

KENTUCKY
DIVISION OF
WASTE MANAGEMENT

Annual Report

Fiscal Year 2012



Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division of Waste Management
waste.ky.gov

Kentucky
UNBRIDLED SPIRIT™

FROM THE DIRECTOR



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

This is the seventh edition of our annual report and the information provided within represents activities and accomplishments for fiscal year 2012 (July 1, 2011 to June 30, 2012). The division continues to face challenges related to funding cuts that have resulted in an overall cap decrease for division staffing. Like many other organizations, the division has to do more work with less staff. With that being said, significant strides were made in cleanup at two emergency sites that resulted from petroleum releases and the division also brought near to completion a major cleanup at a Superfund site located in Middlesboro, Ky. Progress was made in each of the division's environmental programs which encompass what I consider to be nearly "all things waste."

As many of you know, significant loss of life and related damage occurred in spring 2012 as a result of the tornadoes that affected citizens in many areas of the state. I am amazed at how resilient our fellow Kentuckians were, and continue to be, in the midst of those tragedies - and they are building back their homes, businesses and lives. I am thankful that the Kentucky Pride Fund was available to assist our local officials in dealing with the cleanup and disposal of hazardous and solid waste resulting from the storms. My hat is off to our county solid waste officials who did a stellar job of working through the waste problems related to the storms. Also, I am particularly proud of the division's field staff that spent many long hours in helping citizens and local government in the affected areas. It is true that they were "only doing their jobs" but they did their jobs well and I know they performed their tasks with a sense of community which gets right down to the heart of the issue when times get hard – people helping people.

In addition, during FY12, significant changes were made to the underground storage tank regulations. These changes will enable our scientists and professional staff to apply professional judgment in making site-specific cleanup decisions. As a result, we hope to achieve cleanup of these sites in a timelier manner and, therefore, be able to direct more concentrated efforts toward cleanup of the sites that pose the greatest threat to human health and the environment. Since November 2011, I have already seen significant progress along those lines.

Also, House Bill 465 passed during the 2012 legislative session. The passage of this bill signifies the agency's willingness and desire to continue supporting the redevelopment of properties that may have been impacted by releases of contaminants to soil and groundwater. In essence, the bill provides for liability relief for persons desiring to purchase and develop properties when they were not responsible for past releases that may have occurred. While property redevelopment is always primarily driven by economics and location, it is my hope that this new law will give both redevelopers and financiers more

confidence that the division supports responsible redevelopment and can and will provide liability relief to persons who qualify under the new law.

Lastly, the division continues to implement its core responsibilities of 1) assisting in the minimization of waste generation and land disposal of wastes, 2) working to increase recycling and the beneficial reuse of materials that might otherwise be disposed, 3) continuing the closure and remediation of historic landfills, Superfund sites, hazardous waste sites and underground storage tank facilities, and 4) conducting timely review of permit applications for solid waste and hazardous waste facilities.

This report helps showcase the progress made regarding the management of solid and hazardous waste and cleanup of releases to the environment. Given the challenges, I am proud of the division's personnel who continue to do their jobs well and, I believe as a result, provide a valuable service to Kentucky citizens and businesses.

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

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EXECUTIVE SUMMARY

With 249 staff positions, the Kentucky Division of Waste Management is the second largest division in the Department for Environmental Protection. It consists of seven branches:

- Solid Waste Branch
- Recycling and Local Assistance Branch
- Hazardous Waste Branch
- Field Operations Branch
- Underground Storage Tank Branch
- Superfund Branch and
- Program Planning and Administration Branch.

Selected achievements and challenges for Calendar Year 2011:

- ***Curbside collection*** – Participation in curbside garbage collection has remained steady since legislation in 2002 began requiring waste haulers and recycling haulers to register and report to each county in which they provide service. The 2011 statewide household participation rate for all collection types was 86.75 percent.
- ***Recycling*** – Kentuckians recycled 34.3 percent of common household recyclables (aluminum, cardboard, steel, plastic, newspaper, glass, and paper) in 2011. Kentuckians recycled 37 percent of all municipal solid waste in 2011, which included sludge, concrete, compost, and asphalt in addition to the common household recyclables.
- ***Illegal open dumpsites*** – More than 25,225 illegal open dumpsites have been cleaned since 1993 at a cost of over \$70.6 million dollars, an average cost of \$2,799 per dumpsite.
- ***Litter along public roads decreased*** – The Kentucky Pride Fund, Eastern Kentucky PRIDE, Bluegrass PRIDE, Transportation Cabinet, Adopt-A-Highway, and cities and counties contributed to the cleanup of 15,056,840 pounds of litter at a cost of \$7.7 million during 2011. The average cost per pound of litter picked up increased from 46 cents in 2010 to 51 cents in 2011.
- ***Waste Tire Program*** – During 2011, Kentucky used funding from this program to recover approximately 604,000 passenger-tire-equivalents during waste tire amnesties across the state.
- ***Crumb rubber grants awarded*** – In 2011, the Waste Tire Trust Fund awarded 31 grants totaling \$400,000 to assist schools and communities in projects using crumb rubber from waste tires for athletic fields, gyms, parks, and community playgrounds.
- ***The Division of Waste Management's State Government Office Paper Recycling Program thrives*** – This program serves more than 115 agencies in Frankfort. Office paper, computer paper, newsprint, and cardboard are collected. State employees recy-

pled 2,714,076 pounds of waste paper in 2011, approximately 216 pounds per state employee. Confidential document destruction provides a zero cost alternative to state and local governments.

Selected achievements and challenges for Fiscal Year 2012:

- In FY12, 204 Superfund sites of varying sizes and complexities were characterized and/or remediated.
- The division is in the process of performing a comprehensive review of regulatory programs. In April 2011, the division filed regulatory amendments to update the UST program to incorporate changes in response to the Federal Energy Policy Act of 2005, streamline the reimbursement process, and expedite corrective action activities. The regulations were promulgated October 2012.

INTRODUCTION

The Division of Waste Management is one of six divisions of the Department for Environmental Protection in the Energy and Environment Cabinet. The 2010 departmental strategic plan describes the mission of the agency:

Protect and enhance Kentucky's environment to improve the quality of life for all Kentuckians.

To accomplish this mission, the department has developed a set of objectives to be implemented by each division. The objectives and tactics germane to this division are:

Department Goal #1: Reduce and/or maintain elimination of division permit and data entry backlogs.

Tactic 1.1: Maintain progress towards reducing and/or maintaining zero permit and data entry backlogs.

Department Goal #2: Protect human health and enhance Kentucky's land resources.

Tactic 2.1: Restore or manage contamination at sites with known or suspected releases to soil or groundwater.

Tactic 2.2: Encourage reduced waste generation and disposal by promoting beneficial reuse, recycling, waste minimization and pollution prevention.

Tactic 2.3: Assure proper management and disposal of waste.

Therefore, the approach is to first minimize waste generation. Secondly, emphasis is placed on the reclamation and recycling of waste that is generated. Finally, requirements are designed to assure that the remaining waste is disposed of properly.

The strategic plan is also geared towards the restoration of lands that are impacted by releases when wastes are *not* managed properly. In the report sections that follow, division activities designed to address these primary issues—waste generation, recycling, collection/disposal, and site remediation—are highlighted.

DIVISION OF WASTE MANAGEMENT HIGHLIGHT

The Maxey Flats Project - Need for Closure

By Maxey Flats Project Staff

A major hurdle has been cleared in the completion of remediation for one of the nation's most infamous nuclear sites—the Maxey Flats Project (MFP). The 2012 Kentucky General Assembly passed the 2012-14 budget that included a \$17 million bond to finance Kentucky's obligation for the final remediation phase at MFP. Added to the budgeted funds are proceedings from a trust account that was created early in the cleanup proceedings to fund the remediation. The trust account has accrued a balance over \$18 million, which gives the Commonwealth a \$35 million budget for the Final Closure Period of the project. The final cap construction and associated remedial activities at Maxey Flats will be one of the largest state-funded environmental cleanup projects the Division of Waste Management has both directed and administered.

The Maxey Flats Project, formerly known as the Maxey Flats Nuclear Disposal Site, is a 50-acre commercial disposal facility for radioactive waste that operated under a Kentucky Radioactive Material License from 1962-1977. During its operations, solid and liquid nuclear waste was buried in unlined earthen trenches. Upon the discovery of nuclear materials in off-site groundwa-



This is an aerial photo of the Maxey Flats Project. Photo provided by Division of Waste Management Staff

ter, the facility was closed to alleviate the environmental threat and protect human health. In 1978, the Commonwealth of Kentucky purchased the Maxey Flats Nuclear Disposal Site to ensure immediate closure and proper remediation. Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act, MFP was listed on the National Priority List in 1986. In 1991, the United States Environmental Protection Agency (EPA) approved the Record of Decision that determined natural stabilization would be the primary method of remediation. Natural stabilization allows natural processes to consolidate the waste in the trenches under an interim cap to a point that would limit subsidence and maintenance issues of a permanent cap. A consent decree was entered in federal court in 1996 that defined the potential responsible parties, known as the Settling Private Parties, and developed a

cost sharing agreement between the Commonwealth and the Settling Private Parties for the Initial Remedial Phase. The Settling Private Parties funded and directed the Initial Remedial Phase activities from 1998-2003; including placement of the 58-acre interim cap, burial operations, and solidification of trench leachate. In addition, the Commonwealth purchased approximately 550 acres of adjoining property creating a “buffer zone” between the public and MFP.

Upon issuance of EPA’s Certification of Completion for the Initial Remedial Phase in 2003, MFP transitioned into the Interim Maintenance Period. Current Interim Maintenance Period activities include: conducting environmental monitoring, complying with EPA regulations, maintaining facilities, and evaluating natural stabilization. In consultation with EPA, Division of Waste Management has determined that natural stabilization has been achieved and will be submitting permission to transition into the Final Closure Period this calendar year. Completion of Final Closure Peri-

od will be the sole financial responsibility of the Commonwealth.

Final Closure Period will bring big changes to the MFP. The latest geosynthetic products in soil stabilization will be utilized to insure the cap performs to the standards mandated by the Record of Decision. It is anticipated that the million plus cubic feet of fill material required to complete a nearly 60-acre cap will be borrowed from the buffer zone, providing a greatly reduced construction cost for the project. An additional four hundred acres will be purchased and annexed into the buffer zone to ensure an adequate supply of clay, general fill, and top soil borrow materials while enhancing public protection. This will increase the total area of MFP from 880 acres to well over 1,200 acres. Areas of the buffer zone impacted by the activities of the Final Closure Period will be reclaimed, creating a contiguous 1,200-acre plus tract of restored Kentucky habitat that will be preserved in perpetuity. This land will be available to other agencies and universities for research to enhance Kentucky’s



*Wildlife thrives near the Maxey Flat Project grounds.
Division of Waste Management Staff Photo*



Completion of the Final Closure Period represents a major milestone in addressing a site with a long and not always positive history.

natural resources.

Because the Commonwealth will be responsible for the Final Closure Period, the Division of Waste Management will not just be the regulator, but will also be the supervising contractor, allowing the division the opportunity to showcase the expertise and talents of our personnel. The division has many capable technical staff including scientists, Professional Engineers, and Professional Geologists. The combined efforts of these technical specialists from across the division, including personnel from the Director's Office, Superfund Branch, Program Planning and Administration Branch, and the Solid Waste Branch make the placement of the final cap at MFP one of the most unique projects in the division's history. Commonwealth personnel expertise from outside the Energy and Environment Cabinet will also be necessary, as the division will call on the Radiation Health Branch of the Cabinet for Health and Family Services to provide radiation safety guidance, and will

engage multiple contractors over the life of the project.

The Division of Waste Management has worked hard during the Interim Maintenance Plan to earn the public's trust through hosting open houses, providing training opportunities to local emergency response agencies, and providing educational opportunities to local schools and youth organizations. Open houses have been well attended resulting in the staff at MFP achieving a first-name basis with numerous Maxey Flats residents. Positive relationships have also been fostered with local educators by enthusiastically honoring requests for educational opportunities related to the Maxey Flats experience. As agencies in service to the public, the Commonwealth and EPA will continue to engage the public and local officials to ensure they have an opportunity to ask questions and provide insight.

Division of Waste Management has been preparing for this monumental undertaking for nearly four years and eagerly awaits the opportunity to replace the industrial landscape of steel casings, polypropylene surfaces, concrete drainage channels, and riprap retention areas with a more natural rolling grass scene more familiar to the residents of Maxey Flats. It is our hope that the final remediation will not only further improve the environmental conditions while saving public dollars, but also help alleviate the psychological threat imposed upon the surrounding communities. Through the process, the division will use sound scientific information and innovative technology in making decisions affecting the remediation of MFP. In addition to subsequent closure, the division will continue to maintain operations and monitoring into the foreseeable future.

