

Kentucky

Department for Natural Resources

2013 Annual Report



OUR MISSION: To improve the quality of life for all Kentuckians by protecting our land, air, and water resources; utilizing our natural resources in an environmentally conscientious manner; and creating efficient environmentally responsible ways of managing, conserving and sustaining our resources for future generations.

Commonwealth of Kentucky

2013 Annual Report





**ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR NATURAL RESOURCES**

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Leonard K. Peters
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Steve Hohmann
Commissioner

Dear Reader,

It is my pleasure to share with you the Kentucky Department for Natural Resources' Annual Report for Fiscal Year 2013. As in previous years, the department made significant progress toward our goals of preserving, protecting, and conserving Kentucky's great abundance of natural resources while simultaneously guarding public health, safety, and the environment. The pages of this report contain narratives and charts that detail our efforts to meet our goals.

This report will present a clear picture of the departments' programs and will quantify the performance of our divisions. It will give you facts that allow us, and you, to measure our efforts to meet the core requirements of the department that best depict our mission. You will learn that in spite of a constraining budgetary climate, the department has continued to forge many successes.

The accomplishments highlighted herein are largely attributable to the highly motivated and skilled employees within the department. Our employees continue to identify innovative and efficient methods to produce results that overcome our challenges.

Sincerely,

A handwritten signature in blue ink that reads "Steve Hohmann".

Steve Hohmann
Commissioner

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Cover Photo of Laurel Mountain Resources reclaimed surface mine in Martin County, a 2012 Excellence in Reclamation department award winner.

EXECUTIVE SUMMARY

The Department for Natural Resources is the largest of the three departments within the Energy and Environment Cabinet with 693 full time employees as of June 30, 2013. The department is comprised of the following distinct organizational units: The Office of the Commissioner, the Office of Mine Safety and Licensing, the Divisions of Abandoned Mine Lands, Conservation, Forestry, Mine Permits, Mine Reclamation and Enforcement, Oil and Gas, and Technical and Administrative Support. The Kentucky Heritage Land Conservation Fund Board, Soil and Water Conservation Commission, and the Kentucky Mining Board are also attached and administrative support is provided through the department.

While the department has faced many challenges dealing with revenue shortfalls, there have been significant accomplishments made by the department over the past fiscal year. Some of the most notable and significant achievements have been:

- House Bill 66 was passed and signed into law in March of this year. This legislation provides for the creation of the Kentucky Reclamation Guaranty Fund which will ensure coal mining permits are reclaimed should the reclamation bond posted by of the mine owner be insufficient to properly reclaim a mine site.
- The Division of Forestry was successfully reorganized and realigned to meet the challenges of a budget shortfall of over \$1.2 million in FY 2013.
- The Division of Forestry acquired approval to rebuild its Morgan County nursery that was heavily damaged by the March 2012 tornado outbreak in Kentucky.
- The Division of Mine Reclamation and Enforcement met a mandated inspection frequency on over 99 percent of mine sites it is responsible for inspecting. This is a significant improvement over frequency that fell short of 90 percent in the four previous fiscal years.
- An abandoned mine lands reclamation project in McCreary County won the Federal Office of Surface Mining 2012 Appalachian Regional Award.
- Injuries and fatalities on Kentucky mines remain low and the Office of Mine Safety and Licensing continues to develop improved training programs to help prevent injuries and fatalities on mining operations.
- Kentucky conservation districts were recognized by state auditor Adam Edelen after an audit of special districts. Conservation Districts were mentioned due to their “Districts in Good Standing” program.
- The Division of Mine Permits implemented new regulatory requirements for determining reclamation bond amounts for coal mining permits.
- The Division of Oil and Gas continues to supply information to the United States Environmental Protection Agency in the effort to attain state primacy on Underground Injection Control (UIC) Class II wells. The Class II category includes wells that inject brines and other fluids associated with oil and gas production, and hydrocarbons for storage.

- The department continues to promote reforestation efforts throughout Kentucky with numerous reforestation projects initiated during this past fiscal year. The department partnered with several outside entities to expand and enhance reforestation on mined lands.
- The collection of water quality data continues from 133 locations or “Trend Stations” in the eastern and western Kentucky coal fields. The data from these locations will be used to analyze impacts from mining and improve the ability to predict impacts from future coal mining in those watersheds.
- One unique watershed in Martin County, Pigeonroost Fork, was chosen in 2012 for a detailed study on the past and present effects of coal mining in the watershed. Sampling and data collection continued this past fiscal year and included both fish and benthic invertebrate surveys.

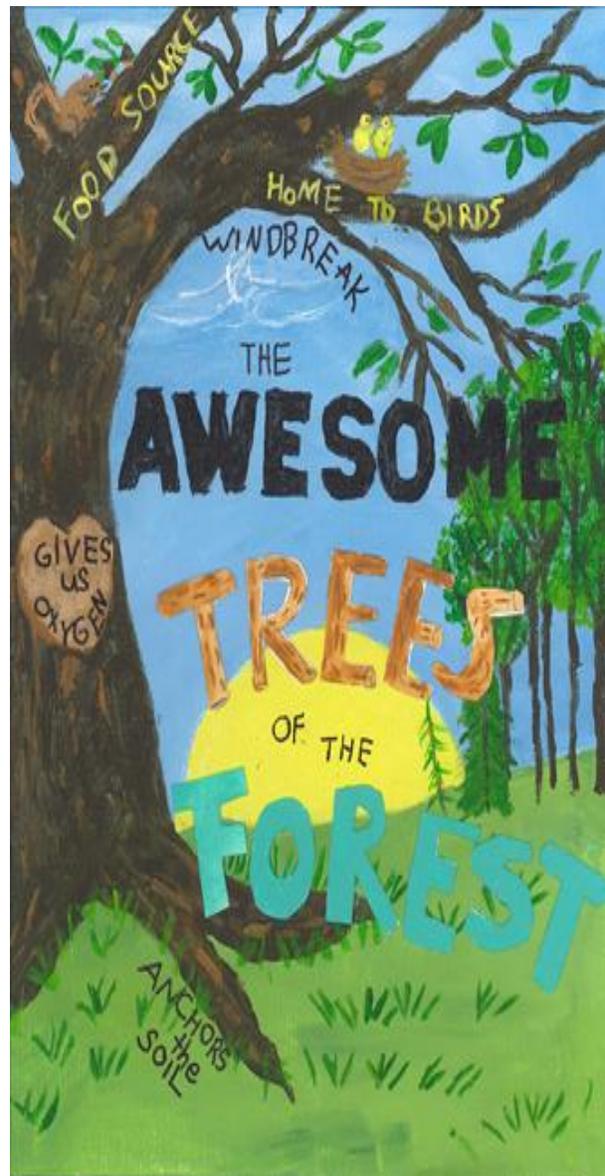
April 2013 Arbor Day Tree Planting



Section of Rock Creek AML Project

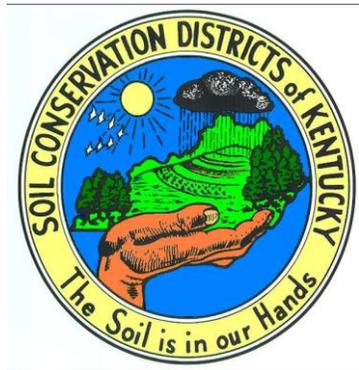


2012 Division of Conservation Art Contest Winner

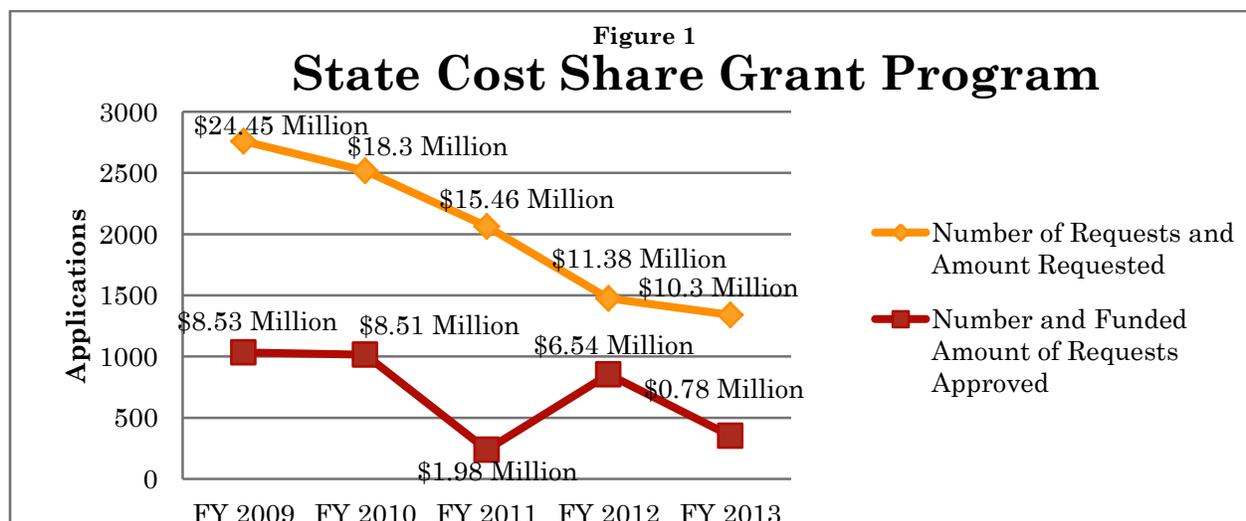


DIVISION OF CONSERVATION

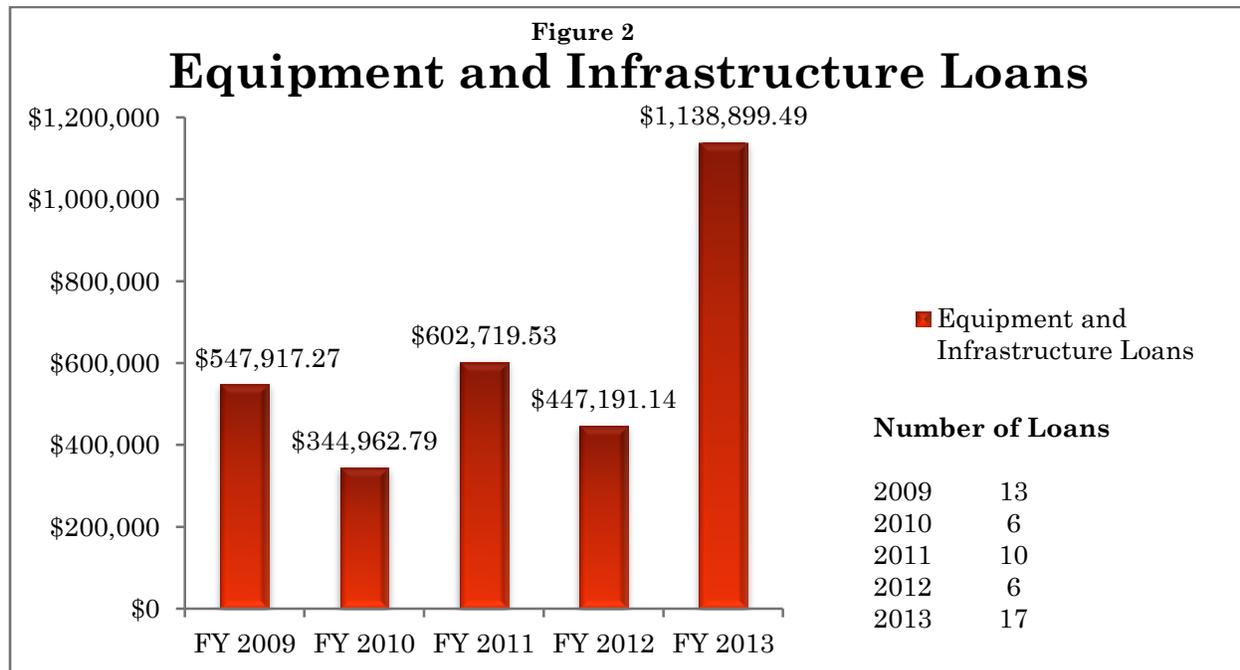
The Division of Conservation is responsible for assisting Kentucky’s 121 local conservation districts in the development and implementation of sound soil and water conservation programs. Kentucky’s conservation districts are subdivisions of state government and are organized with boundaries coinciding with county lines with the exception of Logan County, which is divided into two districts. Each local district is governed by a seven-member board of supervisors elected by the registered voters within the district. Conservation districts have been organized for the special purpose of assisting landowners and land users in solving soil and water resource problems, setting priorities for conservation work to be accomplished and coordinating the federal, state, and local resources to carry out those programs.



The division provides assistance to conservation districts in many different forms ranging from staff training, participation in district board meetings, and assisting with financial reports, to providing direct financial aid, and grant and loan programs. Two of the most notable programs are the Soil and Water Quality Cost Share and the Equipment and Infrastructure Revolving Fund. The Soil and Water Quality Cost Share Grant Program provides financial assistance to individuals to implement best management practices on farms or in forested areas to improve water quality. Citizens engaged in agriculture or silviculture operations are eligible to apply through their local conservation district, which oversees the implementation of best management practices. In FY 2013, the division received 1,340 grant applications totaling \$10.3 million. This amount was far above available funds for grants under the program and this limitation resulted in the division approving 353 applications for a total funded amount of \$775,000. Figure 1 shows the five year history of grants under the program.

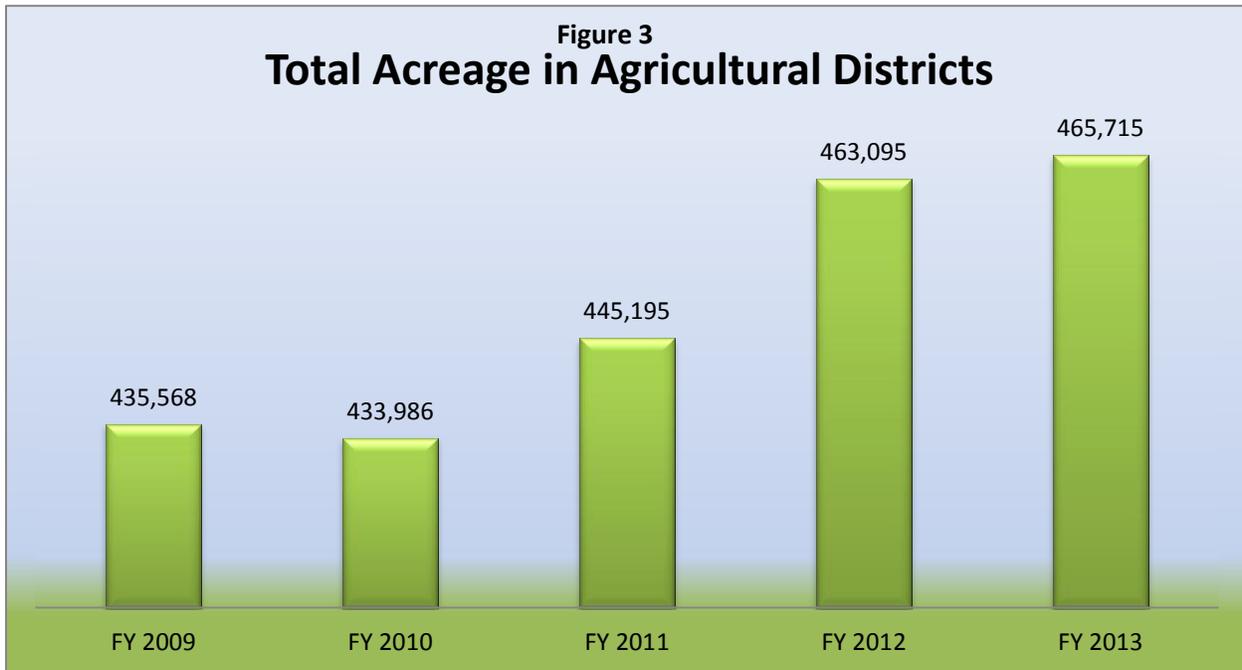


The Equipment and Infrastructure Revolving Fund Program makes loans to conservation districts for the purchase of heavy or specialized machinery, equipment, and district office buildings within the boundaries of the district. This program has enabled the commonwealth to provide the necessary equipment to construct proper conservation measures on land as well as providing districts the funding to purchase their own buildings in order to benefit the community surrounding them. During fiscal year 2013, 17 equipment and infrastructure loans were made to conservation districts totalling \$1,138,899.49. Figure 2 shows the number and amount of loans made over the past five years.



