2011, KPPC's team of engineers served 76 unique industrial and commercial facilities with 133 service events and spent 805 hours conducting 31 on-site assessments of approximately 8.7 million square feet of space. The assessments identified potential cost savings of $4.1 million annually through reductions in water usage of 5,235,438 gallons/yr., solid waste generation of 194,000 lbs/yr., hazardous waste generation of 1,080 lbs/yr. and source energy savings of 584,752 MMBtu/yr. Air emission reductions for volatile organic compounds (VOCs) was 0.4 MTCO2e and greenhouse gas emissions calculated from recommended annual electricity reductions for

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KPPC clients was 112,995 MTCO2e that included CO2, NOx, CO, SO2 and particulate matter (PM).

In Fiscal Year 2010-2011, KPPC developed, delivered or participated in 94 workshops, conferences, webinars and events that attracted 3,694 participants, an increase of 1,242 over Fiscal Year 2009-2010. Of these events, 27 focused on P2 and environmental training and drew 1,225 attendees (33%) and 67 events were E2 training with 2,469 attendees (67%).

Fiscal Year 2011–2012 Results

In Fiscal Year 2011-2012, KPPC's team of engineers served 76 unique industrial and commercial facilities with 124 service events and spent 412 hours on-site conducting 30 assessments of approximately 4.2 million square feet of space. The assessments identified potential cost savings of $1.53 million annually through reductions in water usage of 13,236 gallons/yr., solid waste generation of 132,000 lbs/yr., hazardous waste generation of 4,000 lbs/yr. and source energy savings of 215,059 MMBtu/yr. Air emission reductions for volatile organic compounds (VOCs) was 0.4 MTCO2e and greenhouse gas emissions calculated from recommended annual electricity reductions for KPPC clients was 53,967 MTCO2e that included CO2, NOx, CO, SO2 and PM.

In Fiscal Year 2011-2012, KPPC developed, delivered or participated in 71 workshops, conferences, webinars and events that attracted 2,439 participants. Of these events, 15 focused on P2 and environmental training and drew 496 attendees (20%) and 56 events were E2 training with 1,943 attendees (80%). Client satisfaction is one of the principle tenets of KPPC's business philosophy. Evaluation forms are provided to all workshop participants. This information is used to evaluate the effectiveness of the workshops, make improvements as necessary and identify new training needs.

Communications and Outreach

Management and employee buy-in is critical to achieving positive changes in organizational behavior, and KPPC's efforts in promoting P2 and E2 go beyond simply performing on-site assessments and recording metrics. Through e-newsletters, web pages, press releases, presentations and case studies, KPPC profiles Kentucky industries that have achieved success through the Center's programs. KPPC develops and gathers P2 information and results and communicates with the Center's clients to publicize their achievements through a variety of media. The Center distributes two monthly e-newsletters – Sustainable Solutions Post and REnews which reach a total of 1,568 subscribers.

KPPC's YouTube channel has become an important tool that offers comprehensive coverage of the Center's events, activities, award presentations and organizational success stories that are shared with the client's permission. KPPC's YouTube training videos are an effective way to extend the time training is available, increase potential outreach and audience size and lower the environmental impact of traveling to and from a training site. The videos demonstrate how KPPC uses a systematic approach to assist Kentucky organizations as they develop and implement environmental management solutions at their facilities. KPPC's YouTube channel

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currently has 52 videos available, which were viewed 4,488 times in Fiscal Year 2011-2012. Using YouTube videos, KPPC offers a new way to access valuable information and training opportunities.

Pollution Prevention Resource Exchange (P2Rx)

The Environmental Sustainability Resource Center (ESRC) is managed by KPPC - http://esrconline.org/. ESRC is a member of the Pollution Prevention Resource Exchange (P2Rx™), a national network of eight regional P2 information centers. The ESRC serves the U.S. Environmental Protection Agency (EPA) Regions III and IV with comprehensive online resources, news and information about P2. The center utilizes state, regional and national expertise to provide P2 information that is critical to Kentucky environmental agencies, businesses, educators, technical assistance providers and the general public. ESRC believes that helping organizations move toward environmental sustainability will reduce costs, minimize our ecological impact and help conserve, protect and maintain our environment.

KPPC Partnerships

KPPC is involved in many industrial, local, state and federal network groups that are active in environmental sustainability efforts. Some include:

- National Pollution Prevention Roundtable (NPPR) 2025 Safer Chemistry Challenge Program (Alliance Member)
- US EPA WasteWise Endorser
- KY EXCEL – Kentucky Excellence in Environmental Leadership
- US EPA Energy Star Partner
- Kentucky E3 Initiative (Economy – Energy – Environment)
- KRIG – Kentucky Recycling Interest Group
- Louisville Metro Partnership for a Green City
- Tennessee Valley and East Kentucky Wind Working Group
- Kentucky Energy Efficiency Workgroup
- Kentucky Save Energy Now (KY SEN)
- Bluegrass Partnership for a Green Community

Service to Clients

KPPC's team of engineers, communications and information technology specialists and administrators constantly look for more efficient ways to serve a broad range of organizations from across the Commonwealth. In Fiscal Year 2011-2012, KPPC focused the Center's P2 and E2 service model, with an emphasis on identifying clients that are committed and are willing to pursue P2 and E2 recommendations. To achieve this level of commitment, KPPC engineers invest a significant amount of time prior to the assessments working with clients. This needs assessment is key in identifying specific areas to target during the on-site assessment and helps ensure the Center meets client expectations. The end result is a client base that is committed, and that understands not only KPPC's role, but their role as well, ultimately increasing the opportunity to obtain performance outcome metrics. Using this model, KPPC's clients have

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reported an increase in their employees' P2 and E2 awareness, ability to identify effective projects and commitment to improved environmental performance.

To aide clients in implementing environmental projects, KPPC offers long-term engineering support, measurement and verification tools, and additional on-site assistance, if needed. KPPC also offers assistance in obtaining state and federal grants for implementing environmental projects. As a result of KPPC's strong relationships with its industrial clients and university-level research and demonstration, the Center has helped increase the potential to penetrate markets more effectively with new and innovative technologies. KPPC's unbiased, independent third-party approach to assistance assures long-term trust and commitment among industrial and commercial sector clients.