SOLID WASTE

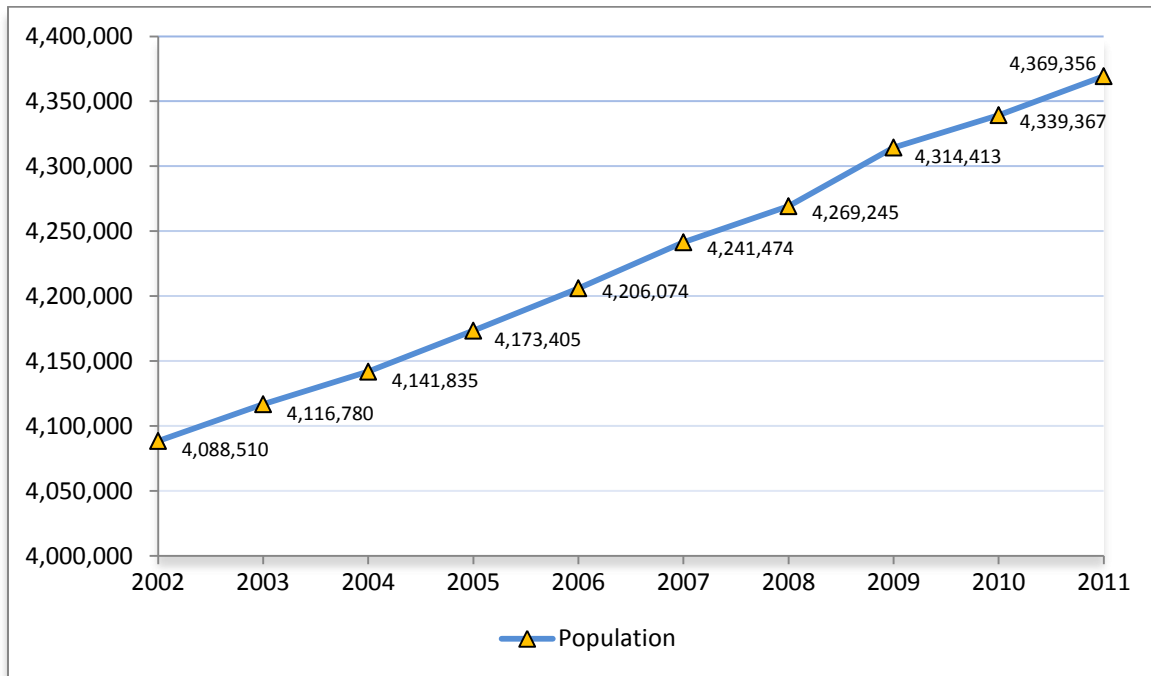
waste.ky.gov/SWB

The mission of the Solid Waste Branch is to assure proper solid and special waste management practices through the implementation of comprehensive permitting, monitoring and training.

The Solid Waste Branch is responsible for the review and issuance or denial of permits for solid waste and special waste landfills, landfarming and composting facilities and registrations for permit-by-rule facilities.

All counties in Kentucky offer a system of universal waste collection. Universal waste collection means that collection service is made available to households, either through curbside collection or through drop-off centers/collection centers/transfer stations for use by households. The total population in Kentucky is increasing, so the amount of waste generated in the state is increasing. The charts below show these trends of increasing population as well as increasing amounts of waste being generated.

Figure 1. Population Growth in Kentucky



Source: State Data Center

In 2011, Kentucky experienced a 0.9 percent increase in Kentucky waste disposal in Kentucky landfills and a 17.4 percent increase in the amount of out-of-state waste disposed in Kentucky landfills. Kentucky land-filled 4,195,361 tons of waste in 2011, an increase of 4,295 tons from 2010.

Municipal Solid Waste Disposal in Kentucky (Tons)

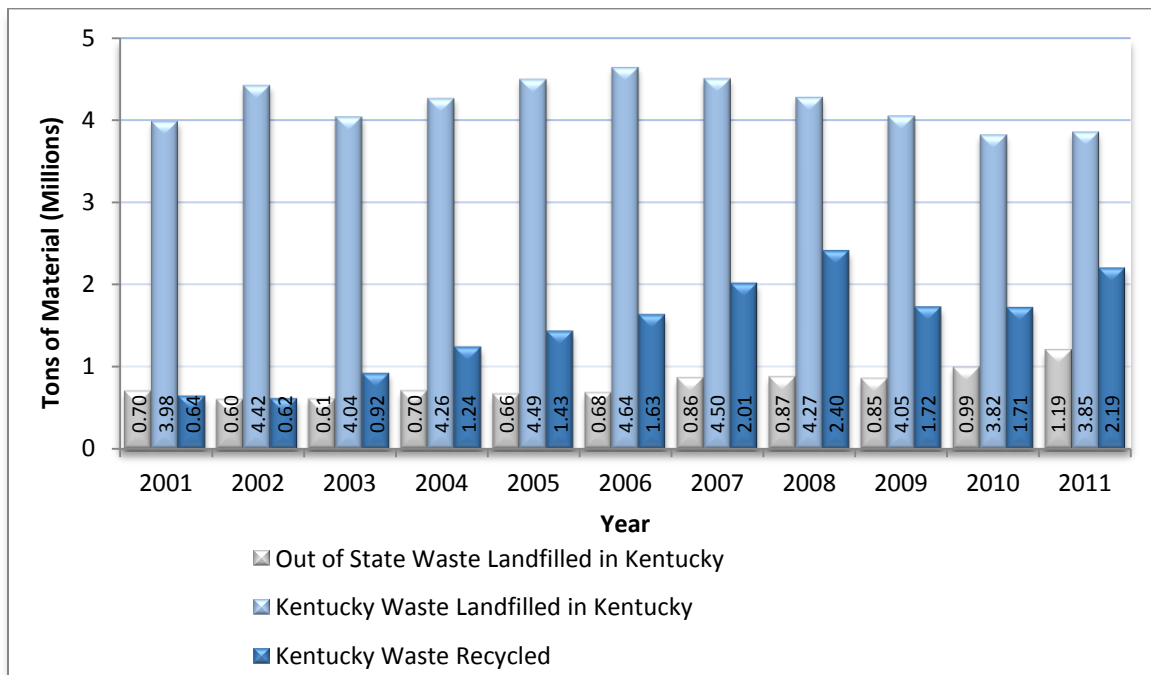
Year	Kentucky Waste Landfilled in Kentucky (tons)	Out of State Waste Landfilled in Kentucky (tons)	Total Waste Landfilled in Kentucky (tons)	Kentucky Waste Landfilled Out of State (tons)	Total Kentucky Waste Landfilled (tons)	Recycled (tons)	Total Waste Generated in Kentucky (tons)	National Recycling Rate	Kentucky Recycling Rate
1994	3,621,623	191,742	3,813,365	133,505	3,755,128	191,684	3,946,812	23%	4.9%
1995	4,207,071	269,833	4,476,904	210,728	4,417,799	529,423	4,947,222	27%	10.7%
1996	3,429,983	270,849	3,700,832	277,638	3,707,621	474,415	4,182,036	28%	11.3%
1997	3,543,196	429,550	3,972,746	165,866	3,709,062	685,650	4,394,712	30%	15.6%
1998	3,615,890	373,291	3,989,181	496,424	4,112,314	1,150,620	5,262,934	31.5%	21.9%
1999	3,734,798	395,998	4,130,796	136,739	3,871,537	739,136	4,610,673	33%	16.0%
2000	3,860,516	515,136	4,375,652	202,029	4,062,545	742,398	4,804,943	32%	15.5%
2001	3,982,260	701,442	4,683,702	233,617	4,215,877	644,925	4,860,802	*	13.3%
2002	4,415,859	598,548	5,014,407	247,002	4,662,861	615,476	5,278,337	26.7%	11.7%
2003	4,036,800	605,760	4,642,560	184,159	4,220,959	919,802	5,140,761	*	17.9%**
2004	4,259,181	702,295	4,961,476	217,761	4,476,942	1,237,294	5,714,236	*	21.7%**
2005	4,493,499	663,686	5,157,185	191,923	4,685,422	1,429,490	6,114,912	30.0%	23.4%
2006	4,636,351	681,414	5,317,765	193,948	4,830,299	1,626,778	6,457,078	28.5%	25.2%
2007	4,500,843	851,055	5,351,897	299,852	4,800,695	2,005,249	6,805,944	33.1%	29.5%
2008	4,273,781	870,637	5,144,418	248,408	4,522,189	2,398,863	6,921,052	33.2 %	34.7%
2009	4,048,176	851,541	4,899,717	304,842	4,353,018	1,838,574	6,191,592	33.8%	28.3%
2010	3,815,858	986,031	4,801,889	375,208	4,191,066	1,712,242	5,903,307	*	29.0%
2011	3,850,689	1,194,345	5,045,034	344,672	4,195,361	2,190,368	6,385,729	*	34.3%

* National data is not available for 2001, 2003, 2004, 2010 and 2011 percentages.

** 2003 and 2004 Kentucky percentage increases are partially attributable to better data, due to a new state law that took effect mid-2002 requiring recyclers to register and report amounts and types of materials recycled. Kentucky municipal solid waste recycled figures are for aluminum, cardboard, steel, plastic, newsprint, glass and paper.

The average cost for municipal solid waste disposed at Kentucky landfills in 2011 was \$34.79 per ton. Figure 2 illustrates the comparison of tonnages of in-state and out-of-state waste landfilled in Kentucky and the amount in tons of recycled materials in Kentucky, beginning with the base year 2001.

Figure 2. Tonnages of Municipal Solid Waste Disposed at Kentucky Landfills Compared to Recycled Kentucky Waste

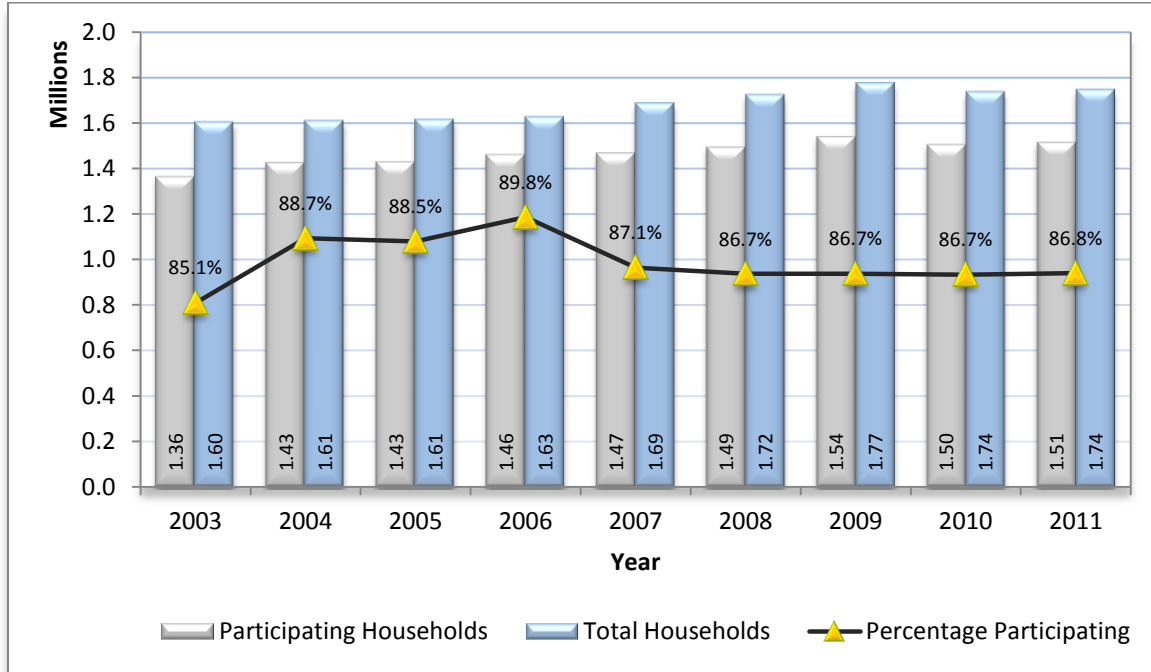


Municipal Solid Waste Collection Programs

Participation in curbside garbage collection has remained relatively flat since 2003 with an average of 87.3 percent participation. Since 2003, waste haulers and recyclers have been required to register and report the number of households utilizing collection service annually to the county.

Figure 3 shows the number of households participating in collection systems from 2003 to 2011.