The Soil and Water Conservation Commission was created in 1946 to administer the organization of conservation districts and to assist them in accordance with conservation district law. This commission is assisted by the Division of Conservation staff. Direct aid funds are appropriated by the legislature and are made available to conservation districts for the operation of their offices, office rent, and other necessities of the district. Direct aid is distributed to districts through base level funding to each district and grant funding based on requests submitted by the conservation districts to the Soil and Water Conservation Commission. Last year, \$975,000 was provided in direct aid for base funding, district employee salary assistance, and office funds. This direct aid support was provided to 51 conservation district offices and assisted with the salaries of 143 conservation district employees.

The Division of Conservation administers the Agricultural District Program that allows landowners or groups of landowners that own 250 acres or more of land in agricultural use to petition their local district for the creation of agricultural districts. The goal of the agricultural district law is to protect our best agricultural land and prevent its conversion to non-agricultural use. During fiscal year 2013, nearly 4,000 additional acres belonging to 36 landowners were added to agricultural districts. As of June 30, 2013, there were 899 agricultural districts comprising over 465,000 acres belonging to 3,733 landowners in 81 counties. Figure 3 depicts the growth of agricultural district acreage over the last five years.



Major Division Accomplishments

- The 2012 Jim Claypool Art and Conservation Writing Contest had a total of 45,552 art entries from 99 counties and 17,554 writing entries from 91 counties across the state. This year's theme was "Kentucky's Forests: Branching Out."
- The division was recognized by State Auditor Adam Edelen for its implementation of the "District in Good Standing" program, which requires districts to meet all reporting statutes in order to qualify for maximum funding from the Soil and Water Conservation Commission.
- The regional Envirothon competitions were held at the Pennyryle State Forest in Dawson Springs on April 20 and the University of Kentucky Robinson Center in Quicksand on April 27. Twenty-six teams participated, with nine of those teams advancing to the state competition in May. Fayette County won the Kentucky State Envirothon and advanced to represent the state at the North American Envirothon, achieving a ranking of 12th out of 57 teams.
- Kentucky was recognized at the 2012 National Association of Conservation Districts meeting for its District Official's Training (one of only 15 states) as well as being in the top 10 of districts paying their NACD dues.

DIVISION OF FORESTRY

The Division of Forestry strives to protect, conserve, and enhance the forest resources of the commonwealth. The division offers a variety of programs and services ranging from landowner assistance and master logger training to forest health protection and wildland fire management. The division is also involved in the operation of tree seedling nurseries, urban forestry assistance and forestry education.



Kentucky’s forests cover 12.4 million acres or 49 percent of the state. Ninety-eight percent of the forestland is considered available for timber production. The Cumberland Plateau and the Appalachians in the eastern portion of the state are the most heavily forested. The central and western portions of the state, although less densely forested, account for 50 percent of the total forestland area.

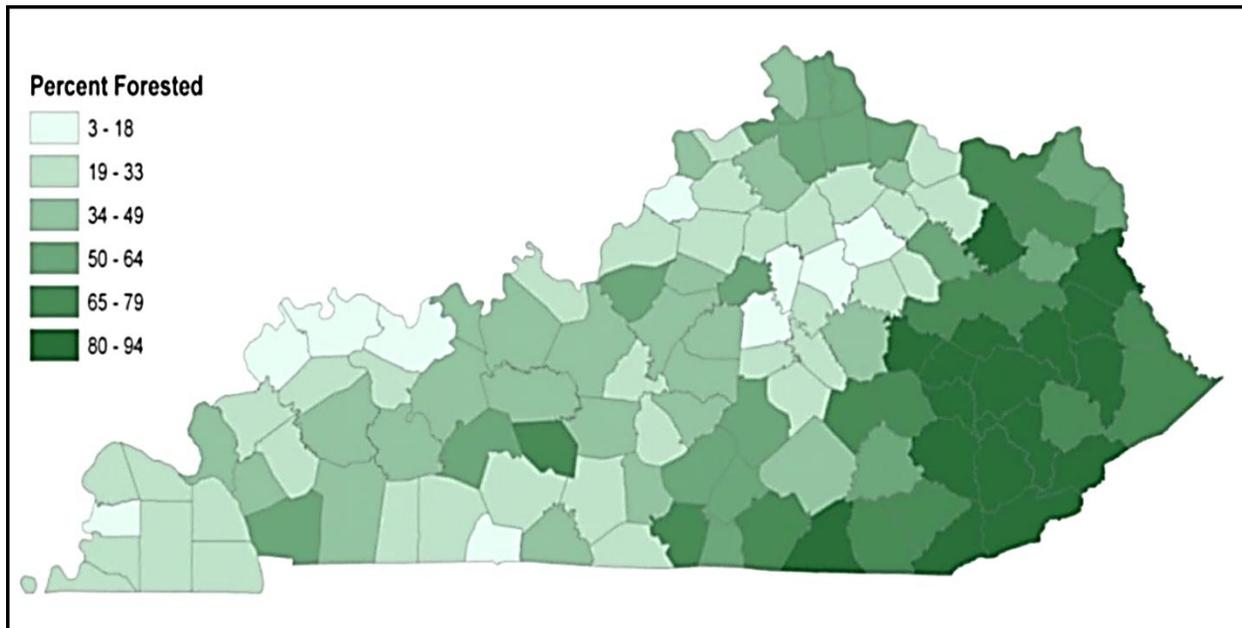
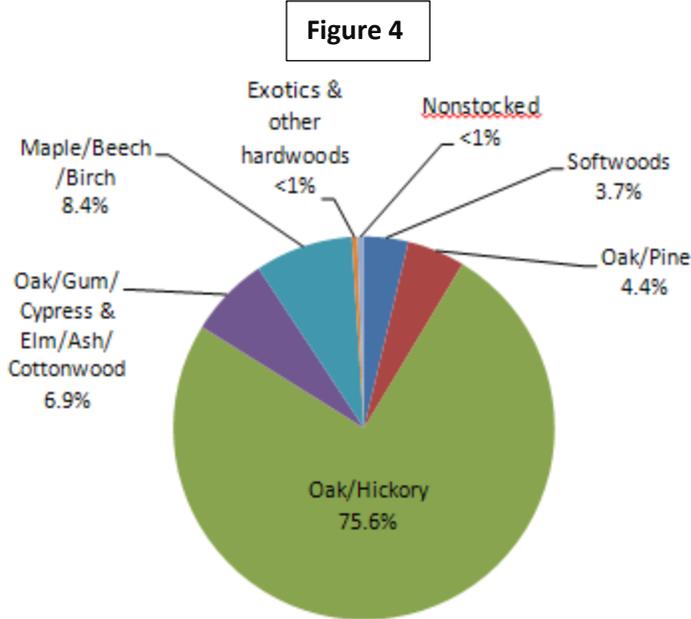
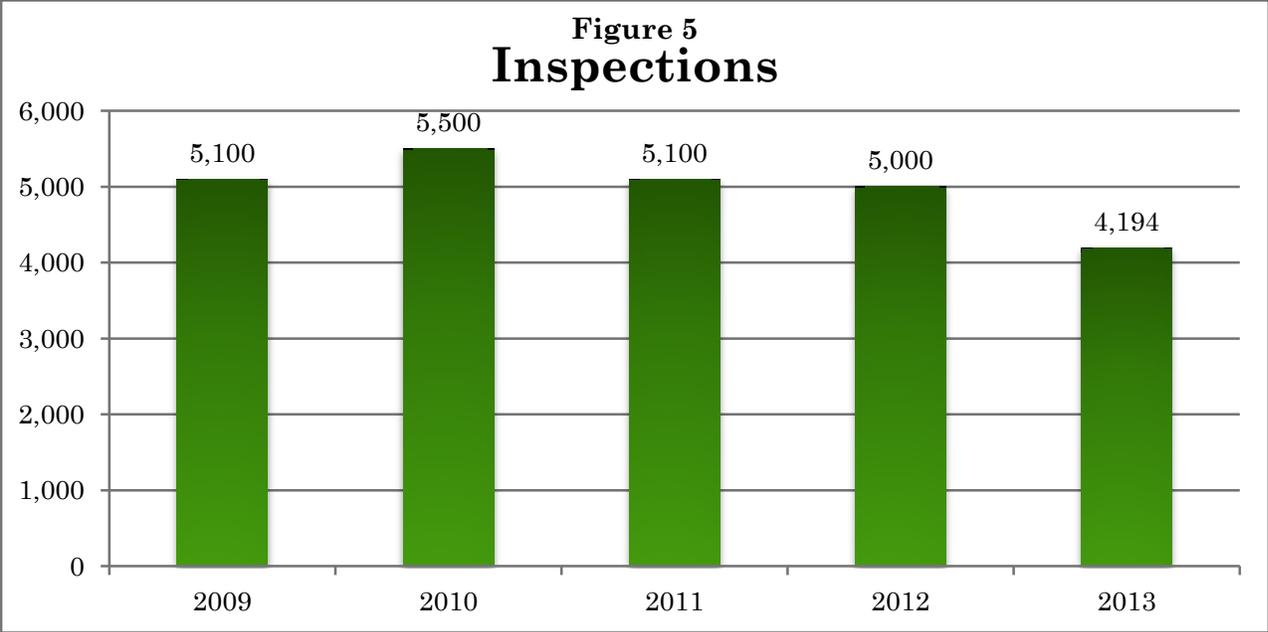


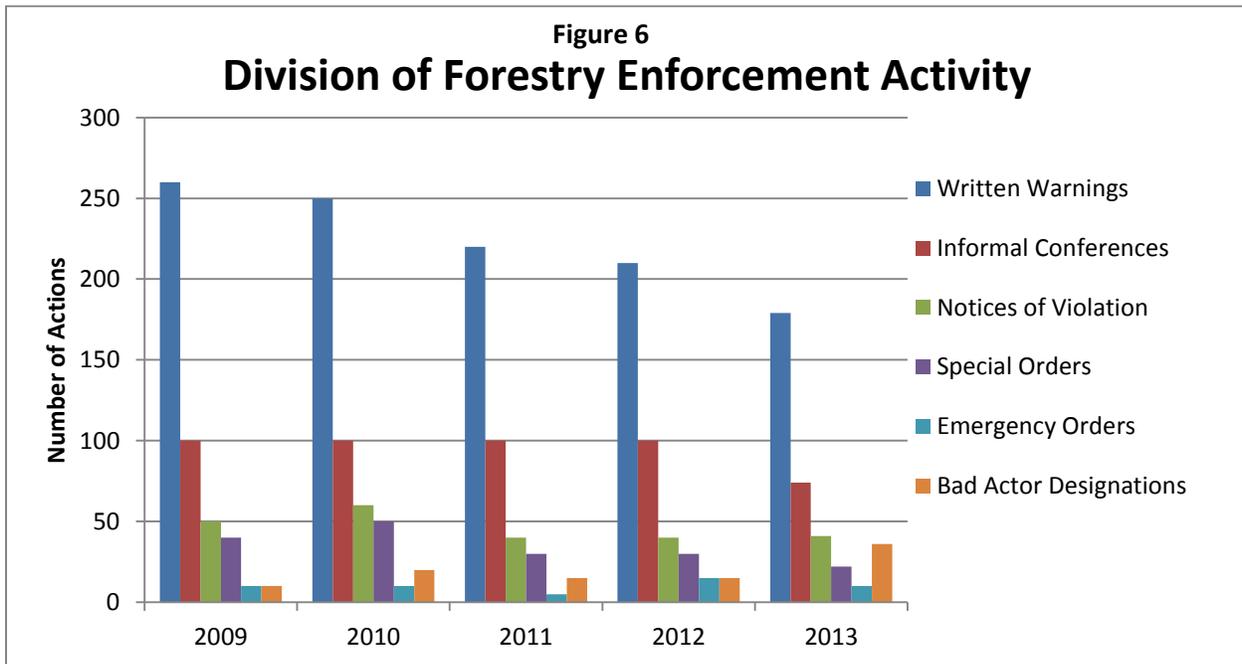
Figure 4 depicts the predominant forest types in Kentucky. Although oak-hickory is the predominant forest type, red maple is the dominant individual species and is more numerous than all oak species combined. The rate of tree growth in Kentucky remains at a level more than double the rate of removals and mortality. A sustainable forest industry can prosper as long as the ratio of growth to removal remains at this level.



The Division of Forestry performs inspections on timber harvesting operations to ensure loggers are in compliance with harvesting laws and regulations. The number of inspections has declined from nearly 8,000 in 2005 to just slightly more than 4,000 this fiscal year. The reduction in the number of inspections conducted is primarily due to staff reductions resulting from budgetary constraints. Figure 5 shows total inspections performed over the past five years.



Inspections may result in enforcement actions for violations of Kentucky’s forestry laws. A five-step enforcement process begins with a written warning and may progress through various stages including conferences with the logger, notices of violation, imposition of civil penalties and, if necessary, an official order designating the individual as a “Bad Actor.” This designation is tracked by the division and information concerning the designation is provided to interested parties by request. Figure 6 shows enforcement activity by the division over the past five years.



Two insect species remain a problem for the commonwealth’s forests: The Emerald Ash Borer and the Hemlock Woolly Adelgid. The Emerald Ash Borer is an exotic beetle native to Asia that was discovered in southeastern Michigan near Detroit in the summer of 2002. The larvae feed on the inner bark of ash trees causing significant damage by disrupting the tree’s ability to transport water and nutrients. A ban currently covering 29 counties regulates the transportation of ash within, outside, and through the quarantined area. The Hemlock Woolly Adelgid is a tiny (1/16-inch long) insect also native to Asia. As it matures, the insect covers itself with wool-like wax filaments that can be readily found on the underside of the tips of hemlock branches from autumn to spring. The adelgid feeds at the base of needles, causing them to dry out and the tree to take on a gray color. This infestation results in needle loss, which prevents trees from producing new buds and the hemlocks eventually die. Updated information on the locations of infestation for both the borer and the adelgid can be found on the division website <http://forestry.ky.gov/foresthealth/Pages/default.aspx>.