Figure 3. Curbside Garbage Collection

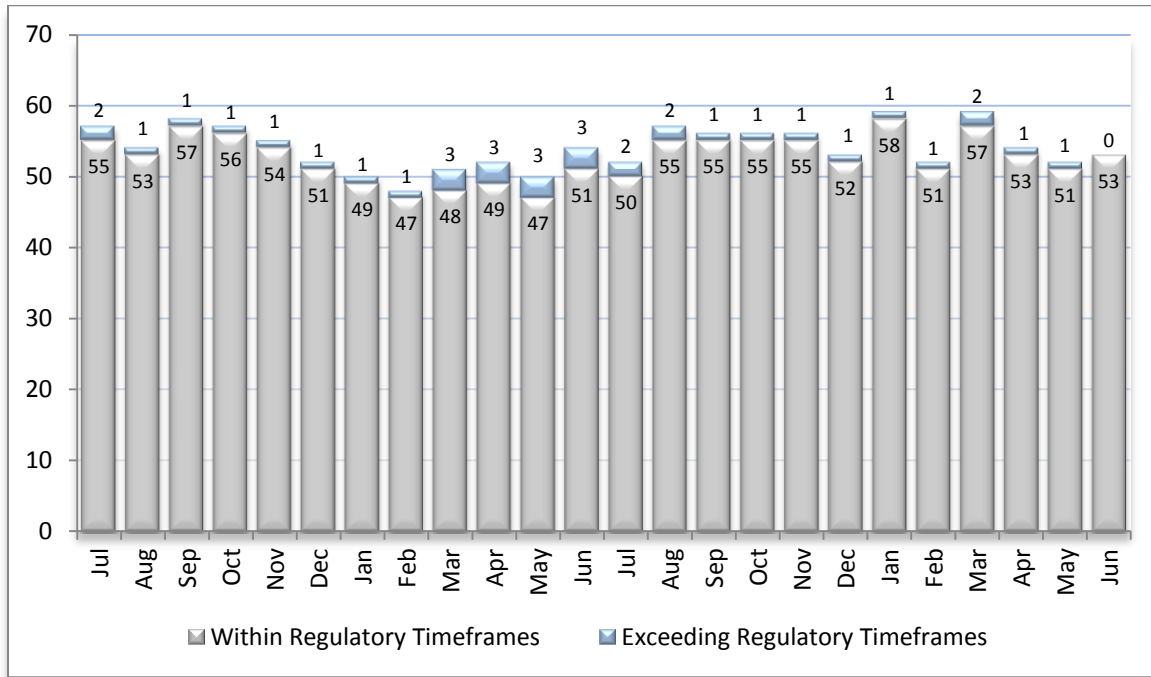


The average participation rate for collection systems in 2011 was 86.75 percent, which means approximately 13.25 percent of households (231,193 households) are disposing of their garbage illegally or are not accounted for by current tracking methods. Self-haul to a transfer station or convenience center is a legal method of disposal. However, most counties have difficulty tracking customers who use this method. Increased reporting requirements from transfer stations and convenience centers is needed to ensure adequate tracking for households participating in proper disposal of municipal solid waste. Multi-unit housing is often overlooked.

Solid Waste Permitting:

The Solid Waste Branch continues to issue the majority of permits within regulatory timeframes.

Figure 4. Solid Waste Permits Pending FY11-FY12



Historic Landfills:

The following is a summary of the Historic Landfill Program progress and results:

A total of 21 landfill construction projects for closure/remediation have been completed to date. Total costs associated with the closure projects, excluding Closure Section personnel direct and indirect expenses exceed \$40 million.

- Happy Hollow Landfill – Bell County
- Winchester Municipal Utilities/Old Clark County Landfill – Clark County
- City of Manchester Landfill – Clay County
- Wayne Hurst Landfill – Fleming County
- Floyd County Landfill
- City of Leitchfield-Millwood Landfill – Grayson County
- Old City of Leitchfield Landfill – Grayson County
- Harlan County Landfill
- City of Cynthiana Landfill – Harrison County
- Letcher County Landfill
- McElya Dump – McCracken County

- City of Richmond Landfill – Madison County
- Marion County Landfill
- Perry County Landfill
- Multi-County Services – Rockcastle County
- Briar Hill Landfill – Scott County
- Sims Road Landfill – Scott County
- City of Campbellsville Landfill – Taylor County
- Glen Lily – Warren County
- City of Bowling Green Inert – Warren County
- Grassy Springs Landfill – Woodford County

Two landfill closure projects are presently under construction. Total cost for site characterization, design and construction is estimated at \$5.6 million.

- Jacks Creek Pike Landfill – Fayette County
- Billy Glover Landfill – Jessamine County

Two historic landfill closure projects are in the design phase and will be scheduled for construction. The total construction cost estimate is approximately \$4.5 million, which includes site characterization as well as design and engineering oversight.

- Johnson County Landfill
- Trigg County Landfill

Initial characterization of 162 sites is complete. The reports and data have been reviewed and the sites have been prioritized based on the perceived threat to human health and the environment. An additional 100 landfills in 23 counties are under contract for initial site characterization. The characterization includes file reviews, property assessment, environmental sampling, and evaluation for threat to human health and the environment. The estimated cost for the initial site characterization project excluding direct and indirect personnel expenses is \$1.2 million.

SOLID WASTE BRANCH HIGHLIGHT

Raven Run Nature Sanctuary

By Tammi Hudson, P.E.

Raven Run is a 734-acre nature sanctuary located in Fayette County off Jacks Creek Pike. The sanctuary is visited by more than 32,000 people annually but most people do not know that a former county landfill is situated within the 10 miles of hiking trails.

Fayette County accepted household wastes, industrial wastes, and construction/demolition debris at Jacks Creek Pike landfill from 1969 to 1972. The landfill stopped accepting waste after a fire in 1971, and a layer of soil was placed over the waste and the landfill was abandoned. In 2002, House Bill 174 established a program to clean up orphaned or abandoned landfills and Jacks Creek Pike landfill was placed on the priority list for cleanup because of its potential threat to human health and the environment. The landfill is situated in a ravine with natural springs flowing through it and it produces a large volume of leachate.



*Raven Run Nature Sanctuary
Lexingingky.gov photo*

The Division of Waste Management and their consultant, Tetra Tech, Inc., worked with Lexington's Parks and Recreation Department to choose a non-disruptive technology to remediate the leachate. Phytoremediation was selected because it could provide dual benefits by reducing the quantity and quality of leachate while maintaining the sanctuary's natural landscape. As the trees mature, their roots could uptake and remove contaminants from the leachate.

As funding became available, plans were developed to consolidate the waste into a smaller footprint, install a passive leachate collection system, replace the cap, and plant trees on the landfill. With the help of consulting firm, Tetra Tech, Inc., and contractor, PECCO, Inc., construction began on Dec. 12, 2011.

Raven Run Nature Sanctuary is open daily and one obstacle for the construction project was minimizing disturbance to visitors. Cell phones and Verizon 4LTE Hot Spot® were used for communication and internet service, which eliminated the need for temporary overhead utility lines. Equipment and materials were staged away from main trails and construction activity was not visible from the nature center.

Construction workdays were decreased by incorporating current technology with heavy equipment. Global Positioning System (GPS) units were mounted in dozers and track excavators, and construction plans were loaded into the Trimble Tablet® which communicated with earth moving equipment. PECCO installed a 2-foot by 3-foot solar panel to supply power to the base station of the GPS system.

In the first phase of the project approximately 4,500 cubic yards of waste from the construction/demolition debris (C/DD) landfill and four small areas of C/DD were relocated to the former municipal solid waste landfill area. Using track excavators, dozers, and articulating trucks, the municipal waste and C/DD waste were moved upstream 100 yards to fill the valley and to isolate and reroute a natural spring which was flowing through the waste. Almost 25,850 cubic yards of waste were combined and reshaped in the valley, and the total landfill footprint was reduced from 8.7 acres to 6.7 acres. The natural spring flow was redirected from the waste to a diversion ditch resulting in a decrease of leachate by more than 10,000 gallons per day.

The quantity of leachate was minimized to less than 500 gallons per day, and the leachate did not have color, odor, or contaminants in concentrations above surface water discharge limits. A passive gravity system was installed, directing the leachate through a rock filled bioswale allowing natural overland flow.

The next phase of work was installing the phytoremediation cap. An estimated 27,800 cubic yards of backfill and topsoil were trucked from an off-site borrow area to the nature sanctuary. Again using GPS equipment mounted on dozers, the clay and topsoil were placed and final contours were achieved within 28 days. Native species of water loving trees, such as sycamores and poplars, were randomly planted. At completion, the disturbed 11 acres will be repopulated with more than 5,000 trees to provide a natural environment on the municipal waste landfill. Native grass seed, including buffalo and Indian grass seed, was broadcast in areas where C/DD waste had been removed.

During the three years Jacks Creek Pike landfill operated, segments of the property were designated for changing oil and lubricating machinery. During the Division of Waste Management's site characterization, soil impacted with low levels of volatile organic compounds was identified beside Raven Run Sanctuary's popular Meadow Trail. The area was a designated sludge pit and several drum carcasses remained in the pit. Approximately 900 cubic yards of soil were removed, sampled, and transported off-site for disposal. The excavated area was backfilled and hydroseeded with native grasses.

The Division of Waste Management worked diligently to keep activities at the park uninterrupted, minimize disturbance to surrounding homes, and maintain the natural beauty of the popular park. Attention to details was very important. For example, during construction of a diversion ditch a nest of turtles was discovered and construction stopped to relocate the five turtles to a new habitat.

For more information on Raven Run Nature Sanctuary, including hours of operation, public programs, school programs and trails, visit the website hosted by the Lexington-Fayette Urban County Government at <http://www.lexingtonky.gov/index.aspx?page=276>.

RECYCLING AND LOCAL ASSISTANCE

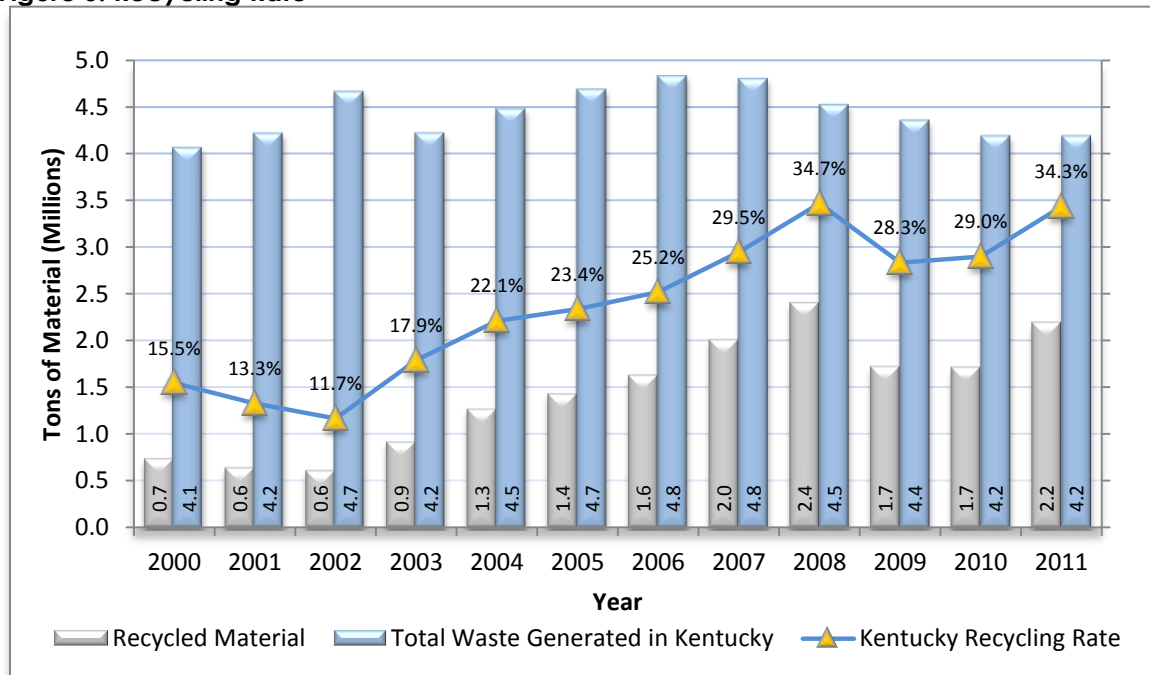
waste.ky.gov/RLA

The Recycling and Local Assistance Branch provides continuous technical assistance and training to public and private entities on solid waste issues and regulatory requirements and promotes individual responsibility and accountability for proper solid waste management.

County Recycling and Recycling Education Programs

In accordance with Kentucky Revised Statute (KRS) 224.43-315, beginning March 1, 2004, recyclers are required to report annually to the county the amount of municipal solid waste collected for recycling by volume, weight or number of items, and the type of items recycled. Statewide recycling rates of common household items such as glass, paper, metal, and plastics increased from 29 percent to 34.3 percent in 2011. The average national recycling rate in 2010 was 34.1 percent. Figure 5 maps Kentucky's recycling rate since 2000.

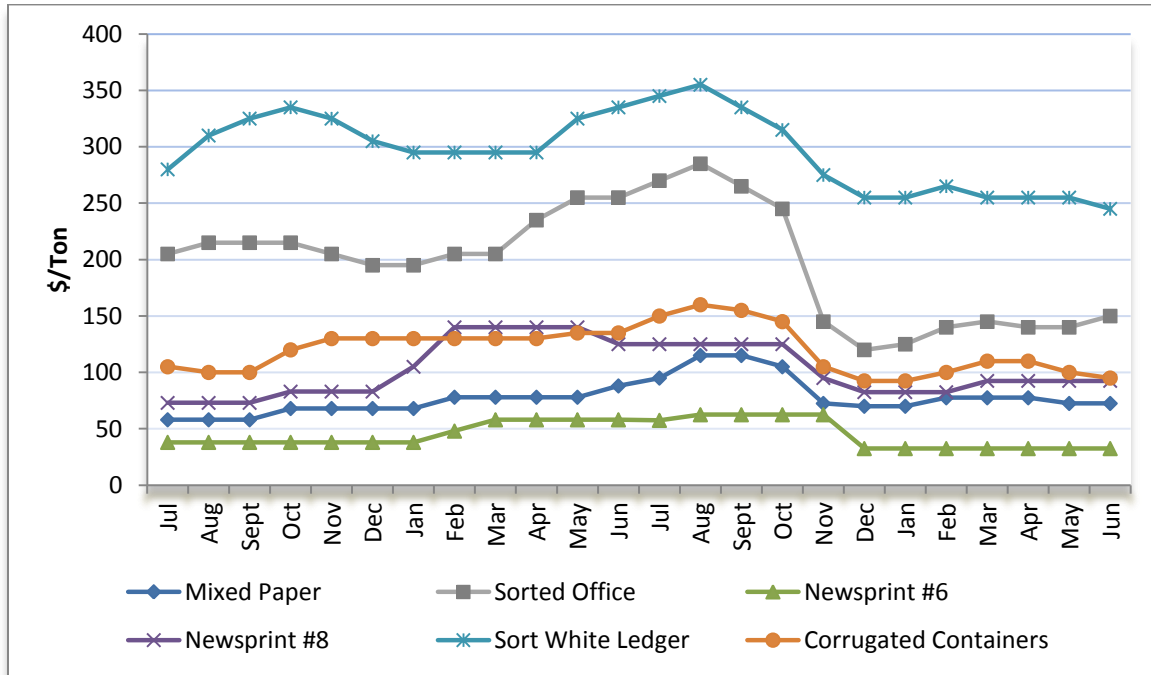
Figure 5. Recycling Rate



The first recycling grants were awarded in June 2007. As these new recycling programs become more established, Kentucky's recycling rates should increase.