During this past year, funding from the U.S. Forest Service, the Steele-Reese Foundation, Toyota Motor Manufacturing Kentucky, and the Kentucky Heritage Conservation Fund allowed the Division of Forestry to employ a four-person seasonal crew to treat hemlocks with insecticide. The insecticide is applied around the trunk of the tree and it is absorbed through the roots. The crew treated over 27,000 trees last year. Current plans are to continue treatment over the next two years in regions considered

hemlock conservation areas and to expand the treatment to new properties through funding from the Kentucky Heritage Land Conservation Fund.

The Division of Forestry operates two nurseries located in Marshall and Morgan counties that provide seedlings for planting on public and private lands. Nurseries receive orders from individuals or organizations interested in reforesting large tracts of rural land as well as individuals interested in planting trees in a smaller urban setting. Approximately 3 million seedlings are harvested each year.

In the spring of 2005, the Division of Forestry started an American chestnut “mother tree orchard” at its Morgan County Nursery. Approximately 60 American chestnut sprouts were transplanted from Harlan and Bell counties to the nursery. In addition, an orchard containing over 100 individuals of second generation Chinese/American crossed seed was also established. Having the hybrid and the mother orchards co-located will dramatically aid in the controlled pollination process. In 2010, two lines of pure Americans were backcrossed and the backcrossed families (100 each) were planted in the nursery in 2012. These families will eventually be inoculated to determine disease resistance and selected for further breeding. Work to bring back the American chestnut is a cooperative effort between the Kentucky Division of Forestry, University of Kentucky Department of Forestry, Daniel Boone National Forest, Kentucky Department of Fish and Wildlife Resources, Berea College, and the Kentucky Chapter of The American Chestnut Foundation.

Major Division Accomplishments

- On February 16, 2013, the Kentucky Division of Forestry was reorganized allowing the division to operate within its approved budget appropriation. The district structure went from nine district offices to five regions. Twenty-four employees were assigned to agencies outside of the division. In the division’s main office, some sections were eliminated, transferring the duties to existing branches in the agency. The Fire Management Section was changed to the Fire Management Branch and includes the responsibilities for overseeing the training and equipping of division wildland firefighters, suppressing wildland fires, administering volunteer fire department and community grants and overseeing the federal excess property program. The following map shows the result of the new district regional structure after reorganization.

Division of Forestry February 16, 2013



- The division operated two tree seedling nurseries and harvested approximately three million seedlings, which were sold to various public and private organizations that planted them for timber production, wildlife habitat, erosion control and scenic beauty. The Morgan County Nursery rebuilding effort (after the March 2012 tornado) was restarted after a delay due to budget shortfalls. With blueprints completed, bids for reconstruction will be awarded in late summer 2013, and project completion is expected in February 2014.
- The division collaborated with the Kentucky Center for Forest and Wood Certification to obtain certification for state forests under the American Tree Farm System. This certification provides for third party verification that state forests are managed according to sound forestry principles that protect the environment.
- The division proceeded toward the closing of Phase II of the Big Rivers Project that will add an additional 4,285 acres to its existing 2,483 acres. When complete, this addition will make the Big Rivers Wildlife Management Area and State Forest (6,768 acres) the third largest in the state behind Pennyryle State Forest (14,935 acres) and Kentucky Ridge State Forest (11,301 acres).

Black Walnut Seedlings at DOF
Nursery



Ash Seedlings at DOF Nursery



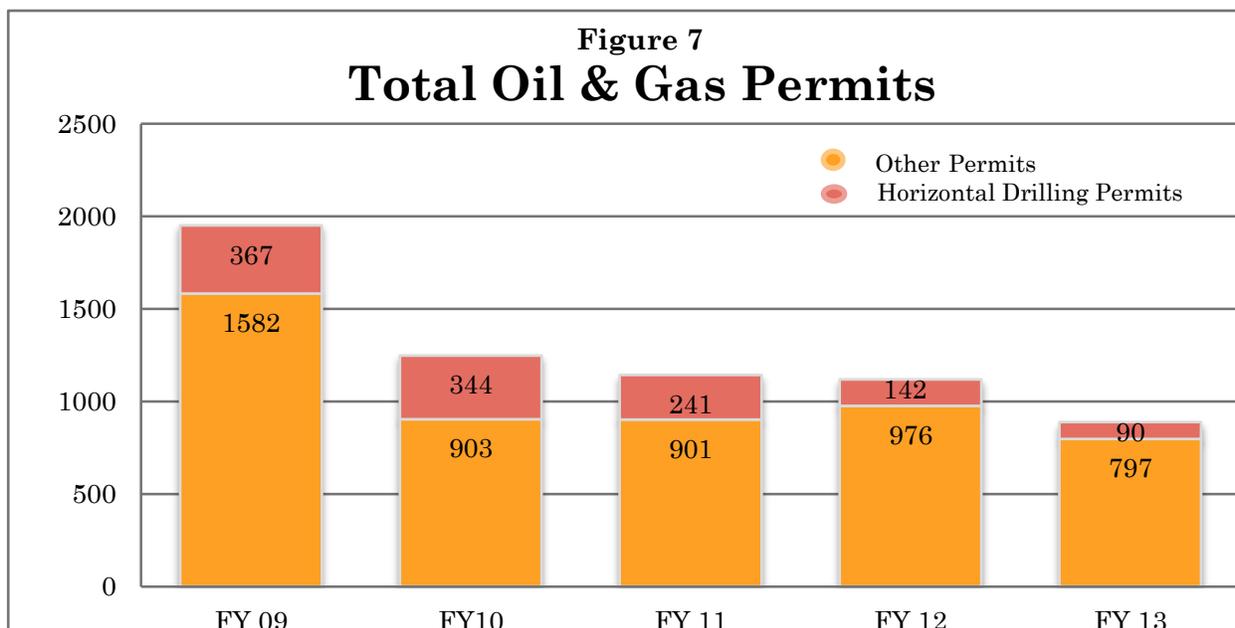
DIVISION OF OIL AND GAS

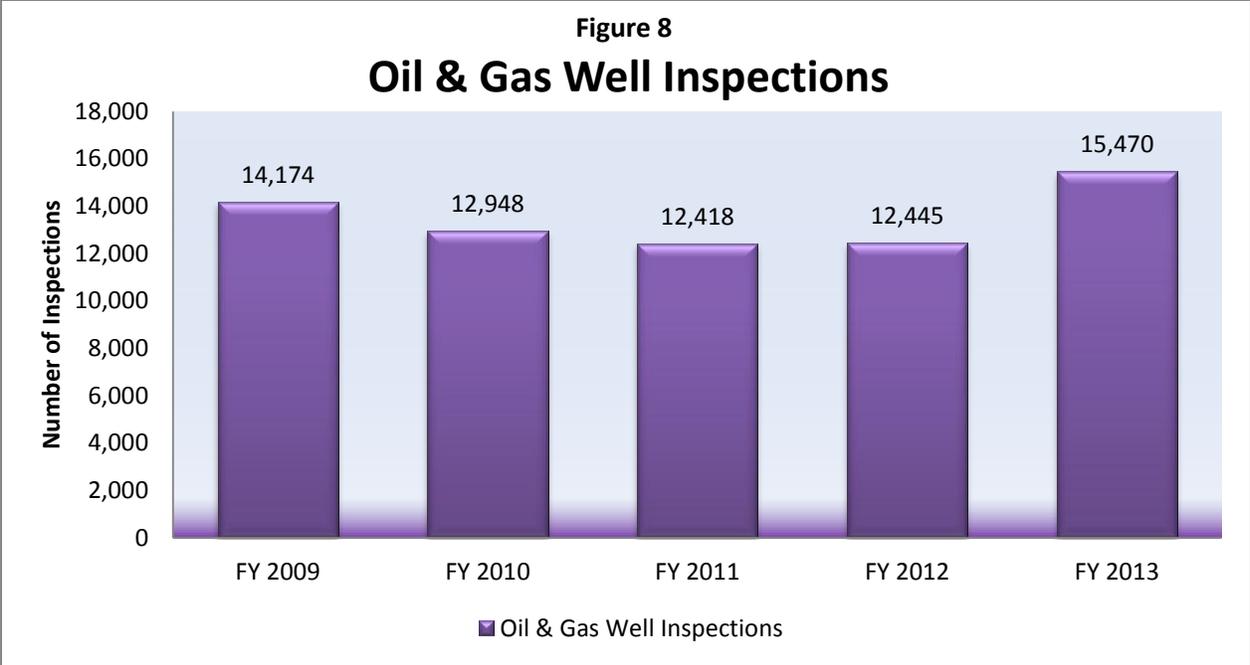
The Division of Oil and Gas regulates the permitting, drilling, and production of crude oil and natural gas from wells in the commonwealth. The mission of the division includes protecting the correlative rights of mineral owners, the protection of fresh water zones and mineable coal seams, and the conservation and protection of oil and gas reserves in Kentucky.



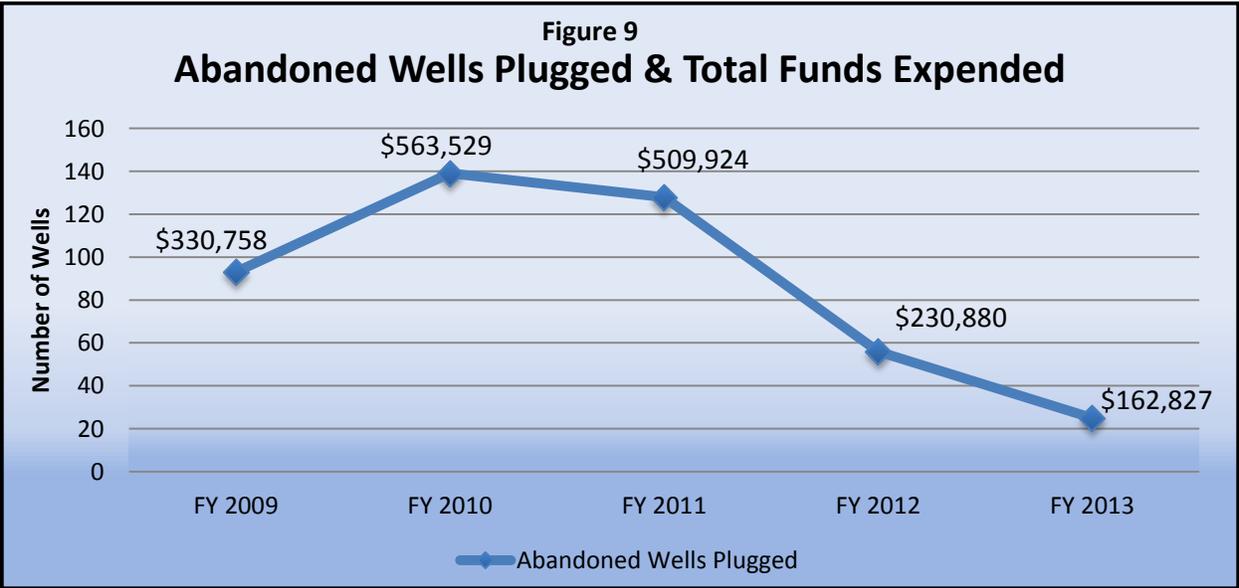
An application must be filed and a permit obtained from the Division of Oil and Gas prior to any activity to drill, deepen, or reopen an oil or gas well in Kentucky. In this last fiscal year the division approved and issued 887 permits. Figure 7 shows permitting activity by the division over the last five years. Approved permits have declined every year since 2008 and have cumulatively fallen by more than 50 percent since 2009. The decline in permits is primarily due to a surplus of natural gas in the marketplace and the use of horizontal drilling and hydraulic fracturing (fracing). Fracing, also known as fracking or frac'ing, involves the injection of gasses or fluids underground at high pressure in order to open voids in the gas or oil bearing rock and release the trapped resource. The majority of fracing operations in Kentucky are utilizing nitrogen injection. This process has increased recoverable gas and oil and has created a surplus that has resulted in a lowering of natural gas prices.

Division field inspectors are stationed throughout the state and conduct inspections to ensure the implementation of safe drilling and operational practices. In FY 2013, division inspectors performed 15,470 oil and gas well inspections. Figure 8 shows the number of inspections conducted over the past five years.





There are numerous abandoned oil and gas wells throughout the commonwealth that pose a significant threat to our environment. The Division of Oil and Gas has the authority and funding (available through the Oil and Gas Well Plugging Fund) to plug these wells through the use of contractors from an authorized bidders list. The division evaluates each well using criteria based on its threat to human health and the environment and the cost to plug the well. During FY 2013, 25 wells were plugged at a cost of \$162,827. The cost to plug a well varies depending on the conditions and complexity of each well. Figure 9 shows the number of wells plugged and associated costs over each of the past five fiscal years.

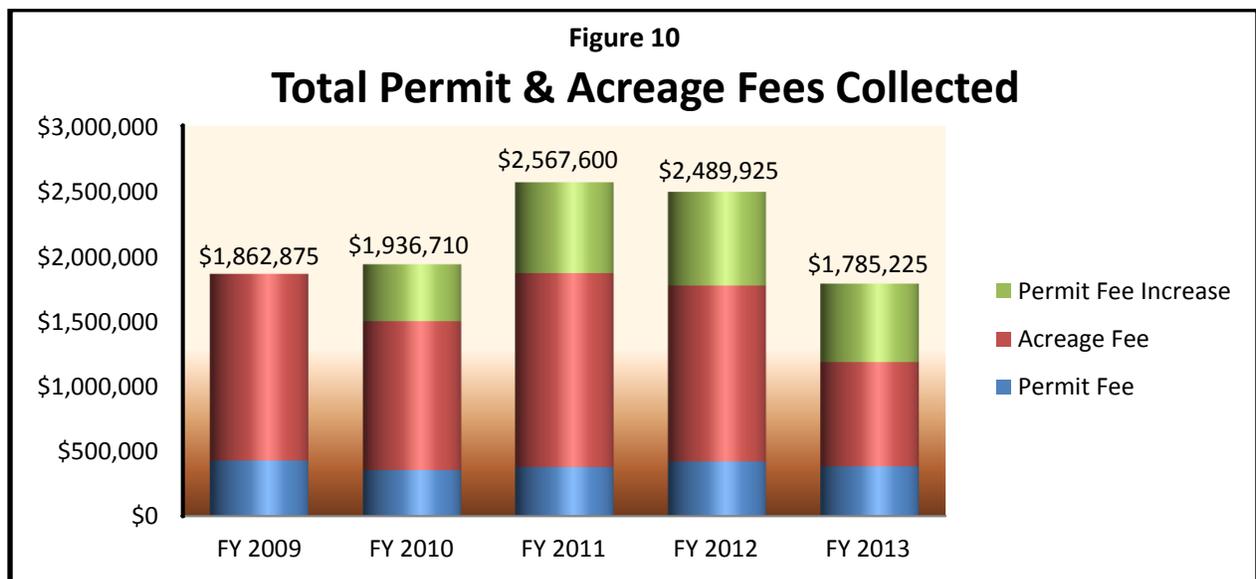


DIVISION OF MINE PERMITS

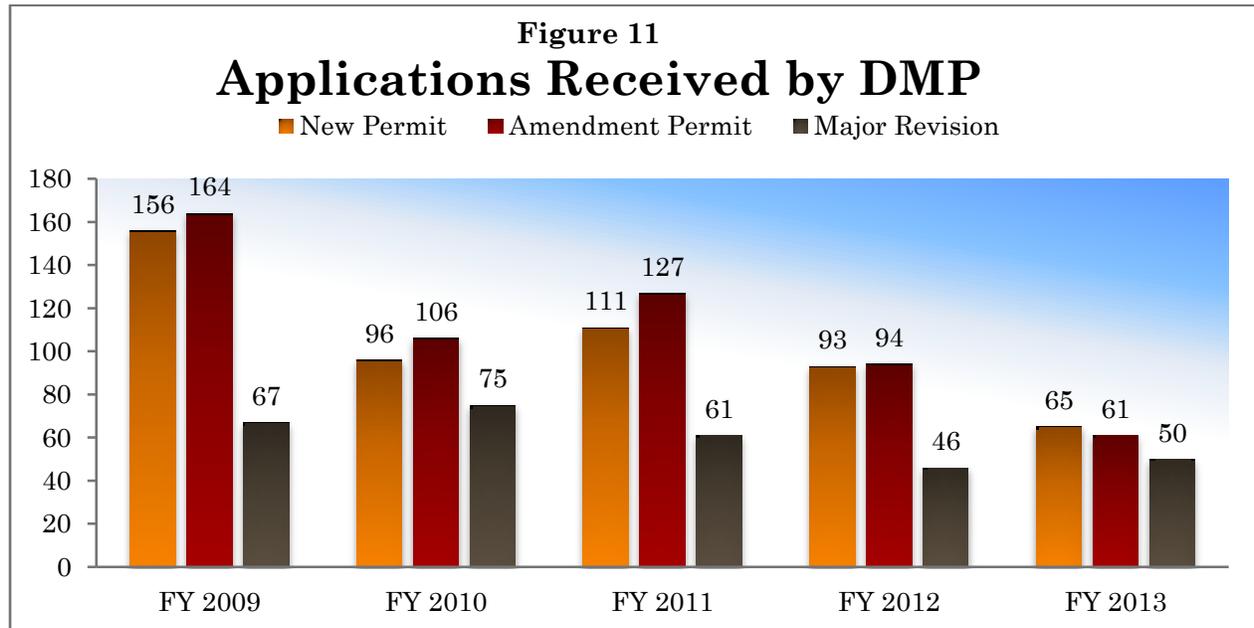
The Division of Mine Permits evaluates applications for coal mining permits in accordance with state law and regulations. With limited exception, a permit is required from the division prior to anyone conducting coal extraction in the commonwealth. Applications for mining permits contain plans and details on a proposed mining operation that must be determined during the permit review process to meet requirements that are designed to minimize impacts to the environment and protect the public from the adverse effects of mining. Since 1984, Kentucky has been approved as the primary authority to administer its surface mining program in accordance with the federal Surface Mining Control and Reclamation Act of 1977 (SMCRA).



In 2008 and 2009, the division lost many of its experienced staff and reductions in its budget did not allow for filling of vacant positions. This situation resulted in the division being unable to process permit applications in a timely manner and meet its statutory review timeframes. In late 2009, the number of these delinquent applications had reached as many as 180. In 2010, state law was amended providing for a substantial increase in permit application fees. This increase resulted in additional funding for the division and allowed for additional staff to be hired during that year. The division has maintained a significant and sustained reduction in the number of permit applications not being reviewed in the allotted timeframe. At any time during FY 2013, permit applications considered delinquent accounted for less than 3 percent of all applications in the review process. Figure 10 shows the amount of funds received by the division for permit and acreage fees since 2009.



Division staffing levels reached a recent historical peak of 103 employees in April of 2010 but has declined to 75 employees by the end of FY 2013. This reduction in staffing has been associated with a decrease in permit applications received. Figure 11 depicts the number of new, amendment, and major revision applications received for review since 2009.



With the decline in staffing levels, the division underwent an organizational realignment in January of 2013. This realignment streamlined various program areas within the division and a number of vacant positions were abolished. The realignment has the effect of reducing the division by one branch and four fewer sections. The streamlined result will be better suited to meet the mission of the division as coal production declines and the number of new permit applications decrease.

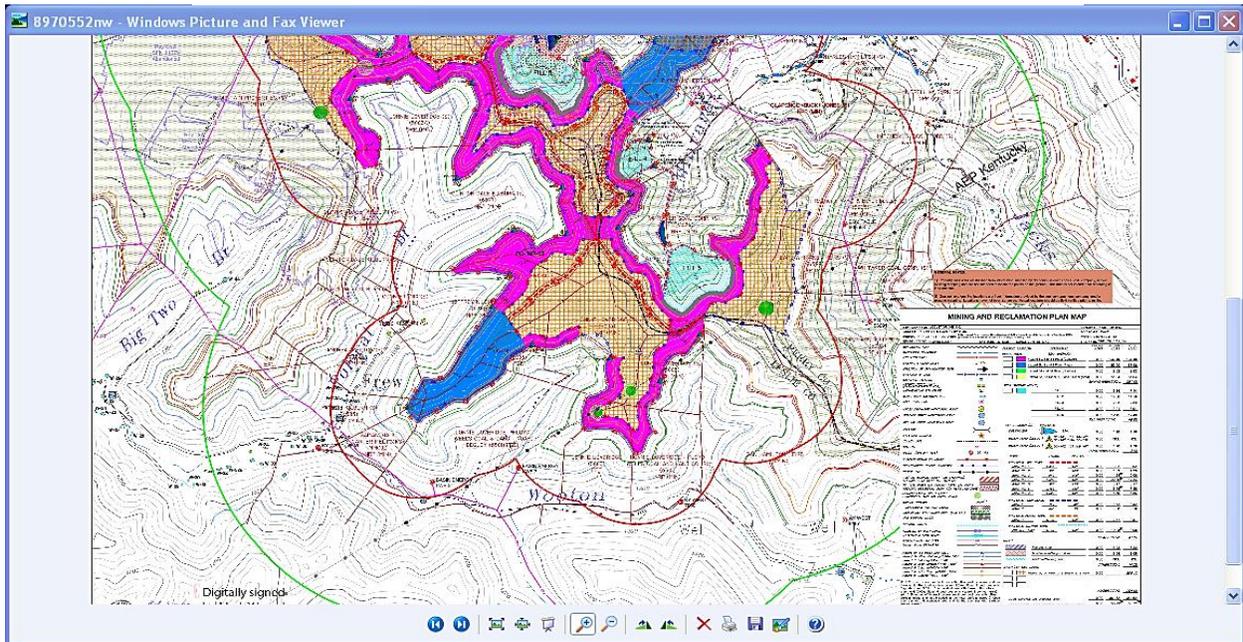
The division enhanced the electronic permitting (e-Permitting) program in FY 2013 by improving the processing of citizen protests and requests for permit conferences by integrating internal procedures through its Staffware management software. Microsoft Access also replaced Microsoft Word as the software used in the e-permitting program allowing for a significantly improved and user friendly application for both permit applicants and division reviewers. The redesigned program will also reduce the potential for errors and allow for the sharing of data with other department electronic information systems.

Significant developments have also occurred in the division's review process that improve and enhance the evaluation of water quality in streams of the Kentucky coal fields. As part of the permit review process, a Cumulative Hydrologic Impact Assessment (CHIA) is required to evaluate the probable effects of coal mining on water quality in the area proposed for mining. The division has added additional water quality data sources from DAML and the department "Trend Station" project to existing sources

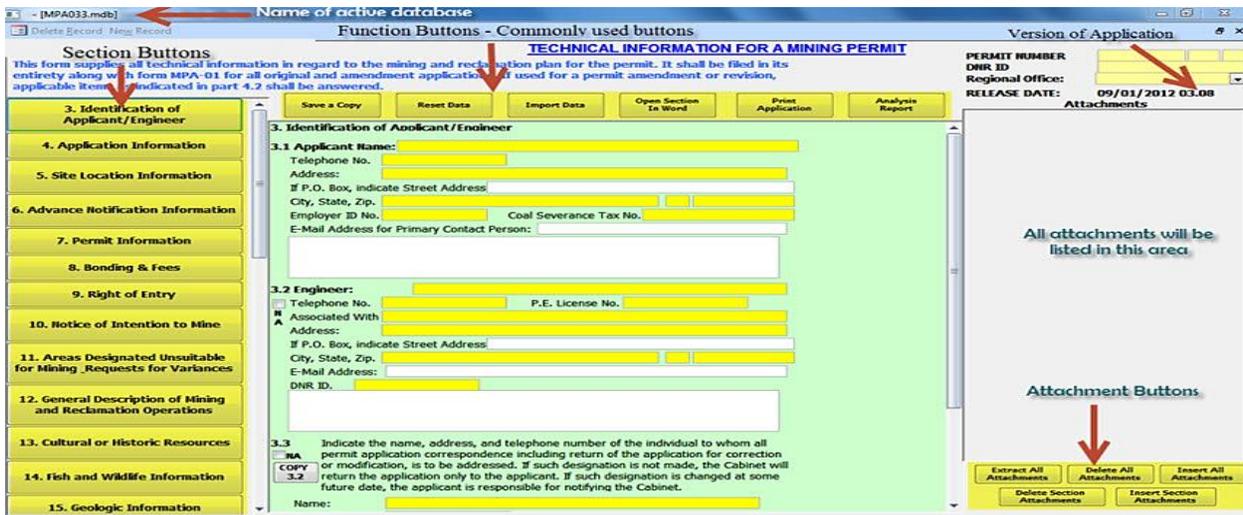
for development of CHIA watershed reports. As of June 30, 2013, a total of 478 CHIA watershed reports have been completed, with 368 individual watershed characterizations utilized.

As a part of the overall department program to address the adequacy of coal mining reclamation bonds, the division implemented procedures to reevaluate bond sufficiency on existing permits. Through June 30, 2013, the division had initiated bonding mid-term reviews on 772 permits. During the reviews, staff identified 282 permits requiring additional funds for their reclamation performance bond in order to be compliant with new bonding regulations adopted in 2012. The average bond has been increased approximately 60 percent on those permits determined to have inadequate bond.

Digital Map from a Surface Coal Mining Permit Application



Electronic Permitting Application Form



DIVISION OF MINE RECLAMATION AND ENFORCEMENT

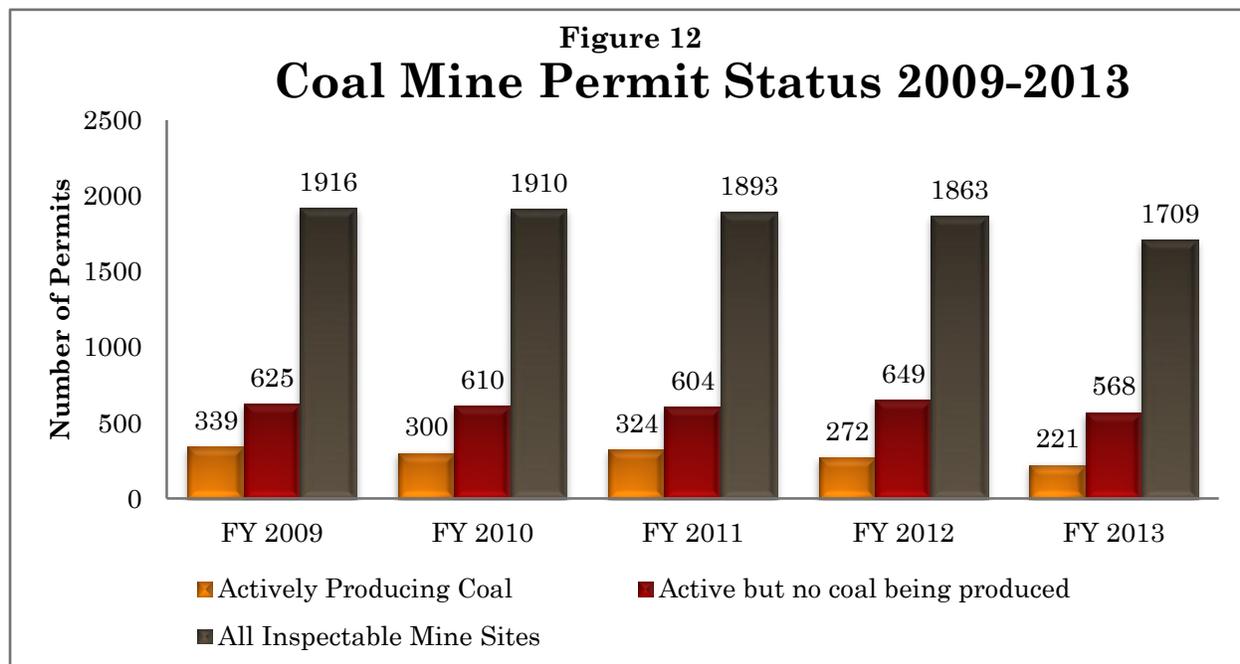
The Division of Mine Reclamation and Enforcement is responsible for performing inspections on approximately 1,700 coal mine permits and 240 other mining operations of various rock and mineral resources in Kentucky. Additional responsibilities of the division include the licensing/certifying of all blasters and performing inspections on blasting operations conducted throughout the state. The division is staffed by approximately 160 employees located in Frankfort and five regional offices with the majority of its employees assigned inspection duties in the eastern coal fields.



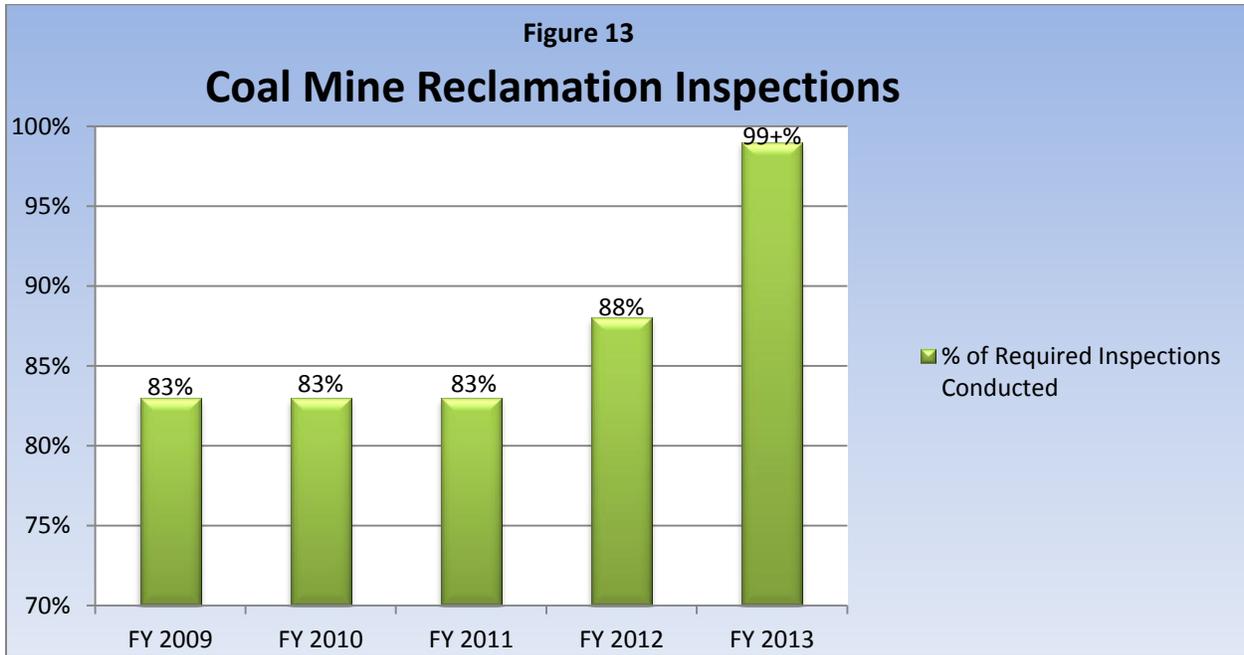
The primary responsibility of this division pertains to the enforcement of state laws and regulations that have been enacted as a result of the federal Surface Mining Control and Reclamation Act (SMCRA). Under the provisions of SMCRA, Kentucky has the primary responsibility for the permitting and enforcement of coal mining and reclamation operations in the commonwealth. The chart below shows an overall declining trend in the number of permitted coal mines inspected by the division. Figure 12 shows the total number of coal mines, the number considered active, and the number of active coal mines that were producing coal on the day the inspection occurred.