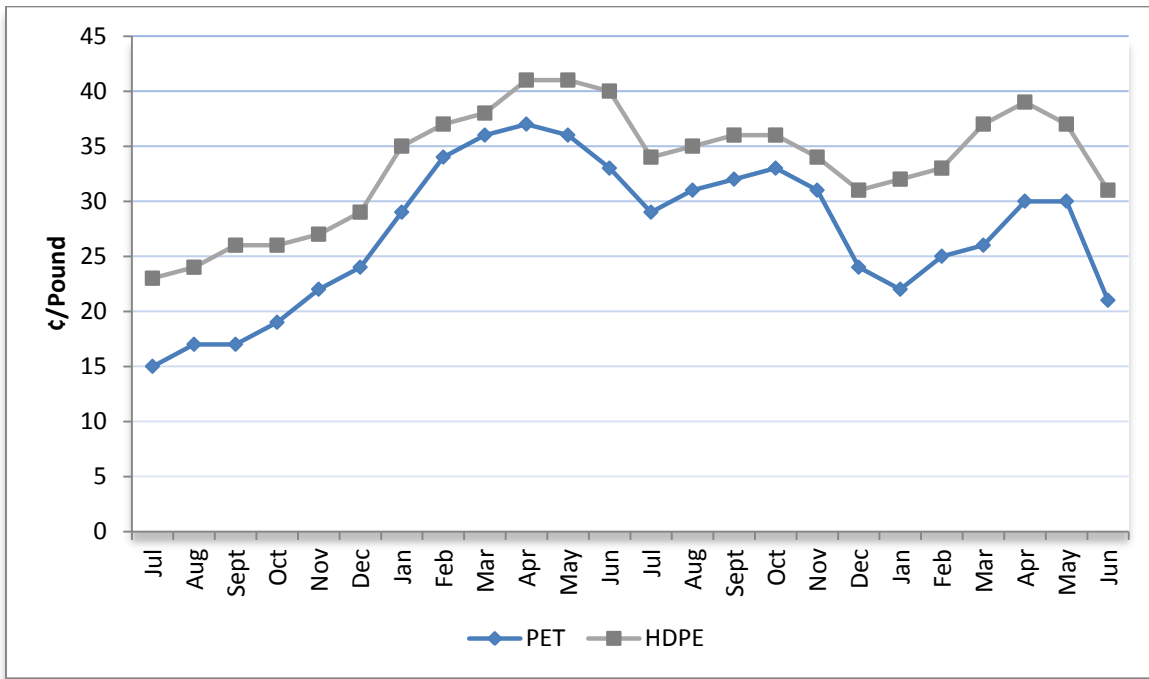
Through publication of its *Marketplace* newsletter, the division reports on the prevailing prices paid for aggregate recyclable materials. The following figures show the trends for various commodities.

Figure 6. Fiber Recyclables Market FY11-FY12 (\$/Ton)



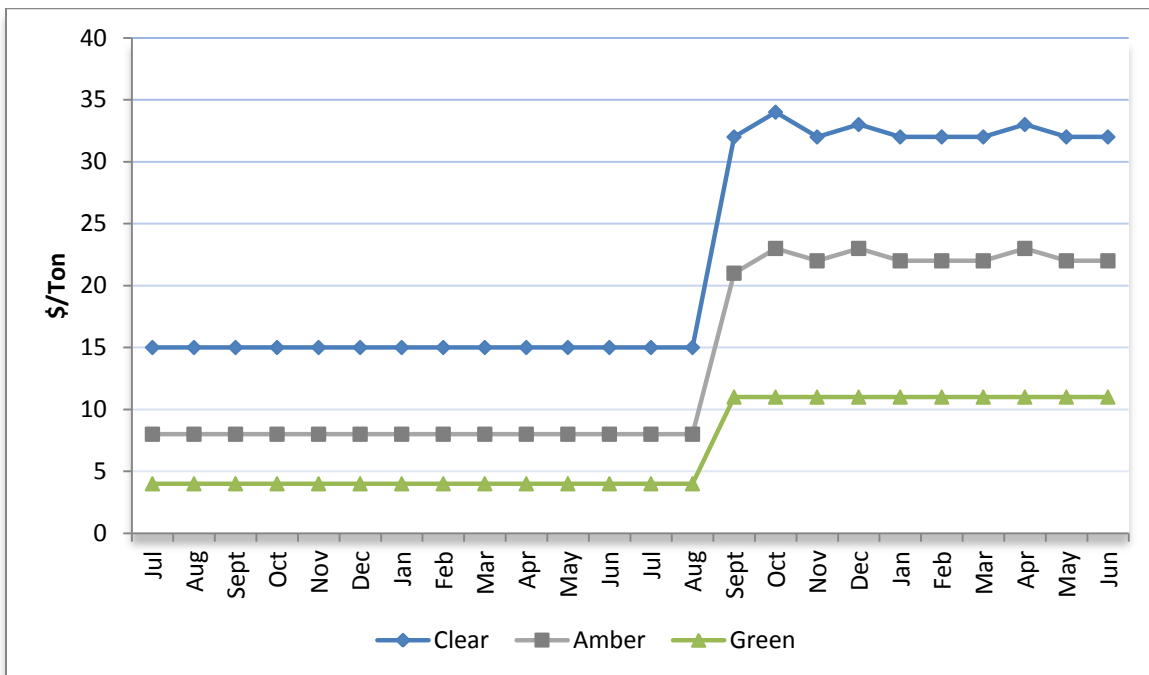
- “Newsprint #8” means baled sorted newspaper, with no sun exposure, with less slick advertising inserts.
- “Newsprint #6” means baled newspaper that typically has advertising slicks in it.
- “Sorted Office” means mostly white and colored, ground wood-free copier and printer paper.
- “Mixed Paper” means a lesser-grade of material that can include slick advertising inserts, envelopes and other things with gummy surfaces.
- “Sorted White Ledger” means higher class white paper such as stationery (free of ground wood fiber)
- “Corrugated Containers” means, typically, cardboard boxes.

Figure 7. Plastic Recyclables Market FY11-FY12 (¢/Pound)



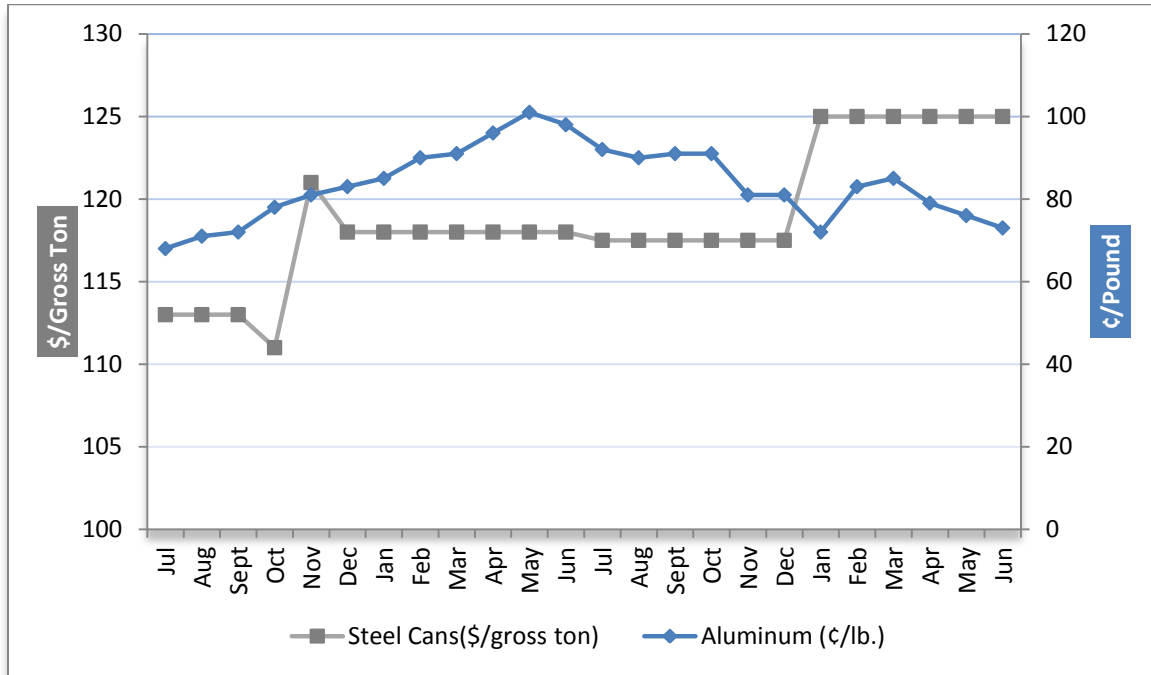
The price paid for number one and two plastics, polyethylene terephthalate (PET) typically known as soda bottles and high density polyethylene (HDPE) typically known as milk jugs, has generally increased over the last two fiscal years with the exception of a marked decrease in the spring of 2011. Lower demand due to decreased production, both for domestic and export markets, have kept PET and HDPE prices lower than pre-2009 recession levels. The lower value for the material will continue until the worldwide economy begins recovering, which is not expected until the second half of 2012.

Figure 8. Glass Recyclables Market FY11-FY12 (\$/Ton)



As shown in Figure 8, glass prices have increased dramatically due to the combination of increased interest in recycled content in glass containers (particularly wine bottles) and the shortage of clean recyclable cullet available since the widespread advent of “single stream” recycling collection. Cross contamination of all commodities, especially glass bottles and jars, has caused manufacturers that use recyclable cullet to increase pricing to stimulate the volume of clean material suitable for their use in making new glass containers.

Figure 9. Metal Recyclables Market FY11-FY12

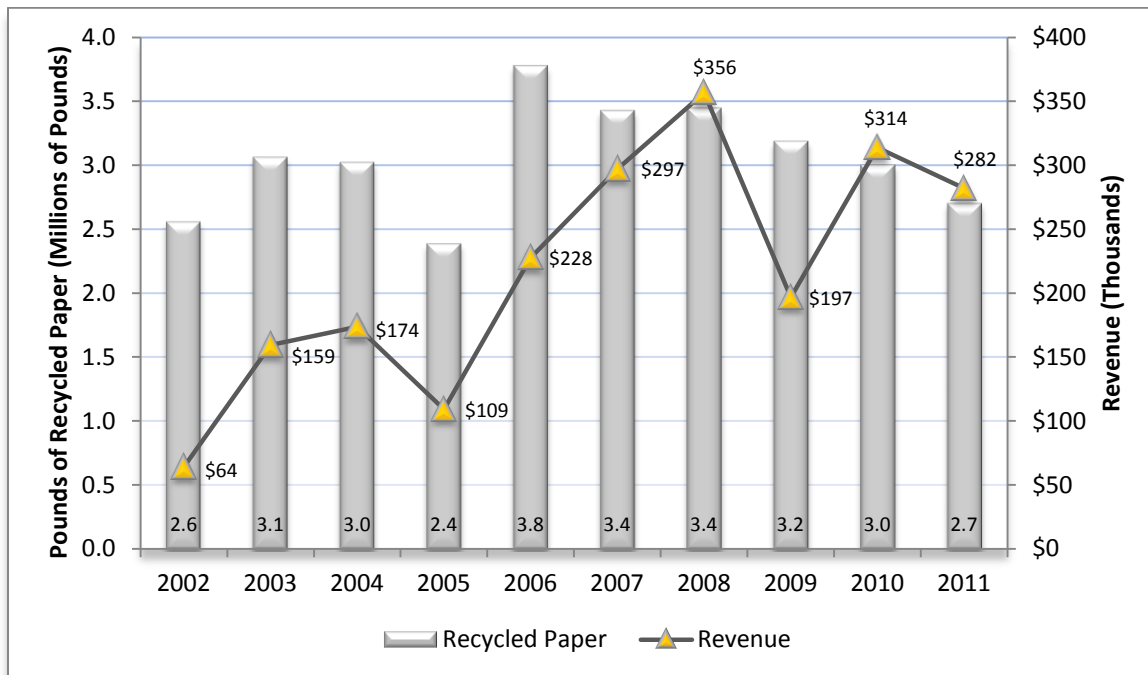


Recycling prices for aluminum cans has fallen somewhat, as have all non-ferrous scrap metal prices, due to lower demand as economies remain stagnant worldwide. Steel prices have escalated above more recent depressed pricing due to a shortage of ferrous metal being available in the marketplace. This is primarily the result of less scrap being produced due to lower manufacturing and building demolition being done in the United States.