Inspections of mine sites are conducted on regular, unannounced intervals, and are performed to determine compliance with the design and performance standards that are specified in the approved permit for each mine.

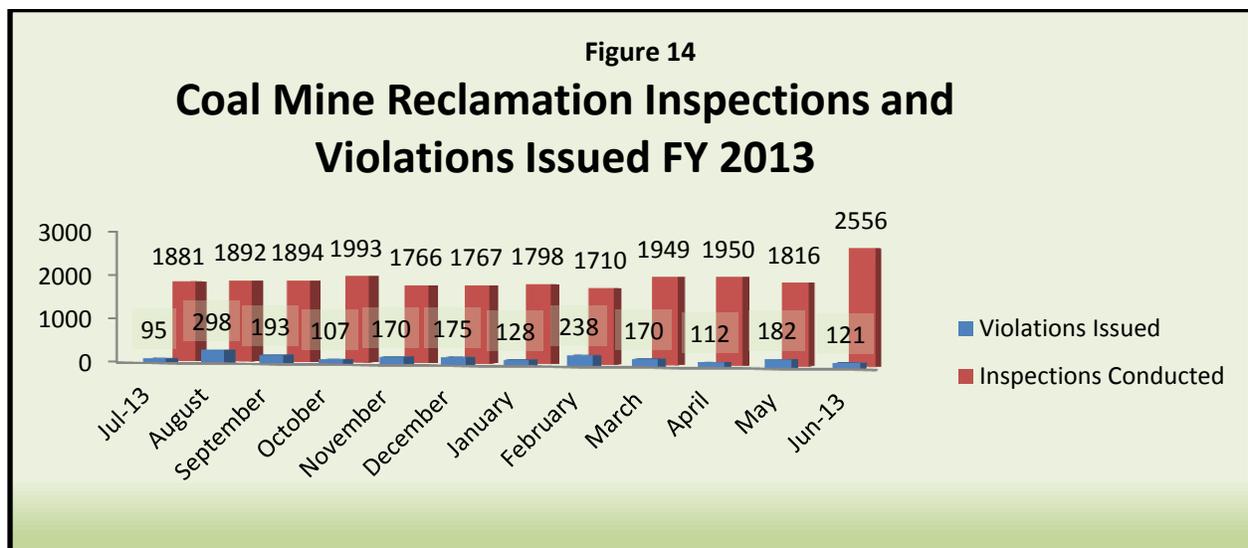
A total of 24,779 inspections were conducted on coal mining permit areas during this fiscal year. Active coal mines are required to be inspected at least once every month and those that are inactive or in



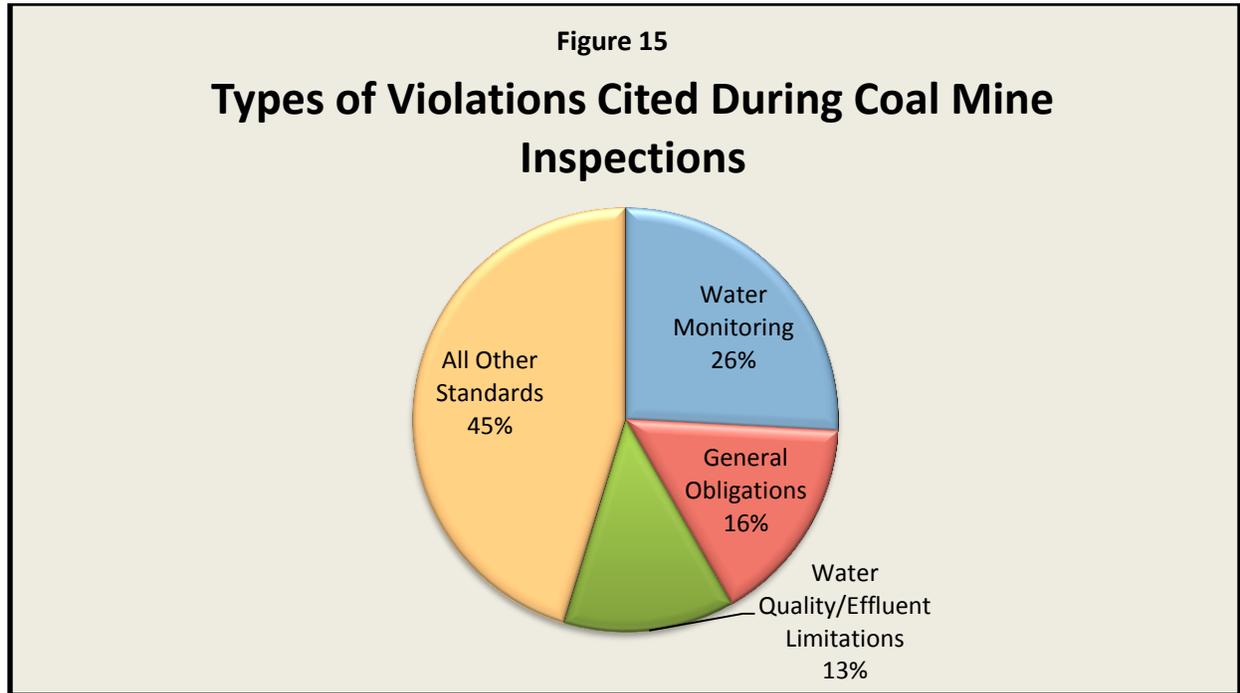
phases of final reclamation are required to be inspected at least once per calendar quarter. Figure 13 shows the dramatic improvement made by the division over the last two years, culminating in over 99 percent of mine sites having the required number of inspections conducted in FY 2013.



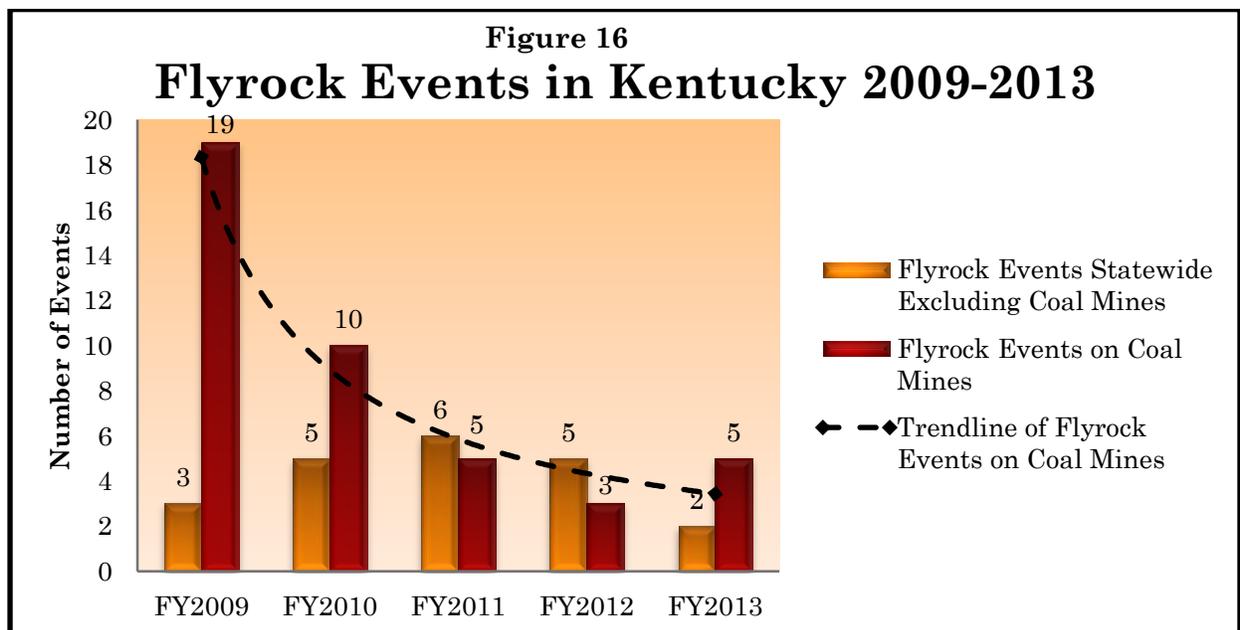
When a mine does not meet one or more of the standards required by its approved permit, a Notice of Non-Compliance is issued for the standard or standards in violation. Figure 14 shows the total number of coal mine inspections conducted by division staff each month and the number of violations resulting from those inspections.



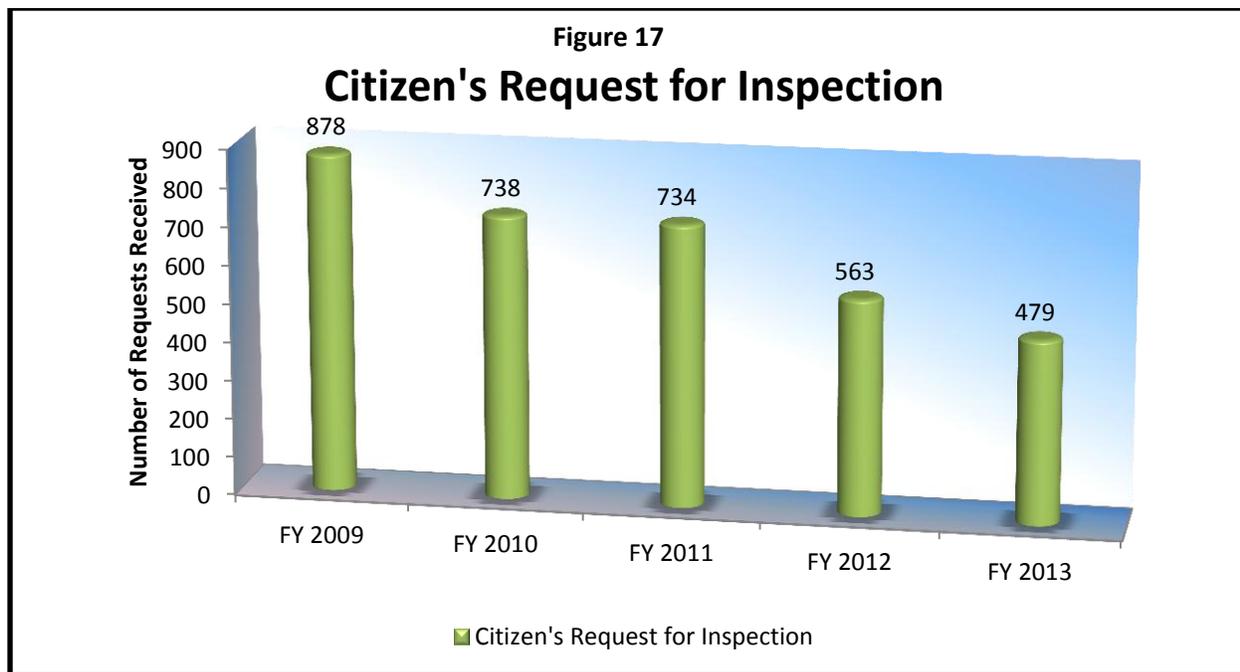
A total of 1,989 violations to coal mining permits were issued by division inspection staff in this fiscal year. Figure 15 depicts the three most frequently cited standards found in violation.



The elimination of flyrock incidents related to blasting activities conducted within Kentucky has been a goal of the division for many years. Efforts to reduce the occurrence of these events that subject the public to potentially dangerous flying rock or debris outside of blasting areas have resulted in an overall declining trend over the past five years. Figure 16 shows the number of flyrock events on coal mines and those events occurring elsewhere in Kentucky.



The opportunity for citizen involvement is an integral component of the coal mining regulatory program. On average, inspectors visit a coal mining operation and perform inspections once every month. Conditions and events may occur outside the time inspectors are on site, and these concerns are routinely reported to the division by citizens who live near or are otherwise affected by the mining operation. These reports by citizens are recorded as a Citizen’s Request for Inspection (CRI) by the division. Upon receipt of a CRI, division inspection staff will conduct an investigation and make a determination if the event or condition reported is, or is not, a violation of the mining permit. The goal of the division is to have an initial written response to the citizen within five working days of receipt of the original citizen report. In FY 2013, the average response period for an initial response to citizens was eight working days. This is a significant improvement from the average response time of 27 working days in FY 2009 and reflects a continuation of improvement in this area over the last four years. Some investigations may require more detailed evaluation and technical assistance from division engineers or hydrologists and therefore require more than five days to complete their review. Figure 17 shows the number of (CRI’s) received by the division over the past five years.



DIVISION OF ABANDONED MINE LANDS

The Division of Abandoned Mine Lands (DAML) performs work throughout the eastern and western Kentucky coal fields to identify, prioritize, and address safety, health, and environmental problems associated with the residual effects from coal mining operations conducted prior to 1982 (Pre-law). Residual effects from pre-law mining may include, but are not limited to: acid mine drainage (AMD), landslides, unsealed mine portals/shafts, dangerous highwalls, and sediment or coal mine waste impacts to streams. Funding for the division comes almost entirely from the



appropriation of funds from a federal fee paid by mining companies on each ton of coal mined in the US. The division also contracts for mine site reclamation on sites mined on or after 1982 (Post-law) that have not been restored or reclaimed to permit and regulatory requirements. Forfeited permit performance bond proceeds are utilized to fund reclamation on these post-law mine sites. The AML federal grant in FY 2013 was \$46,998,225 while the previous fiscal year grant was \$36,721,012. Each year this federal appropriation funds the operation of the division and pays for projects that restore or remediate land and water resources that have been adversely affected by pre-law coal mining in Kentucky. During this fiscal year, a total of 33 non-emergency AML projects were completed and \$8,198,000 in grant funds was expended. The table below depicts the types of projects undertaken by the division over the past five 5 fiscal years and the impact of those projects on the environment and to citizens that live and work in the project areas.

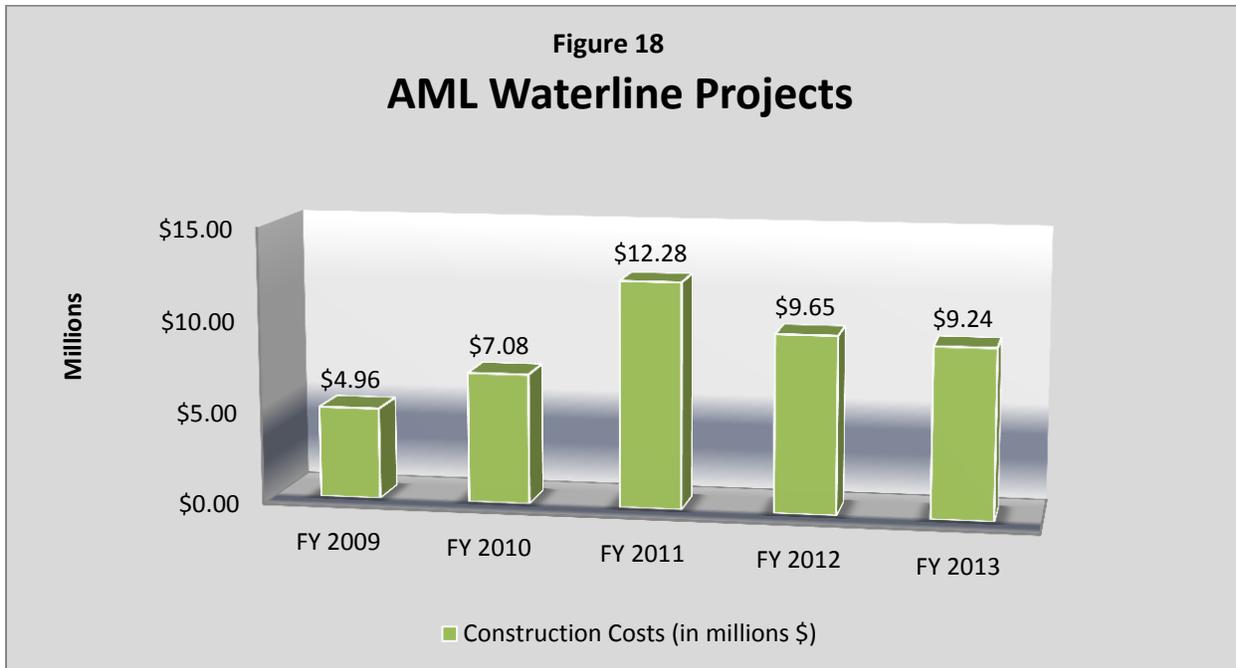
	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
# of Health & Safety Hazards Eliminated	62	145	126	274	144.5
Acres Reclaimed	161.7	150.65	71.6	166.45	280.61
# of Citizens No Longer at Risk	1471	517	547	2241	3012
# of Citizens Employed on Projects	124	218	148	336	423

Types of Hazards Reclaimed

# Of Mine Portals Sealed	36	92	89	188	77
# Of Vertical Openings Sealed	2	11	2	4	2
Acres of Landslides Eliminated	56.6	59.35	16.25	57.05	50.8
Feet of Highwall Eliminated	6,000	2115	340	2141	220

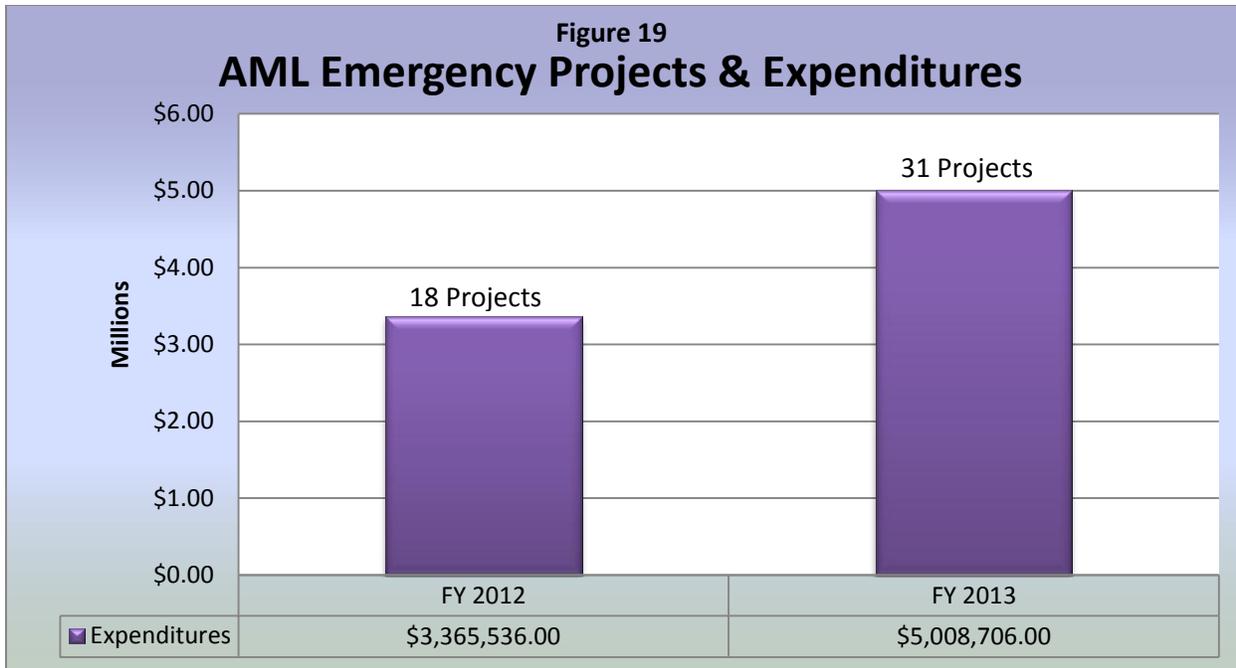
AML RECLAMATION PROJECTS

The division also provides funding for water supply projects in areas where groundwater quality has been impacted by pre-law mining thereby providing households with an available safe and reliable source of water for their needs. Figure 18 shows waterline construction expenditures over the past five fiscal years by the division, the number of projects completed, the number of households served, and miles of waterline installed. Over the past five fiscal years, 38 waterline construction projects have been completed serving 4,210 households spanning more than 290 miles of new waterline.



<u>Waterline Project Details</u>						
	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
# of Projects Completed	6	9	8	8	7	
# of Households Served	308	1068	1033	802	999	
Miles of Waterline Installed	47.06	82.32	107.88	53.62	86.76	

In fiscal year 2012, the Abandoned Mine Land Emergency Program in Kentucky was shifted from the federal government to state responsibility. Emergency projects are those involving abandoned (pre-law) mine lands that present an immediate danger to life, public health, and safety. The program was successfully integrated into the division and it began funding emergency project activities during 2012. Figure 19 depicts the number of projects and expenditures in each of the last two fiscal years.



Each year, a percentage of the AML federal grant is allowed be used for projects that restore water quality to streams that have been impacted by pre-law coal mining activities. These AMD projects, involve the elimination, reduction, or treatment of sources of acidic/toxic mine spoil and/or mining by-products that are impairing water quality of streams. In FY 2013, two AMD projects were completed with a total of cost of \$2,944,000. These two projects restored over 11 miles of stream. The Ebenezer Project in Muhlenberg County, the largest AMD project to date, was initiated this fiscal year with an estimated cost of over \$3 million.

For the first time since 2003, the division received the federal Office of Surface Mining’s Appalachian Regional Award for Reclamation. The Rock Creek Project was recognized for its outstanding efforts to remediate the effects of AMD from abandoned mines in Lower Rock Creek of McCreary County. The AMD from pre-law mining had left Lower Rock Creek without aquatic life for several miles. When the project was completed, acid in the creek had been reduced by 99 percent and fish and other wildlife had returned.

Coal Refuse Fill Area on Rock Creek before reclamation



Coal Refuse Fill Area on Rock Creek after reclamation



OFFICE OF MINE SAFETY AND LICENSING

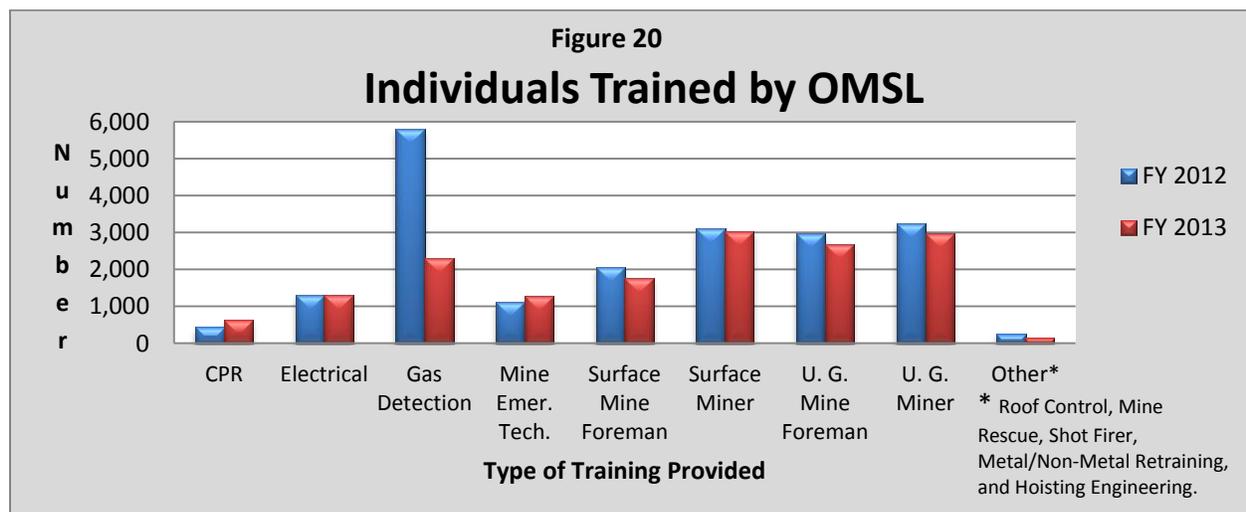
The Office of Mine Safety and Licensing (OMSL) is responsible for ensuring mines operating in the commonwealth comply with state mine safety laws and regulations. In order to ensure mines are operated safely, the office provides services in the following areas:

- Mine safety analysis, certification and training for all coal miners;
- Licensing of coal mines and inspection of safety hazards;
- Mine rescue and accident investigations;
- Drug free workplace program; and
- Mine mapping repository.

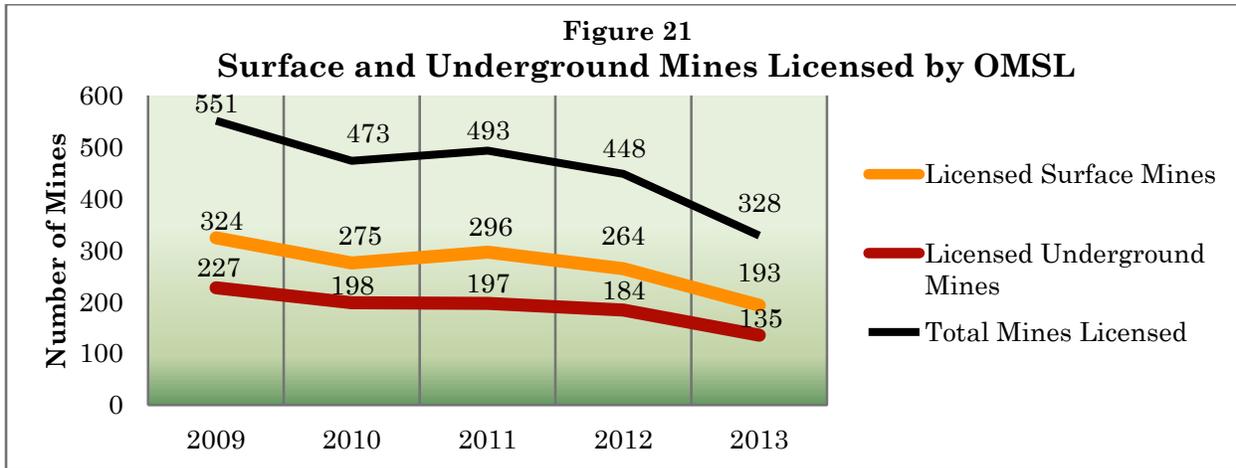
The Safety Analysis, Training and Certification Division within OMSL is primarily responsible for training miners and preventing mine accidents through observing and evaluating the work habits of miners while at the same time providing on-the-job counseling to the individual miner and assisting in correcting any unsafe or potentially hazardous actions. Kentucky has the only mine safety analyst program in the nation. During Fiscal Year 2013



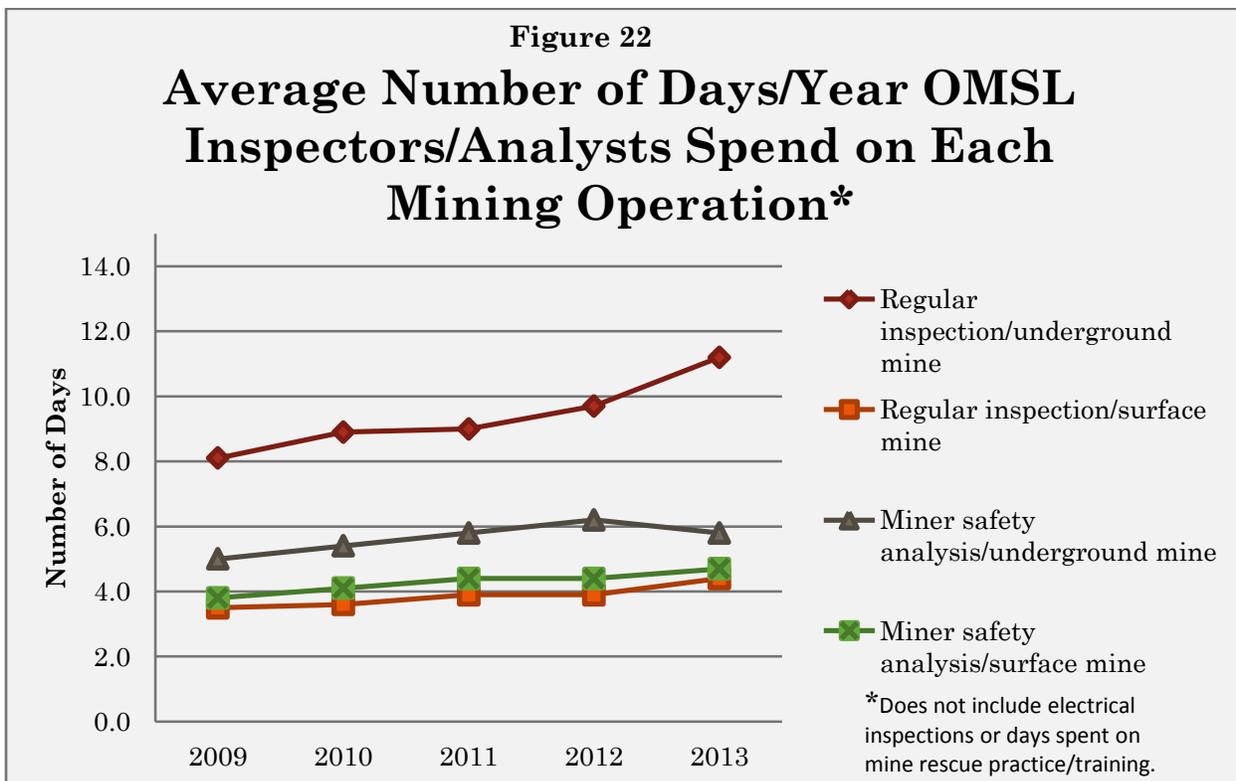
safety analysts made 23,800 observations of miners doing their jobs. 20,900 of these observations were judged to be “safe” acts while 2,900 or 12 percent were judged to be “unsafe.” This is a slight increase over 2012 when 11 percent of observations were deemed “unsafe.” Training staff within the division provide professional-level miner training and certification to those individuals that successfully complete the training and certification requirements. Figure 20 shows the type of training courses offered in each of the last two fiscal years and the number of individuals trained.