The State Office Paper Recycling Program

The Government Recycling Section continues to operate the State Office Paper Recycling Program, serving more than 115 agencies in Frankfort. This program has been self-supporting, funding seven full-time staff positions.

Figure 10. State Office Paper Recycling Program Revenue



The Government Recycling Section offers free pickup and free document destruction of governmental office paper. The Government Recycling Section moved to a new location on Northgate Drive in June 2006 that offers a secure environment to address confidentiality issues. Office paper represents 80 percent of the waste stream in the office environment. The cabinet has been tracking the amount of governmental waste paper recycled since 1993, with more than 40.2 million pounds of paper being recycled through this program. Since 2002, state employees recycled more than 30.5 million pounds of waste paper, generating more than \$2,179,680 in revenue. In 2011, state employees recycled 2,714,076 pounds of waste paper – approximately 216 pounds per state employee. Figure 10 reflects the pounds of governmental waste paper recycled through the program for calendar years 2002–2011.

Waste Tire Trust Fund

The Waste Tire Trust Fund was reauthorized in the 2010 special session of the General Assembly through HB 2 and was in effect until June 30, 2012. The cabinet submitted a report to the General Assembly on Jan. 13, 2012, recommending that the program be reauthorized. Funding comes from a \$1 fee on the sale of all new motor vehicles tires sold in Kentucky. The fund is used to conduct waste tire amnesty programs, provide annual funding directly to counties for waste tire management, award crumb rubber grants, facilitate market development for the use of waste tires, and clean up waste tires at sites where tires have been mismanaged. In 2011, the General Assembly passed House Bill 433, which established a Waste Tire Working Group to advise the cabinet on (among other things) administering and implementing alternative methods for controlling waste

tires, developing a formula to apportion money in the Waste Tire Trust Fund, and preparing the report for the General Assembly. In 2011, the cabinet also gave counties the option of receiving a \$3,000 grant for disposal or recycling of waste tires within the county.

In 2010, tire amnesties were conducted in 39 counties in the FIVECO, Buffalo Trace, Gateway, Northern Kentucky, Big Sandy and Kentucky River Area Development Districts (ADDs.) A total of 735,984 waste tires (“passenger-tire-equivalents,” or PTEs) were recovered through these amnesties at a cost to the fund of \$691,136. This represents less than a 1 percent decrease in PTEs recovered for these same ADDs compared with the last amnesties, conducted in 2004-2005.

Crumb Rubber Grants

From 2004–2011, the cabinet awarded 260 grants totaling more than \$6.5 million to local government, schools, daycares, churches and other entities for the use of crumb rubber made from recycled tires for athletic fields, playgrounds, walking trails, landscaping, gymnasium floors, etc. In 2011, 31 grants totaling \$400,000 were awarded to assist schools and communities in projects using crumb rubber from waste tires for athletic fields, gyms, parks, and community playgrounds. Funding for the crumb rubber grants comes from the Waste Tire Trust Fund.

Kentucky Pride Fund

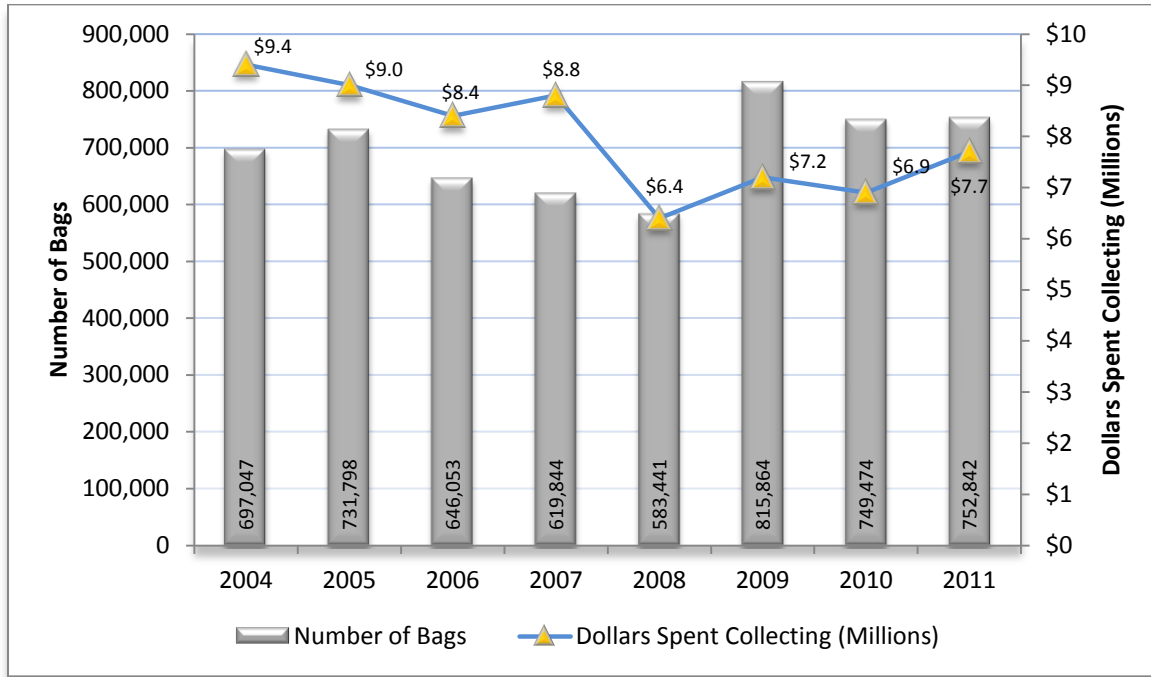
The environmental remediation fee of \$1.75 per ton of waste disposed in Kentucky is placed into the Kentucky Pride Fund. This money is used for closure of historic landfills, debt service, litter abatement, recycling grants, household hazardous waste management grants and remediation of illegal open dumps.

Litter Abatement - In 2001, the division began tracking the cost of litter activities and the number of bags of litter collected. State litter abatement grant funding through the Kentucky Pride Fund began in fiscal year 2002. The cabinet receives \$5 million annually from the Transportation Cabinet for distribution to counties and incorporated cities for litter abatement activities.

The success of litter abatement campaigns across the Commonwealth is evident in the reduction of litter being picked up along roadways. In 2011, counties cleaned 752,842 bags of litter on 183,387 miles of roadways.

Litter collection costs totaled \$7.7 million, an average cost of 51 cents per pound. Most of the items found on roadways are plastic bottles and food containers. Litter is costly at \$1,020 per ton when compared to the average landfill disposal rate of \$34.79 per ton. Figure 11 reflects the number of bags of litter collected and the amount spent on litter for calendar years 2004-2011.

Figure 11. Number of Bags of Trash Collected and Dollars Spent Collecting

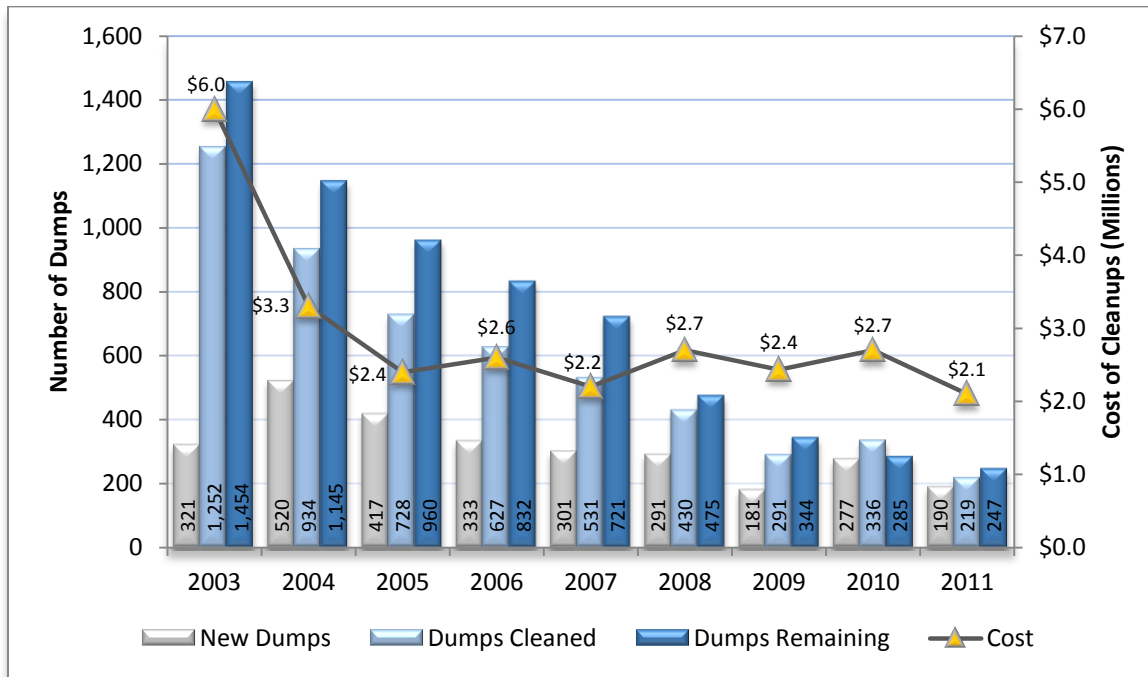


The amount of litter collected on public roads may not include litter collected by state road crews as part of the Department of Transportation’s efforts to maintain state roads.

Recycling and Household Hazardous Waste - In 2006, the Kentucky Pride Fund was amended to provide grants for the development and expansion of recycling programs and household hazardous waste (HHW) management. In 2011, 73 entities were awarded grants for a total of over \$3.5 million. Fifty-nine recycling grants were awarded to cities, counties, and universities. These grants were to help fund the establishment or expansion of recycling operations. Fourteen HHW grants were awarded. Materials collected during HHW events included e-scrap, pesticides, solvents, mercury and other HHW products found around the home. These events were made possible by the Kentucky Pride Fund. The grants require a 25 percent local match in the form of cash or “in-kind” personnel, educational activities/materials and advertising to promote the program from the cities or counties receiving the awards. The grants are funded through the \$1.75 environmental remediation fee paid on each ton of waste disposed in Kentucky landfills. The goal of the program is to encourage recycling and HHW management events in areas where few of these opportunities for citizens exist, with an emphasis on regional cooperative efforts.

Cleanup of Illegal Open Dumps - With proceeds from the Kentucky Pride Fund, more than 25,225 illegal open dumpsites have been cleaned at a cost of \$70.6 million dollars since 1993. Figure 12 shows the number of dumpsites cleaned since 2003. In 2011, counties cleaned 228 illegal open dumps at a cost of \$2.6 million. The average cost to clean each dumpsite was \$11,227.96. There were 247 known dumpsites remaining at the end of 2011. Figure 12 shows a decrease in the number of remaining illegal dumps since 2003.

Figure 12. Open Dump Cleanups and Expenditures



Financial assistance, through the Kentucky Pride Fund Illegal Open Dump Grant Program, has provided counties the incentive and the necessary financial help to identify and rid their communities of old dumpsites. Since 2002, this program has funded the cleanup of 1,661 dumpsites at a cost of more than \$10.7 million. The seventh round of illegal open dump grants was awarded in Nov. 2010 for the remediation of 167 dumpsites at a projected \$1.6 million.

Also in FY12, the creation of new dumpsites was averted with proceeds from the Kentucky Pride Fund. Grants totaling \$1,475,000 were administered to assist our local officials in dealing with the cleanup and disposal of hazardous and solid waste resulting from the spring 2012 storms. With this funding, a large amount of waste and storm debris that may have otherwise been deposited in illegal dumps was disposed of properly.



Funds from Kentucky Pride were used by counties to help clean up large amounts of storm debris that resulted from tornadoes in spring 2012.

Kentucky Recycling and Marketing Assistance Program (KRMA)

E-scrap collection continues to grow in the state, with over 60 counties offering some type of e-scrap collection. Year-round e-scrap drop-off programs are increasing across the state with over 25 counties now offering them. Another 21 counties offer some type of e-scrap collection, whether periodic or an annual event. More than 5,065 tons of e-scrap were collected in 2011. Beginning in 2008, the Kentucky Pride Fund Program provided grant awards for the management of HHW, a category that includes e-scrap and mercury.

Also in 2008, the Finance and Administration Cabinet awarded an e-scrap recycling contract to a national vendor, Creative Recycling Services (www.crserecycling.com), which became effective Jan. 1, 2009. This “all-agency” contract allows the executive, judicial, and legislative branches of government, school districts, universities, and any other public not-for-profit organization convenient access to recycling. The contract provides for statewide pickup and recycling services with effectively zero percent of the scrap going to Commonwealth landfills. This contract is unique in that the vendor pays the agencies/school districts/universities/local governments for selected items aggregated for recycling. From Jan. 2009 to Jan. 2011, over 3,100 tons of e-scrap have been collected from over 600 agencies/locations and refurbished or recycled in an environmentally sound and data secure manner. Payments to generators have netted over \$132,000.