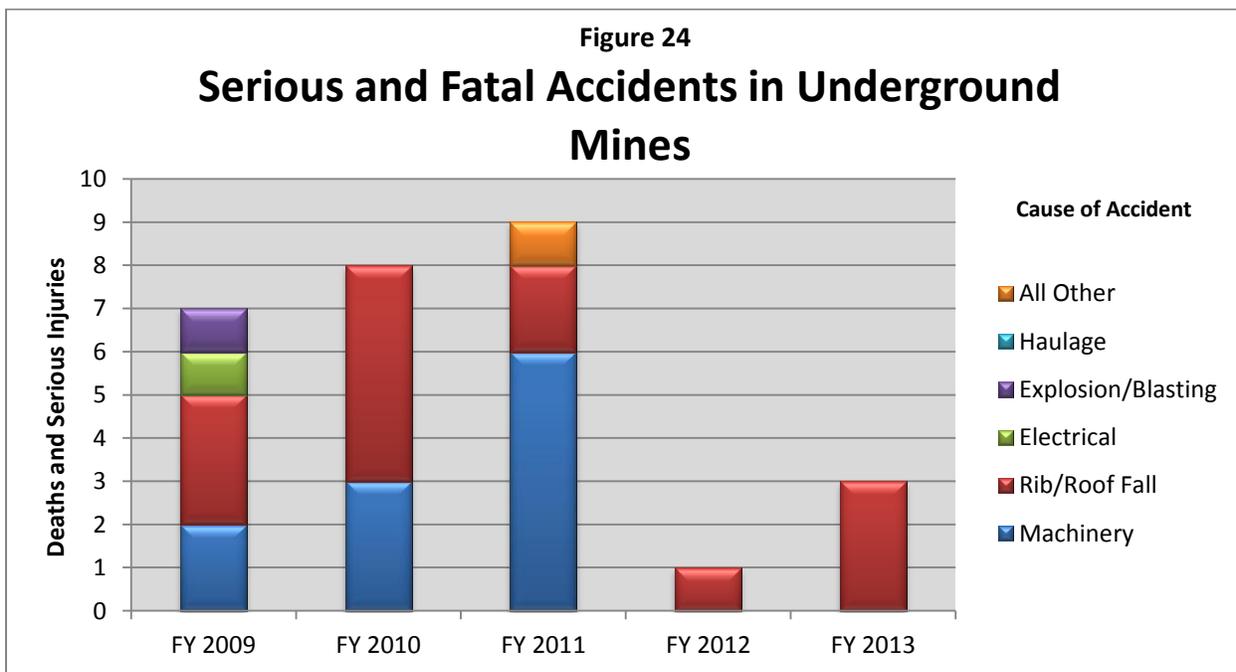
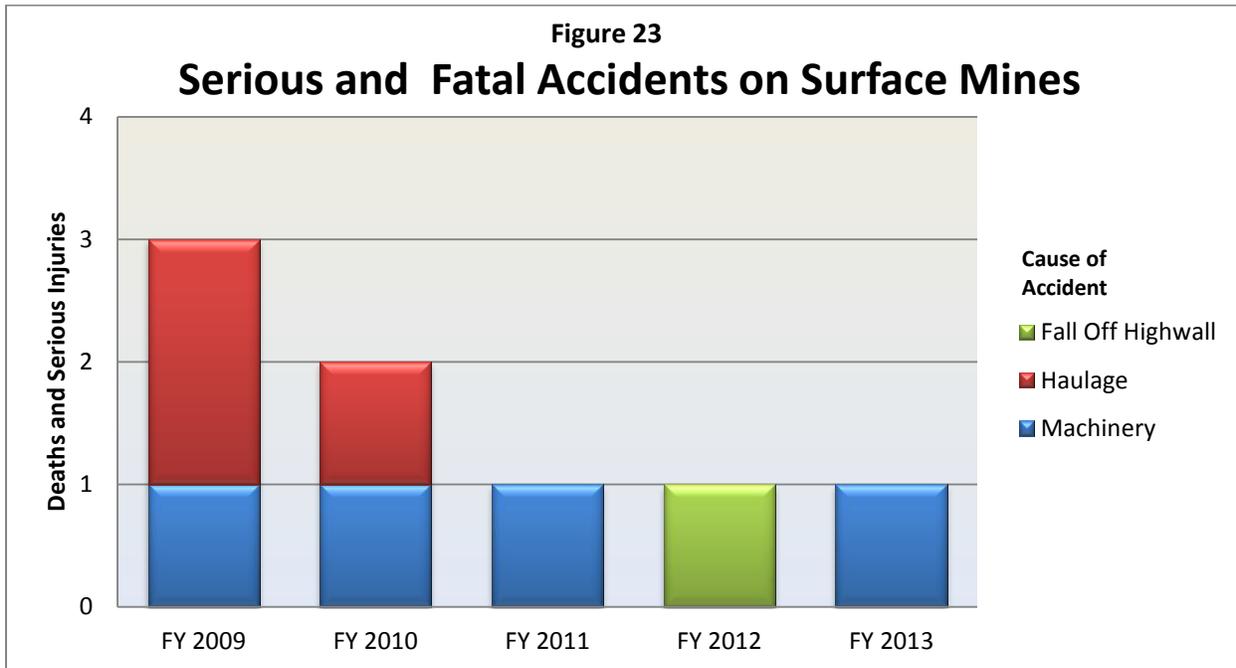
Each year the owner, operator, lessee or licensee of each mine must obtain a mine license from one of the six district offices located throughout the commonwealth. Figure 21 shows the declining trend in the number of mine licenses issued over the past five years.



Safety inspections are conducted on surface and underground mines throughout Kentucky by well trained and experienced OMSL inspectors. Inspectors carry out and enforce state law and regulations to help ensure the mines in Kentucky provide a safe working environment for our miners. Figure 22 shows the average number of days each year OMSL inspectors/analysts spend on each mine, either inspecting the surface or underground mine or analyzing the miners doing their jobs.

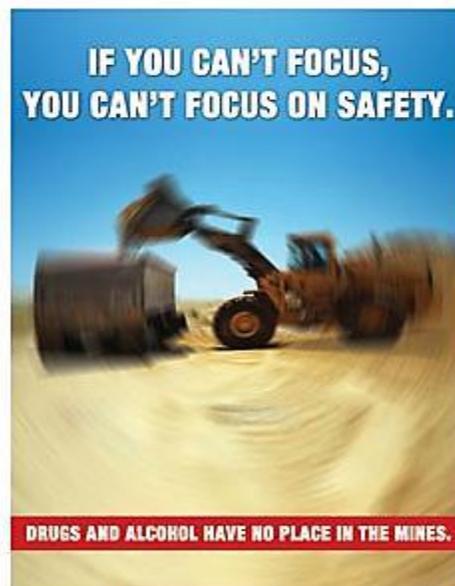
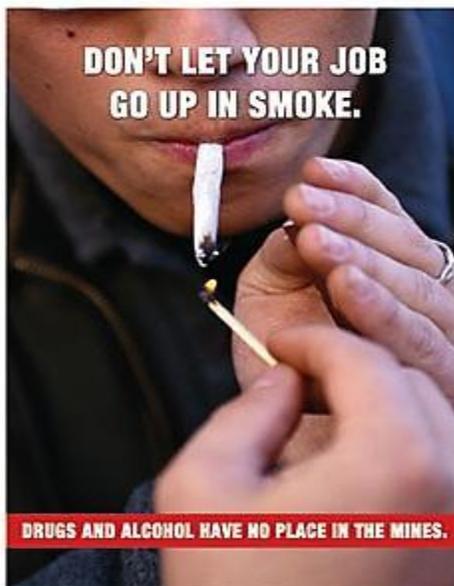
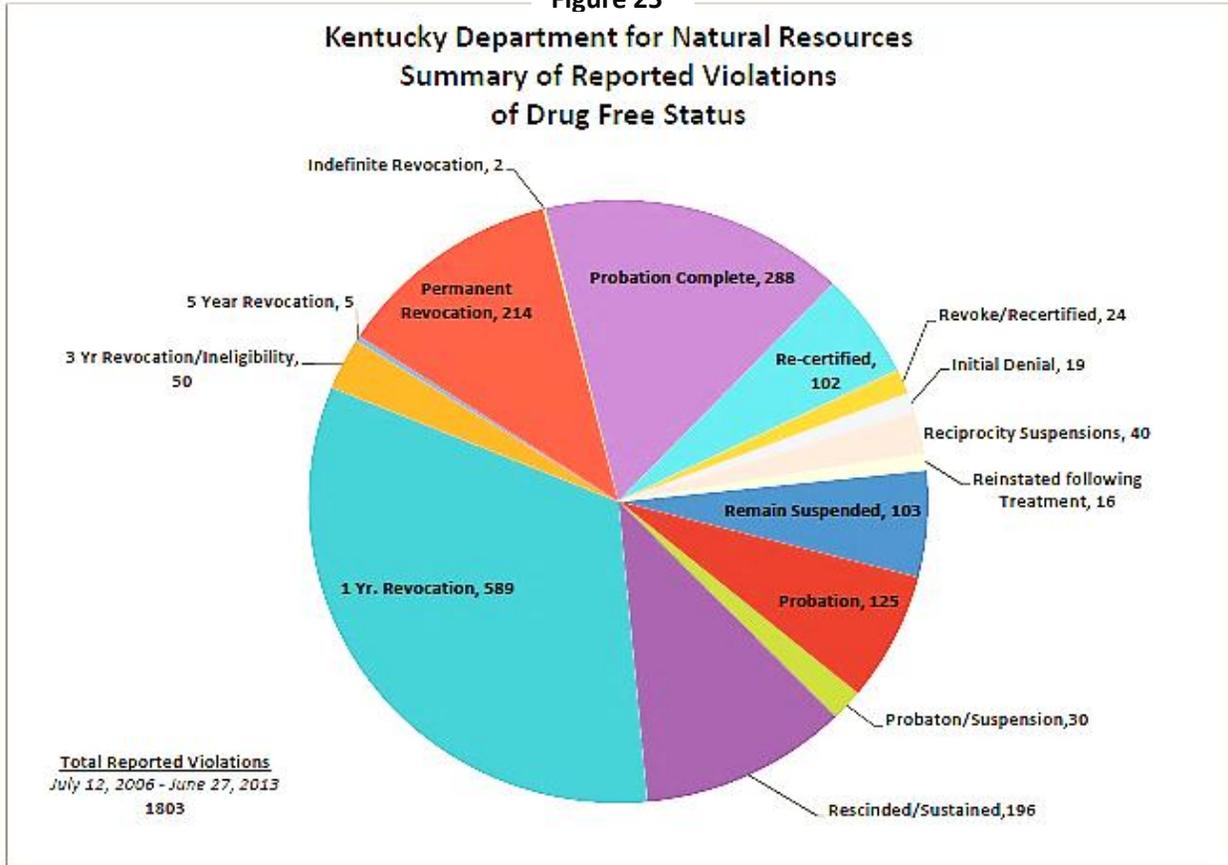


During Fiscal Year 2013 two (2) Kentucky miners lost their lives while working at surface and underground mines. While the loss of one life is unacceptable, this still represents improvement from FY 2011 when seven (7) miners lost their lives in Kentucky mines. Figures 23 and 24 show the number of individuals and causation of injury, either serious or fatal, over the last five years on surface and underground mining operations.



Legislation enacted in 2006 addressed several different issues related to drug and alcohol abuse in mines and provided for pre-certification, random, and post-accident drug testing. Figure 25 depicts the disciplinary actions taken regarding the individual miner's license by the Mine Safety Review Commission from the beginning of the drug testing program through June 27, 2013.