End of Life Vehicle Solutions (ELVS) targets mercury-containing switches removed from automobiles before the autos are salvaged for scrap metal. During HHW events, 103 participants collected an estimated 15 pounds of mercury from 6,987 switches.

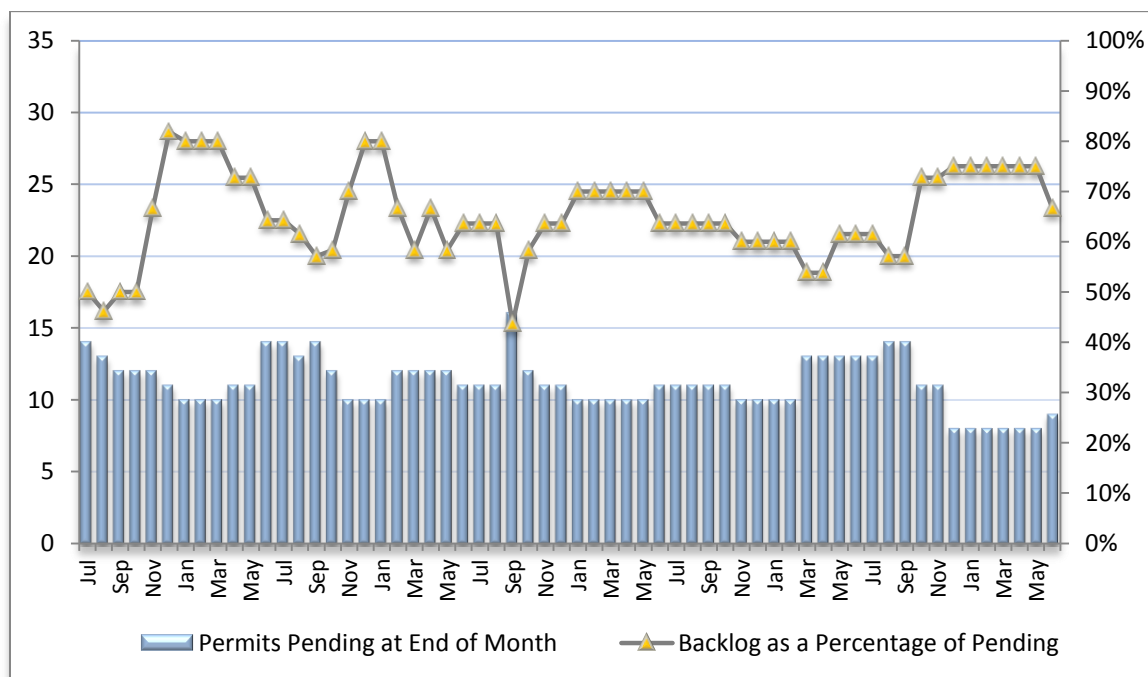
HAZARDOUS WASTE

waste.ky.gov/HWB

The Hazardous Waste Branch oversees the management of hazardous waste from generation to disposal. This involves the promotion of hazardous waste minimization, hazardous waste management and remediation of hazardous waste releases. These activities are accomplished through permitting, corrective action, registration and reporting requirements.

Hazardous Waste Permitting:

Figure 13. Hazardous Waste Permits Pending FY08-FY12



The above chart illustrates that the total number of pending permit applications has remained steady since the initial reduction effort began.

HAZARDOUS WASTE BRANCH HIGHLIGHT

Blue Grass Army Depot

By Bill Lunsford, P.E.

Background

Founded in 1941, Blue Grass Army Depot (BGAD) is a 15,000-acre installation that is owned and operated by the United States federal government. While led by a single installation commander, BGAD is an Army Working Capital Fund (AWCF) facility and is home to multiple tenant organizations. BGAD was issued a Resource Conservation and Recovery Act (RCRA) operating permit Sept. 30, 2004, and a Research Development and Demonstration (RD&D) permit Sept. 30, 2005. The tenant facility responsible for safe

storage of chemical weapons is the Blue Grass Chemical Activity (BGCA). BGCA reports to the Chemical Materials Agency (CMA). The Blue Grass Chemical Agent Destruction Pilot Plant (BGCAPP) facility will ultimately be responsible for the bulk of the chemical weapons stockpile destruction and reports to the Assembled Chemical Weapons Alternatives (ACWA) organization. ACWA received a revised Acquisition Program Baseline in March 2012, which institutes a planned budget to support the project through completion. At this time, construction of the BGCAPP facility is 50 percent complete. In April 2012, the projected date for final chemical destruction was reported to the Organization for the Prohibition of Chemical Weapons (OPCW) as September 2023 followed by closure in 2025.

The BGCAPP plant will utilize hot caustic neutralization and supercritical water oxidation (SCWO) to irreversibly destroy the chemical agents. The munitions demilitarization building (MDB) is the core treatment facility for the neutralization process. This building is being constructed with explosive containment features that have been approved by the Department of Defense Explosives Safety Board (DDESB). Upon exiting this building the neutralized agent, hydrolysate, will be staged for processing in the SCWO processing building. In addition to the treatment areas, additional structures include buildings for control and support, utilities, maintenance, a modular laboratory, and safety. Additional milestones achieved include equipment installation, neutralization reactor placement, bulk chemical storage tanks, and a 100 ton nitrogen vessel which is used for purging oxygen to prevent combustion and also for purging hydrogen to prevent an explosive hazard. The BGCAPP project employs 939 personnel as of June 2012. The construction activities have a very good safety record which has earned the project Occupational Safety and Health Administration Voluntary Protection Programs Star Status. Commitment to safety is also evidenced by a rigid lockout tagout program and the willingness for management to freeze activity on the site to focus personnel on safety issues.

FY12 Permitting

Research Development and Demonstration (RD&D)

As required by the RD&D permit, the systems contractor will submit RCRA permit information while constructing the demilitarization plant. Appendix B to the RD&D permit is a compliance schedule outlining when certain information is required. Periodic meetings and correspondence serve to work through issues that are encountered throughout the RCRA process.

The munitions demilitarization building (MDB) in the BGCAPP plant will have a cascading ventilation system to carry any potential chemical agent vapors to an extensive carbon filtration system. August 2012 correspondence discussed the planning for how each unique area within the plant will be monitored, inspected, and reported. Operations within the highest risk areas will be fully automatic and only entered by maintenance personnel or others wearing proper protective gear. The destruction efficiency test plan and report for chemical agent neutralization was also discussed in August. KRS 224.50-130 requires that chemical agent destruction efficiency must meet 99.9999 percent destruction. The details of how this test plan will be implemented and reported will be forthcoming in future submittals.

Certified equipment design drawings have been approved for the energetics batch hydrolyzer (EBH) and Metal Parts Treater (MPT) treatment units. These drawings include process flow diagrams, piping and instrumentation diagrams and other schematics. This equipment is also onsite and undergoing interconnection.

Equipment which has or will undergo factory acceptance testing in 2012 includes the rocket cutting machine, rocket shear machine, munitions washout system, and supercritical water oxidation equipment. Upon completion of this testing the equipment will be transported to the Richmond, Ky., site to be interconnected and prepared for systemization.

Part A to the RCRA permit is an important document which identifies waste streams, treatment unit capacity, storage etc. The part A permit associated with RD&D was revised January 2012 to reflect capacity and waste handling changes that have occurred throughout design maturation.

The BGCAPP facility has received some equipment from other Army sites. Enhanced Onsite Containers which are sealed vessels designed to transport chemicals are one example of what has been received in the past year. Re-use of this item alone has saved the project over \$10 million. When receiving used materials clean certification documents are generated to ensure safety.

X-ray assessment of blister agent mustard projectiles showed a high degree of solidification that would render processing in the BGCAPP plant problematic. ACWA has taken steps to study use of an explosive destruction technology (EDT) chamber to destroy this component of the stockpile. National Environmental Policy Act (NEPA) requirements dictate that a study be done to assess the environmental impact of the proposed equipment. The NEPA process is inclusive and provides opportunities for public comment. If the NEPA process reaches a positive outcome, then the RCRA permitting process will follow. Similar equipment has been used in Anniston, Ala., and is also being proposed for the Pueblo, Colo., site.

BGCA Permitting

The Blue Grass Chemical Activity (BGCA) was approved June 1, 2012, for a class 1 permit modification to the chemical storage permit for administrative changes and for the removal of concrete drainage features exterior to the hazardous waste storage units. This change is being implemented to facilitate future activities of moving weapons to the destruction plant.

BGCA submitted the 2011 annual report documenting rewarehousing/repalletization and other stockpile maintenance activities. Proper notifications are made while undertaking these activities and precautions are also taken to mitigate the risk of the activity being performed.

Oct. 26, 2011, the Madison County Emergency Management Agency and the Community Stockpile Emergency Preparedness Program (CSEPP) conducted a test exercise utilizing a new tone alert radio system. Annual CSEPP exercises are conducted with coordination across the affected region. CSEPP is a division of Kentucky Emergency Management (KYEM) and is funded through a Federal Emergency Management Agency grant.

The Chemical Agent Incident Response and Assistance (CAIRA) plan was revised in 2011 with administrative changes. This plan is also part of the contingency plan contained within the RCRA permit application.

In the fall of 2011 the Chemical Materials Agency (CMA) conducted an Igloo Filtration Study to determine optimum storage conditions within the hazardous waste storage units. Various combinations of dehumidification and filtration were compared over the

data collection period. The study concluded that all options fell within the acceptable temperature and humidity window.

In early 2012 changes were made to VX monitoring operations to ensure more accurate results. To date there has been no leak of VX nerve agent at BGAD.

Meetings took place in early 2012 to begin permitting discussions for a rocket propellant stability study. Similar studies were conducted at other chemical weapons sites, but environmental and storage conditions at BGCA prompted plans to analyze the unique stockpile present in Kentucky.

Remediation

April 9, 2012, a RCRA facility investigation report was approved to excavate and dispose of soil around a lagoon which was impacted by energetic constituents.

Compliance

In Nov. 2011, a regional satellite office opened in Richmond, Ky., to facilitate compliance inspection activities. Field Office Branch inspectors perform an annual RCRA inspection of the Blue Grass Army Depot. Additionally, the BGCAPP site and BGCA hazardous waste storage units are also inspected quarterly. There are also an increasing number of site visits to facilitate construction issues, other hazardous waste issues, or permitting meetings.

Open Burning and Open Detonation

BGAD is operating under interim status for a detonation chamber, open burning, and open detonation (OB/OD). In 2011, 338,680 pounds of expired energetic material was treated by OB/OD.

FIELD OPERATIONS

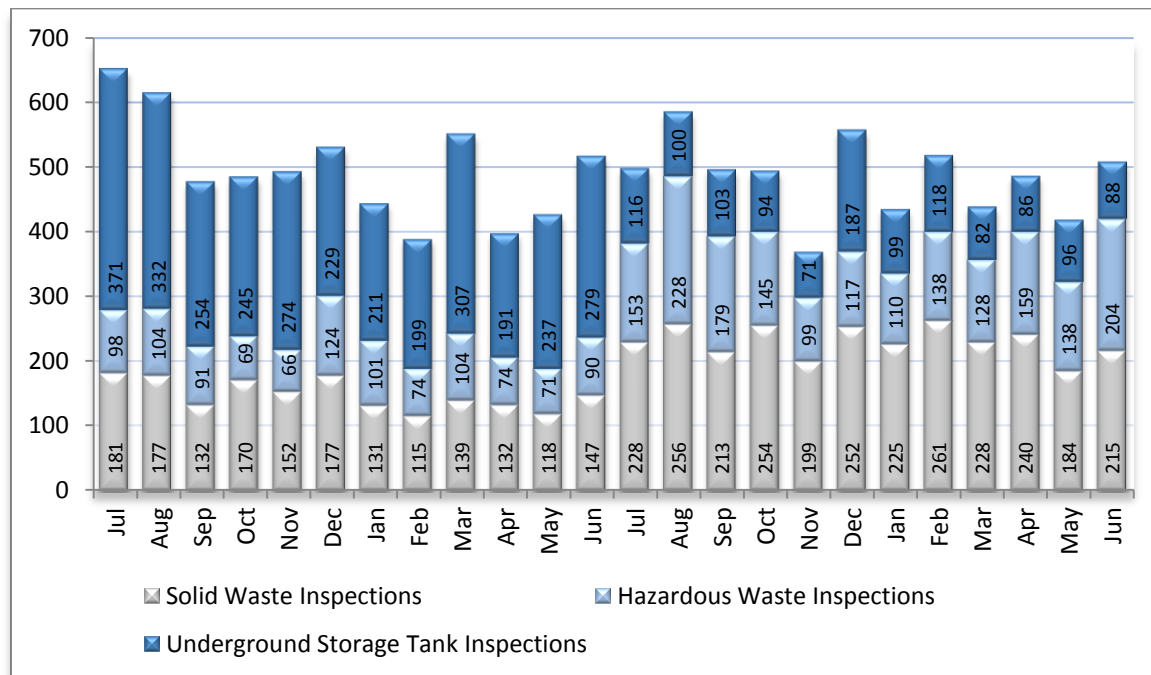
waste.ky.gov/FOB

The mission of the Field Operations Branch is to identify and abate imminent threats to human health and the environment through fair and equitable inspections, technical assistance and education.