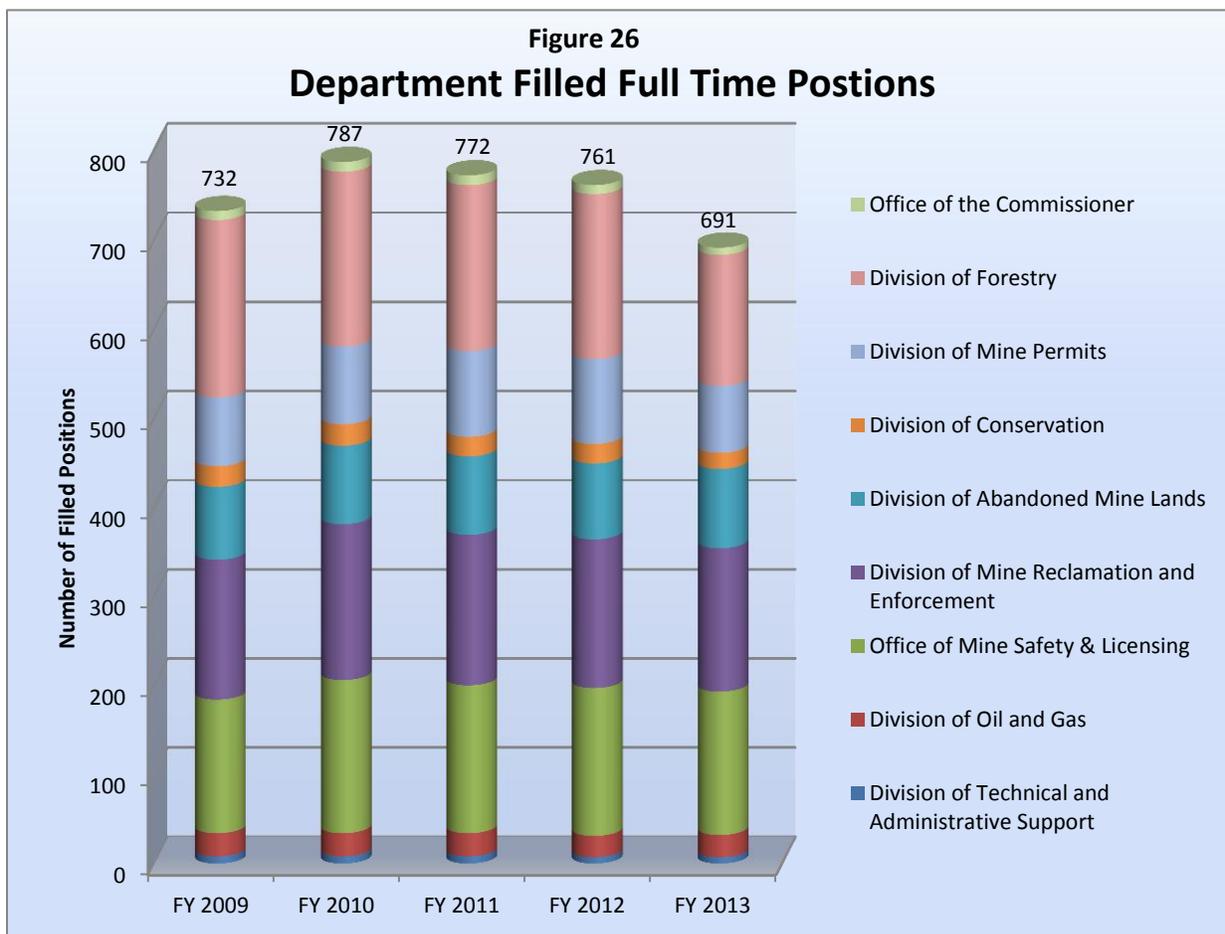
Figure 25



DIVISION OF TECHNICAL AND ADMINISTRATIVE SUPPORT

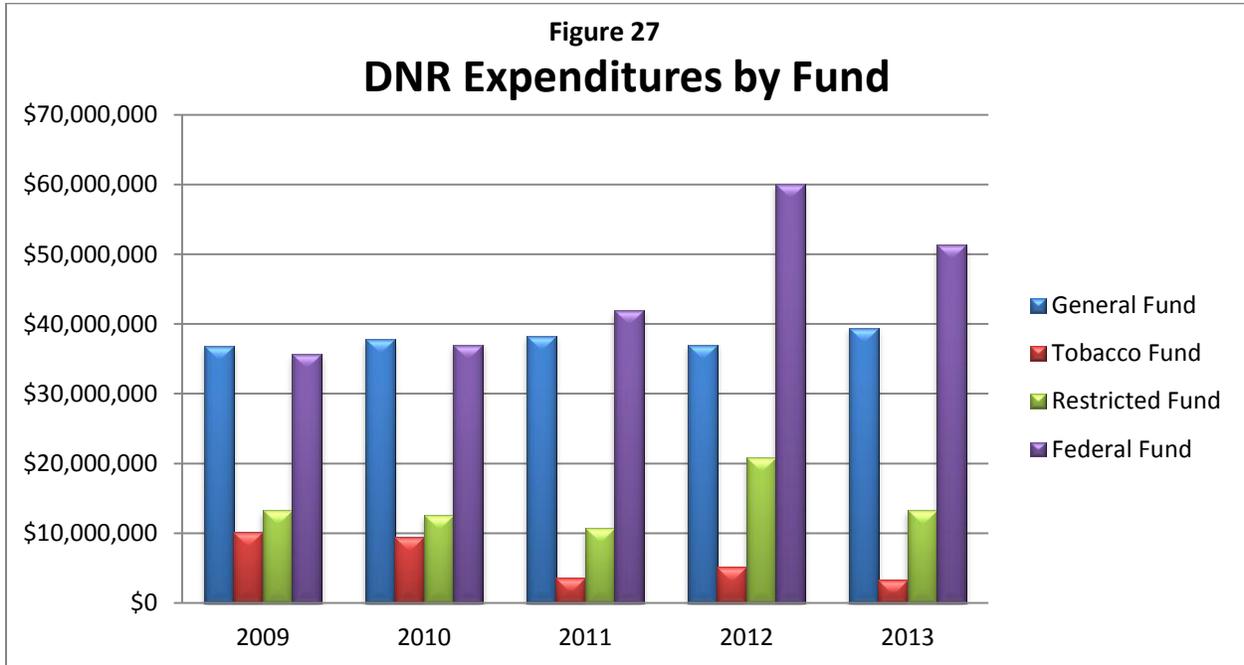
The Division of Technical and Administrative Support provides assistance to the other divisions and offices within the department. These services include human resources assistance, personnel, training, grants, and administrative/technical staff and assistance to divisions/offices/and commissions. While this division is the smallest of all divisions and offices within the department, it provides valuable support, resources and expertise to the other units so that they may perform their duties.

Figure 26 shows the total number of filled full time positions for each of the units within the department as of June 30 of each year for the past five years. The department had 70 less full time employees on June 30 of this last fiscal year compared to 2012. This represents a 9.2 percent reduction in its overall workforce.



The department’s revenue sources consist of General Funds, federal grants, and fees (Restricted Funds) collected as authorized in various programs administered by the department. State General Fund appropriations are essential to the operation of most of the offices and divisions within the department. The department continues to address budgetary issues related to the appropriation of General Funds in

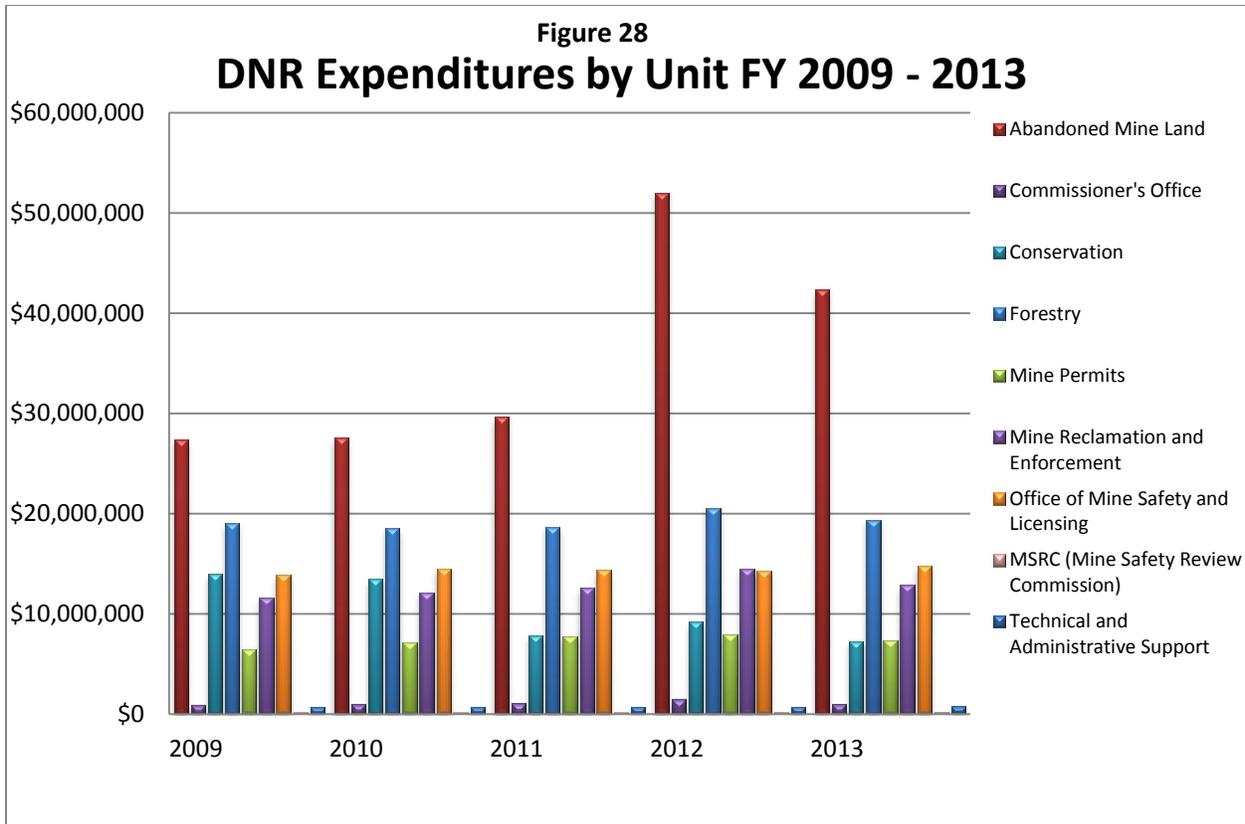
the state budget and reductions in Restricted Fund revenues, which have had impacts in every agency unit over the last year except for the Division of Abandoned Mine Lands. The Division of Abandoned Mine Lands receives nearly all of its funding from federal grants. Figure 27 shows expenditures by the department over the past five years and the source of those funds.



General Fund appropriations for FY 2013 were 6.4 percent above that which was appropriated in FY 2009, while Restricted Funds and Tobacco Settlement Fund revenues have actually declined or remained the same as compared to funding levels in 2009. Federal funds have shown the most increase as compared to 2009 levels due primarily to increased funding for the Abandoned Mine Lands Program.

The Division of Mine Permits and the Division of Mine Reclamation and Enforcement are funded by a 50/50 state to federal funds match. Monies available from federal grants to administer the programs in these two divisions have been more than the available state match money for several years. From October 2008 to June 30, 2013, the department has returned or not used over \$5.9 million in federal grant money because the state was unable to match the federal funds available.

Figure 28 depicts expenditures for each administrative unit within the department over the past five years.



In FY 2013 the Division of Technical and Administrative Support began development of the OMSL Mine Safety and Mapping Capital Project that was funded by the General Assembly to improve the electronic inspection, workflow, and document management systems within the Office of Mine Safety and Licensing. Systems design and analysis began in May with a completion target date of June 30, 2014.

The Department for Natural Resources through its Mine Mapping Information System provides immediately accessible scanned maps of abandoned mines, as well as current annual license maps, through its free online map service at <http://minemaps.ky.gov/>. These maps assist in AML projects, provide crucial data in emergencies such as subsidence and blowouts, and lessen emergency response time in any mine related disaster. As of June 30, 2013, the system contained scanned images of 42,256 maps and 34,361 transmittal documents that accompany annual map submission. A total of 37,025 of the scanned maps are georeferenced to enable use with Kentucky’s extensive GIS network.

The Division of Technical and Administrative Support provides administrative support and staff to assist the Kentucky Heritage Land Conservation Board in carrying its responsibilities to the Kentucky Heritage Land Conservation Fund. Since 1995, the Kentucky Heritage Land Conservation Fund Board has played an integral part in helping state agencies, local governments, and state colleges/universities protect and conserve over 80,000 acres of Kentucky’s natural areas and habitats. To date, the fund has provided financial support, in whole or in part, to acquire 111 sites in 67 Kentucky counties. A total of 2,544.64 acres of natural lands were preserved in FY 2013.

DNR PROGRAM DEVELOPMENT AND SPECIAL PROJECTS

Program Development

- On May 1, 2012, The United States Office of Surface Mining (OSM) placed Kentucky on notice that its reclamation bonding program was deficient. This notice also required Kentucky to take immediate and long term steps to ensure bond amounts are adequate to complete reclamation of coal mining operations in case of bond forfeiture.

The department addressed the letter's demands by adopting regulatory amendments to immediately increase individual bond amounts on coal mining permits. These amendments were effective in Sept. of 2012.

Legislation was passed during the 2013 General Assembly and signed into law by Governor Steve Beshear, which provided for the funding and establishment of the "Kentucky Reclamation Guaranty Fund" (KRGF), creation of the "Kentucky Reclamation Guaranty Fund Commission" and "Office of the Reclamation Guaranty Fund" (ORGF). The KRGF was established as a mandatory reclamation account which will cover the additional costs of reclamation for forfeited coal mining operations when the permit specific bond is insufficient for the commonwealth to complete reclamation to program standards. The KRGF will be governed by the Commission established in the legislation and administered by the staff of the newly created ORGF. The ORGF will be an agency unit under the Department for Natural Resources. The provisions of the legislation and regulations to be subsequently adopted will be fully implemented on Jan. 1, 2014.

The department believes the two actions taken as described above will be sufficient to meet the demands of the notice placed on Kentucky by OSM.

Special Projects

- **Trend Stations** – The department is working with several OSM Cooperative Agreement Grants, totaling \$470,000, to establish and maintain CHIA Trend Data stations in east and west Kentucky. The importance of establishing these stations cannot be overemphasized. There is currently no way to characterize water quality conditions in any of the Hydrologic Unit Code (HUC) 12 watersheds in Kentucky. HUC-12 drainage areas are classified as subwatersheds and typically consist of between 10,000 to 40,000 acres. Although some sampling historically has occurred, there has never been a systematic approach to water quality sampling in the Kentucky coal fields. Each specific location, or trend data station, will provide a measure of cumulative effects of mining and other activities in the watershed and will provide, over a period of time, the ability to predict specific parameter outcomes for each proposed mining operation in the

watershed. By the end of June 2013, over \$255,000 had been spent on sample collection and laboratory analysis expenses.

The department has completed field review and ground-truthing of 133 trend stations (116 in the east and 17 in the west). Each station has been sampled for at least six quarters. These watersheds were selected based on the level of coal mining activity and represent over 95 percent of the mining activity in the commonwealth. The department trained selected field inspectors to complete the water quality sampling on a quarterly basis. The department also worked with the Kentucky Division of Water (DOW), USEPA, and the United States Army Corps of Engineers (USACE) to identify a list of the specific chemical parameters to be sampled. Stringent and established water quality sampling and analysis protocols have been performed. Sampling results will be uploaded directly into department databases and the department website where they will be accessible by the public, industry, and state and federal personnel.

The USACE, USEPA, and United States Fish and Wildlife Service (USFWS) have expressed great interest in the CHIA Trend Data station project and realize the importance of high quality data to allow science-based analysis of the impact from mining. Sharing this data will improve the quality of SMCRA, National Pollutant Discharge Elimination System (NPDES), and Clean Water Act (CWA) 404 permits.

- **Pigeonroost Project** – The department has undertaken a CHIA special study to determine the cumulative effects of past and present coal mining operations in one watershed. Pigeonroost Fork, in Martin County, is a watershed that contains several active operations, numerous bond released permits, and also unmined areas in the headwaters — a relatively rare occurrence in the eastern Kentucky coalfield. Water samples were collected on selected tributaries and the main stem of Pigeonroost to evaluate the impacts of active operations to determine an effluent characterization, to determine the cumulative effects in water quality, and to characterize the unmined areas for use as a reference stream. This study was initiated in May 2012 and will conclude in Dec. 2013.

Supplementing this study is the incorporation of hundreds of surface and ground water monitoring data and discharge monitoring reports from the fills sampled both submitted from coal permittees from 1975 to the present. The dataset generated will be analyzed to truly reveal the cumulative effect of chemical constituents of concern.

- **Reforestation** – The department continues to promote efforts to establish healthy forests on mined lands throughout the coal fields of the commonwealth. Divisions within the department have partnered with other government and non-profit organizations to establish reforestation projects on previously mined lands. One of the most significant partnerships has been with Green Forests Work. During this past fiscal year, this partnership worked to coordinate, assist, and help volunteers plant high value hardwood seedlings on 16 projects in Kentucky. During

those events, the department assisted over 521 volunteers in planting 39,810 trees on over 67 acres of previously mined lands. The department also facilitated Forestry Reclamation Approach (FRA) training to over 200 of its employees that are directly involved in the permitting, regulation, and establishment of FRA practices on current and past mining operations. This training has proven successful and beneficial as the percentage of land proposed for reforestation on newly issued permitted surface mines has increased along with reforestation projects involving the Division of Abandoned Mine Lands.

The Division of Forestry, with assistance from the Division of Abandoned Mine Lands and a grant from the U.S. Forest Service, developed a project on an abandoned mine site in Lawrence County for the planting of over 14,000 trees, including American chestnuts. This project is of particular importance as American chestnuts were once numerous and an important hardwood found throughout the eastern United States, but were decimated by a fungus introduced into North America on imported Asiatic chestnut trees. The few surviving American chestnuts continue to be susceptible to this blight, but cross breeding with blight resistant Chinese chestnuts have allowed them to be reintroduced into the area. The 1,360 American chestnuts planted on this site, obtained from the Division of Forestry nursery at West Liberty, will be monitored by the American Chestnut Foundation. Seeds from this plot will be used in further cross breeding efforts.

Appalachian Regional Reforestation Initiative (ARRI) Tree Planting Event in Pike County



ACKNOWLEDGEMENTS

This annual report is intended to provide information to the general public related to the department's divisions and programs. Comments or questions regarding this report are welcomed and should be directed to the contacts below:

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