The branch performs inspections at sites managing solid waste, hazardous waste, underground storage tanks (USTs) and polychlorinated biphenyls (PCBs). The primary duty of a regional inspector is to check the compliance of waste facilities.

The branch includes a central office and 10 waste management regional offices located throughout Kentucky. Staff from these offices are familiar with the local waste management issues and can respond to questions and concerns.

Figure 14. Division of Waste Management Inspections FY11-FY12



Note: Inspection totals include “complaint investigations” in addition to typical inspections of regulated entities.

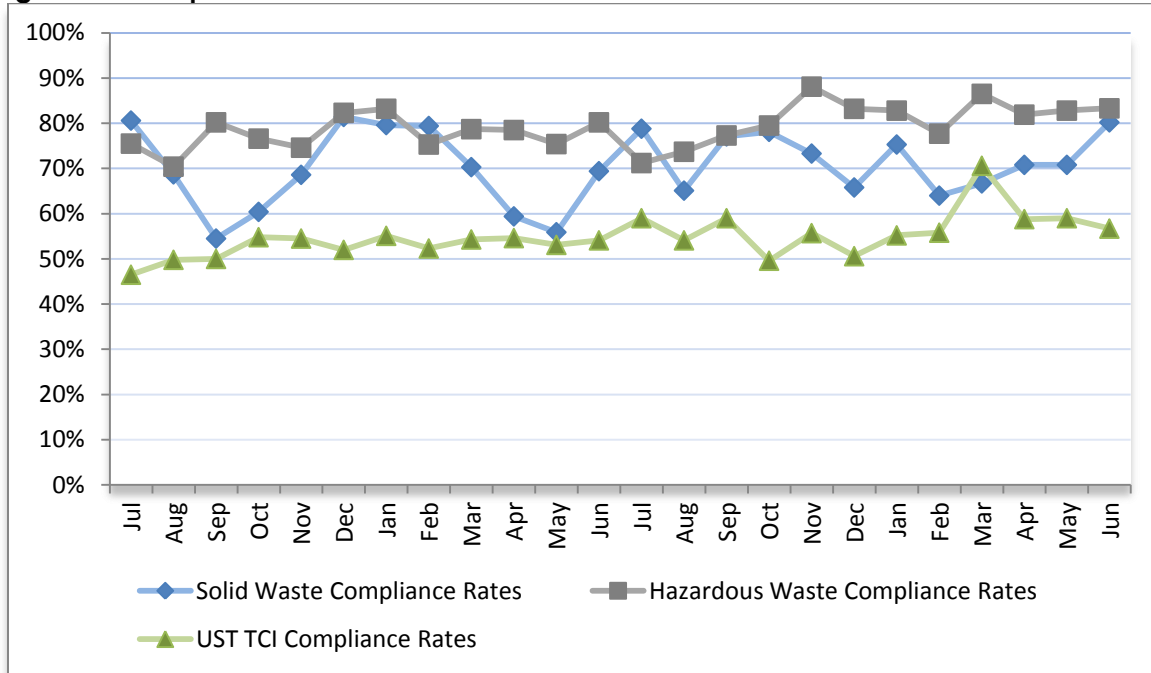
During FY12 the Field Operations Branch conducted 6,063 inspections under the Hazardous Waste, Solid Waste, UST, and Toxic Substances Control Act Polychlorinated Biphenyls (TSCA PCB) Programs. This was a decline of 49 inspections (less than 1 percent) from FY11. The UST Program inspections accounted for almost half (49.7 percent) of the total inspections. The UST program’s compliance rate continued its three-year trend upward. There were 1,792 solid waste inspections with 194 notices of violations (NOVs) issued during FY12. Under the Hazardous Waste Program, 1,233 inspections were conducted and 110 NOVs were issued. The number of inspections increased by 227 (21.4 percent) from FY11 to FY12. Under the TSCA PCB Program, 23 inspec-

tions were conducted during FY12. This was a decline of more than 50 percent. The reduced number of inspections in the TSCA PCB program can be attributed to a reduction in funding for the program by EPA.

Under the TSCA PCB program, the division conducts inspections on behalf of EPA under a Memorandum of Agreement. All enforcement actions are initiated by EPA. TheField Operations Branch completed 2,190 complaint investigations during the FY12. This was an increase of over 10 percent from the previous year.

A total of 8,253 inspections and investigations were conducted during FY12.

Figure 15. Compliance Rates FY11-FY12



Note: “Compliance Rate” means the percent of total inspections where an inspector noted that no violation had occurred. This does not include investigations triggered by citizen complaints.

Note: “UST TCI” means a technical compliance inspection for a site’s USTs.

Kentucky’s compliance rate for USTs began to increase with the issuance of facility requirement letters by the UST compliance section. In addition, UST compliance rates are expected to continue to increase due to the passage of new regulations on Oct. 6, 2011, that incorporate provisions of the Energy Policy Act of 2005. These regulations are intended to increase the requirements for leak prevention protection and to better train UST operators to know the requirements for their specific UST system.

Emergency Response:

KRS 224.01-400 establishes the cabinet as the lead agency for hazardous substance, pollutant or contaminant emergency spill response. The Department for Environmental Protection maintains a roster of field staff who serve as part of the Environmental Response Team. They are the first to respond to environmental emergencies.



The Environmental Response Team received 15,946 notifications, 557 of which required a response in FY11 and 5,033 notifications, 578 of which required a response in FY12.

FIELD OFFICE BRANCH HIGHLIGHT

Storm Response

On Feb. 29 and March 2, 2012, tornados ripped through Kentucky causing great devastation in 26 counties and a tremendous amount of waste. The people of the Commonwealth were faced with the task of disposing of mountains of storm debris.

In hopes that funding and assistance would help communities recover, the Division of Waste Management made grants of \$50,000 available to counties for the collection, transportation and disposing of solid waste caused by the storms.



Emergency Response Team staff survey the widespread damage in West Liberty, Ky., after the spring 2012 tornadoes. Division of Waste Management staff photo

The division's Recycling and Local Assistance Branch administered the grants. Due to the wide devastation, phone and internet services were non-existent in many counties. The division's Field Operations Branch hand delivered grant applications to the affected counties. Twenty-two counties applied for and received grants totaling \$1.1 million.

It quickly became apparent with division personnel on the scene that four counties had suffered more extensive damage and were offered more grant dollars for clean up activities. Laurel, Magoffin and Menifee counties received an additional \$75,000, while Morgan County received an additional \$150,000.

A total of \$1,475,000 in cleanup grants was awarded to county governments with funds from Kentucky Pride.

Everything in the path of the tornados had been torn apart and deposited across the landscape. Citizens and local officials were cautioned on the dangers associated with debris handling and disposal by Department for Environmental Protection staff. Personnel provided the following assistance and guidance:

- There was an enormous amount of woody and vegetative waste. Recycling by shredding or chipping was recommended, if it was possible. If recycling was not feasible, it was recommended to contact the county's solid waste coordinator for disposal information. Local offices for the Division of Forestry and Department for Environmental Protection had to be contacted for approval of burning of woody and vegetative waste.
- Damaged white goods, including refrigerators, stoves, water heaters, air conditioning units, and washer/dryers, could be picked up by a hauler and taken to a recycling center or county staging area. Freon had to be recovered prior to crushing or recycling.
- Construction and demolition debris such as bricks, concrete, masonry, rock, wood, lumber or insulation were disposed at a construction and demolition landfill or a contained landfill.
- Garbage and all residential waste and household hazardous waste could go to a contained landfill.
- Livestock carcasses were an issue after the tornados. Individuals were instructed to contact the Department of Agriculture's Division of Animal Health for information and assistance on proper disposal.
- Instances of abandoned and orphaned drums were also identified after the tornados. Since drums may contain hazardous materials or waste, specific instructions were given: Don't attempt to dispose of a drum. Note the location and contact either the local disaster services office or a Department for Environmental Protection regional office.

Large staging areas for waste had to be created where storm debris could be temporarily stored or burned. Staging areas could not be near residences, businesses, sinkholes, drainage channels, or in floodplains. Department for Environmental Protection staff aided communities in making sure the staging areas met important criteria. Once staging areas were reviewed, material could be disposed of through controlled burning. It was recommended that local fire departments oversee the burning.

Much of the cleanup has been completed but true recovery from the devastation that occurred will take years. Money cannot bring back loved ones, replace sentimental belongings, or heal all the broken trees still laying on the scarred hillsides, but with care and a helping hand, the Department for Environmental Protection helped communities recover in other important ways.

UNDERGROUND STORAGE TANKS

waste.ky.gov/UST

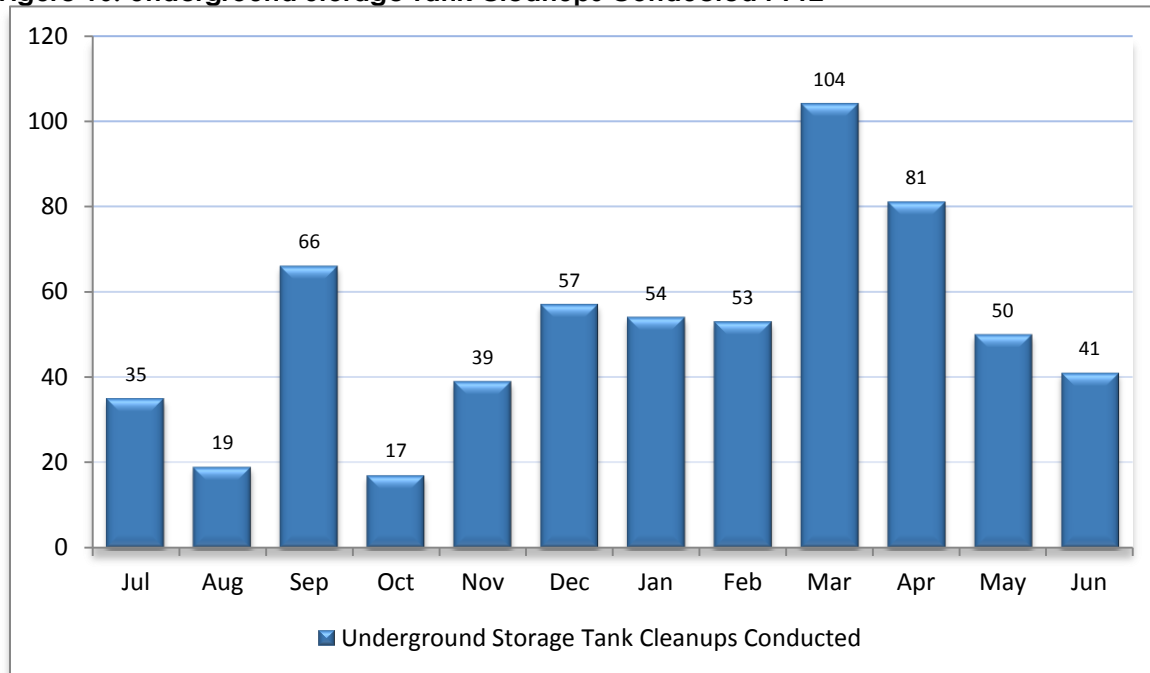
The mission of the Underground Storage Tank Branch is to provide for the prevention, abatement and control of contaminants from regulated underground storage tanks (USTs) that may threaten human health, safety and the environment.

The Underground Storage Tank Branch regulates the registration, compliance, closure, inspections and corrective actions of UST systems.



*UST removal is taking place at a fueling station.
Division of Waste Management staff photo*

Figure 16. Underground Storage Tank Cleanups Conducted FY12



The above chart includes sites that have received a No Further Action letter from the Underground Storage Tank Branch.

The Underground Storage Tank Branch filed amendments to the UST regulations contained in 401 KAR Chapter 42 in April 2011. The changes were intended to incorporate the Energy Policy Act of 2005, expedite corrective action activities and streamline the reimbursement process. The regulations were promulgated in October 2012.

UNDERGROUND STORAGE TANK BRANCH HIGHLIGHT

UST Corrective Action: The Value of Professional Expertise in Environmental Projects

By Larry D. Hughes, P.G. and Ahad Chowdhury, P.G.

Most in the environmental profession, regulatory or consulting, understand that the approach to assessing a site can affect the cleanup objectives and in turn the strategies toward those objectives and these affect project costs and time. From this understanding, considerations concerning a site usually gravitate immediately to standardized guidance and procedures for the projects structure - “should we assess the site by ‘stepping in’ or ‘stepping out’” or “should we have a multiple or single phase investigation.” While these do affect time and costs, they are only the tools, guidance, and methods for environmental projects. Using otherwise good investigatory guidance and techniques without a good understanding of a site often not only fails to expedite the project but exacerbates the very problem it was intended to prevent.

Using guidance successfully for environmental projects requires an effort at a much more fundamental level that is commonly under valued. That effort is the professional’s expertise in the interpretation and use of the information and data to govern and direct an environmental project. Interpretation and use of the data by the geologist from readily available published information in Kentucky and site specific data not only avoids a superfluous use of resources, but produces the expediency desired of site investigations and remedial efforts. Professional expertise goes a long way in developing remedial objectives sooner and that are more effective by having a solid understanding of the actual site conditions, fate and transport dynamics, and demonstrable risk. The value of this effort is realized in avoiding “under reaction” at sites that end up having to be revisited later or “over reaction” at others.

Case histories concerning this are abundant but a recent UST case serves as a typical example. During a routine investigation at a UST site in Kentucky, stakeholders involved were implementing the “normal” guidance to assess the site. The site had been characterized by using standard operating procedures, guidance and data gathering techniques, but without any palpable effort or interpretation by a geologist. Based on the normal approach, a recommendation to begin over-excavation of the presumed impact zone was made. However, a cursory review of the extant published information and site data indicated that this recommendation did not appear prudent. Before such a large remedial effort was approved that would expend the resources for the site, and the potential risk to local domestic drinking water sources if not successful, the Division of Waste Management decided to take the lead on the project. The division immediately tasked their geologist to first do the necessary upfront assessment and interpretation of public and site specific data to attain a good concept of the site’s dynamics and risk before too hastily jumping into a remedy or further investigation.

By having the geologist’s expertise to guide this site, a number of things were avoided that would have led to a failure of the proposed recommendations and a continuation of the site’s environmental impacts being largely unaddressed. Specifically, these efforts led to the discovery of a much larger groundwater plume (nearly four times the expected size); groundwater plume extents were located where it had not been identified; over half of the aerial extent that had been speculated as the impacted groundwater plume, in reality, had no groundwater plume; and the vertical extent and fate and transport of the gaso-

line release had not been understood under the previous approach. In short, a very different plume than previously identified to be over-excavated existed. Had the recommended remedy generated by an application of the standard methods and procedures guiding the efforts been allowed, it would have failed to address the site's impacts, failed to lead toward closure in a timely manner, and the cost to implement it would have expended the site's remedial resources immediately. The control of professional expertise at our UST case site created a better conceptualized model of the site that produced a more effective investigatory approach for the site; identified the demonstrable risk related to the site; developed protective remedial objectives that could be met and accomplished sooner; and optimized the sequencing of the remedial strategy. All of these led to the most effective use of time, money and other resources.

Often under a faulty perception of expediency, i.e., how to save time and money, environmental projects leap to and rely too much on investigative approaches, methods and standard operating procedures. In and of themselves, these can be good *tools* (emphasis added) to use. However, many environmental projects emphasizing the tools without professional expertise governing them not only fail at what they aim to achieve, but exacerbate the problems. The critical part of any environmental project that goes largely under valued, under used and over looked, in most environmental site cases, is the professional and their expertise.

Like in any profession, guidance can be a good tool but it cannot replace the value and expertise of the professional who best knows when and how to use these tools, their limitations, and (most importantly) when to deviate from them.

SUPERFUND

waste.ky.gov/SFB

The Superfund Branch seeks to ensure that contaminated sites are evaluated and cleaned up in a timely manner to reduce risks to human health and the environment. In most cases this means overseeing companies or individuals who have taken responsibility for cleaning up contamination found on their property. In cases where a responsible party cannot be found or is unable to act, the Superfund Branch may take a direct role in cleaning up a site.

Kentucky has a state Superfund program which handles oversight of cleanup of hazardous substance releases and non-UST petroleum releases across the Commonwealth. Figure 18 shows the number of sites that the state Superfund program has characterized and remediated.

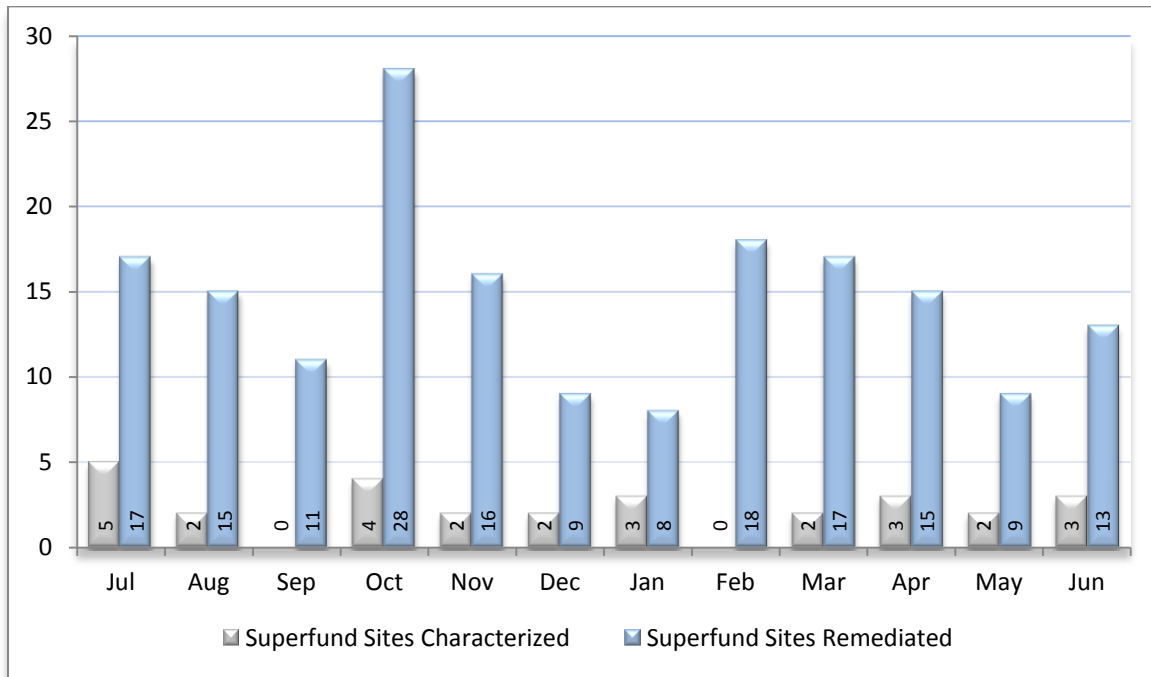
The Superfund Branch must maintain a list of sites where waste is managed on site through some form of engineering control (such as a cap or structure) or institutional control such as an environmental covenant or deed restriction. There are currently 175 sites where waste is managed on site. These sites require some form of reporting such as an annual report or five year review as established in statute. For sites that are being managed by using institutional and/or engineering controls, the obligations to continue to manage the releases are indefinite. Therefore, the numbers of total managed sites in Superfund will be constant or continue to increase as new sites are approved for closure under this option. As noted above, the only way a site can be removed from the managed site list is if additional cleanup is performed to restore the site to safely allow for unrestricted residential use.



These are before (above) and after (below) photos of a Kentucky Superfund site, Barrel Services, that underwent extensive cleanup activities. Photos provided by Division of Waste Management Staff



Figure 17. Superfund Sites Characterized and Remediated in FY12



Note: In FY12, the Superfund Branch registered 111 new sites, characterized 28 sites, and remediated 176 sites.

Brownfields:

Brownfields are abandoned, idled, or under used industrial and commercial facilities/sites where expansion or redevelopment is complicated by real or perceived environmental contamination. They can be in urban, suburban, or rural areas. The Brownfield redevelopment is a joint effort between the Division of Waste Management and the Division of Compliance Assistance. For more information on the Division of Compliance Assistance, see the agency’s website at <http://dca.ky.gov/brownfields/Pages/default.aspx> or call 800-926-8111.

Another outreach program has been developed to assist communities by providing free Target Brownfield Assessments. This program is designed to help states, tribes, and municipalities minimize the uncertainties of contamination often associated with Brownfields. During this year, assessments on 11 properties have been completed.

SUPERFUND BRANCH HIGHLIGHT

House Bill 465

By Shawn Cecil, P.G.

House Bill (HB) 465 was signed into law by Governor Steve Beshear on April 11, 2012, and became effective on July 12, 2012. The bill extends liability provisions that already exist in KRS 224.01-400 to petroleum and provides a clearer path for redevelopment by outlining specific requirements for property owners to meet to maximize their liability protection. The bill was intended to remove additional obstacles to property redevelopment in Kentucky based on feedback from banks, citizens and consultants

indicating there was still significant concern for petroleum-impacted sites, an absence of a clear confirmation of liability status from the Commonwealth (because the provisions of KRS 224.01-400 provide an affirmative defense, the Commonwealth was unable to confirm this dynamic status), and clarification of “appropriate care.”

HB 465 provides specific conditions regarding time and nature of acquisition, due diligence, relationship with past owners and compliance. If those conditions are met, the buyer will not assume the environmental liability in the eyes of the Commonwealth simply through purchase. The criteria are similar to those required in KRS 224.01-400 (25) which refers to the federal law on the Bona Fide Prospective Purchaser (BFPP) defense. A key difference that is expected to encourage additional redevelopment is that the Commonwealth will issue a letter that confirms the status under HB 465. While the regulations are still in development, it is anticipated that an interested party and their consultant will submit and certify a package that documents that the conditions have been met. The package will include Phase I Environmental Site Assessment, certification that there was no contractual or familial relationships with those responsible for the contamination (or previous owners), and a plan that will demonstrate the owner will take care in future use of the property to not put human health and the environment at risk and comply with need for access to allow those responsible or the Commonwealth to address any remaining contamination.

The importance of the bill is multi-fold. The Division of Waste Management is host to several cleanup programs. There is some variability in cleanup-criteria that is based on the nature of the release, i.e., underground storage tank (UST) releases are different in risk and character than those of an above-ground storage tank (AST). In the past, a letter documenting safe conditions for the UST program may have been met with skepticism from a lending institution that was fearful of another program directing additional cleanup. Additionally, the Commonwealth could never state that a person had met an affirmative defense (a court decides that at the time the defense is made). Finally, those redeveloping the property had no comfort that their plan for reuse would be consistent with regulatory programs designed to protect human health and the environment. HB 465 clarifies that a site closed under the UST program will not be reborn under the Superfund Branch program for non-UST petroleum, clarifying that the Division of Waste Management will not subject them to dual requirements for the same release. HB 465 will rely upon a Property Management Plan which serves as the template for “appropriate care” and is agreed to by both the owner and the Commonwealth. Finally, the result of the certification made by qualified professionals and the redeveloper seeking the status is a letter from the Commonwealth agreeing that the person has no environmental liability based on the submittal. It is anticipated that this will address many of the concerns from attorneys, bankers and redevelopers that have inhibited the redevelopment and protective reuse of brownfield properties. For the Commonwealth and its cities and counties, this improves the value of the property, gets fallow properties back onto tax rolls and increases protectiveness by including another layer of protection (an attentive property owner) to ensure the protective use of the property.

PROGRAM PLANNING AND ADMINISTRATION

waste.ky.gov/PPA

The mission of the Program Planning and Administration Branch is to promote sound waste management programs by providing administrative and operational support to all branches in the division through efficient and effective financial administration, personnel management and regulatory development.

Regulation Development:

The division is in the process of performing a comprehensive review of its regulations in the areas of solid wastes and special wastes. The solid waste and special waste regulations will incorporate federal and statutory changes that have occurred since the last promulgation effort.

The division is currently drafting regulations to incorporate federal rulemakings in the Hazardous Waste Program. These changes will then be incorporated into a new authorization package for EPA submittal.

The underground storage tank regulations that were drafted in FY11 became effective in FY12. These regulations have streamlined the reimbursement process, expedited corrective action activities, and incorporated federal requirements for the Energy Policy Act of 2005.

Legislative:

HB 518 added three new members to the Waste Tire Working Group that was created in 2011. The three new members will include a county judge executive, a mayor, and a representative from private industry engaged in the business of retail tire sales. The group will continue to provide advice on how to administer and improve the Waste Tire Trust Fund and the overall Waste Tire Program in the Commonwealth.

HB 465 created a Brownfield Redevelopment Program. This program should enhance the redevelopment of contaminated sites.

The Program Planning and Administration Branch assisted in preparing two reports in FY12. The Waste Tire Trust Fund Report discusses the history, expenditures, revenues, and current status of the Waste Tire Program in Kentucky. The Hazardous Waste Management Fund Report discusses the use of the Hazardous Waste Management Fund, highlighting specific cleanups that have occurred in the last biennium.

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Secretary Leonard K. Peters

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Commissioner R. Bruce Scott, P.E.
Deputy Commissioner Aaron Keatley

This *Annual Report* is intended to provide a concise set of facts and measurements to support environmental decision-making. We welcome your questions and comments to the contacts below:

Kentucky Division of Waste Management
200 Fair Oaks Lane
Frankfort, KY 40601
Phone: 502-564-6716
Fax: 502-564-3492
waste.ky.gov

Director Anthony R. Hatton, P.G.
Assistant Director Timothy Hubbard, P.G.

We acknowledge the contributions of the staff and management of the Division of Waste Management.

Recycling and Local Assistance Branch:	Ricky Solomon- <i>Acting</i>
Solid Waste Branch:	Ronald D. Gruzesky, P.E.
Field Operations Branch:	Jon Maybriar
Hazardous Waste Branch:	April J. Webb, P.E.
Superfund Branch:	Shawn Cecil P.G.
Program Planning and Administration Branch:	Cassandra Jobe
Underground Storage Tank Branch:	Edward J. Winner
Compiled by:	Virginia B. Lewis, D.C.

Cover photo: Cleanup at Middlesboro Tannery, Middlesboro, Ky.
Photo provided by Division of Waste Management staff.

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Division of Waste Management
200 Fair Oaks Lane
Frankfort, KY 40601



Report an Environmental Emergency, 24-hour: 502-564-2380 or 800-928-2380