

Hazardous Materials and Waste Management Division

Annual Report

Submitted September of 2018



COLORADO

**Hazardous Materials
& Waste Management Division**

Department of Public Health & Environment





Jennifer Opila,
Director of
the Hazardous
Materials and Waste
Management Division

As the new division director of the Hazardous Materials and Waste Management Division (HMWMD) I am excited to share this annual report. It highlights many accomplishments, including promoting statewide waste diversion goals, providing radon mitigation assistance and continuing to address environmental impacts from landfills.

A special congratulations goes to our radiation program for a successful audit by the U.S. Nuclear Regulatory Commission. The program is audited every four years as part of our agreement state status. The audit included inspector accompaniments, file review and staff interviews; our program received the highest rating possible.

Our division mission, “to improve the quality of the environment and public health for the citizens of Colorado by continuously improving our efforts to ensure proper management of hazardous materials and waste,” fuels our work each and every day in the HMWMD.

Below you will find division highlights from state fiscal year 2017-2018, followed by “at-a-glance” statistics to recap the year for each program within the division.

Low-income Radon Mitigation Assistance Program:

The Low-income Radon Mitigation Assistance Program was launched in early 2018, providing free radon mitigation systems for individuals meeting certain income limits based on county of residence. Funding for this program comes from Colorado Revised Statute 25-11-114, passed in 2016 to provide mitigation assistance to nearly 100 low income families annually.

As of June 2018, 11 contractors have qualified to participate in the program. We have received 28 applications and 19 homeowners have qualified. Seven homes have been completed and 12 are in process.

The program has saved participating residents between \$495 and \$2,655 on mitigation systems, improved indoor air quality and reduced exposure to potentially harmful levels of radon gas.

Per- or polyfluoroalkyl chemicals (PFOA and PFOS):

The Peterson AFB Expanded Site Inspection for PFOA and PFOS was initiated by the Air Force in fall 2017. The primary intent of the Expanded Site Inspection is to gain a better understanding of how groundwater flows in this region, and to understand how and where contaminants are getting from the source areas off of the installation. The Federal Facilities Remediation and Restoration Unit has been integrally involved in planning both phase 1 and phase 2 of the Expanded Site Inspection fieldwork, to include working with the Air Force to determine appropriate sampling locations. During the first phase, test borings were completed to confirm the locations of paleo channels in which we are interested (i.e. those with contamination). The Air Force is preparing to begin phase 2 of the Expand-

ed Site Inspection in June 2018. During this phase, 21 new wells will be installed and sampled. Additionally, wells already in place will be sampled, for a total of approximately 50 wells being tested.

Given the number of unknowns regarding the science and toxicology associated with the universe of over 3,000 PFAS compounds, Colorado is taking a stepwise approach to addressing these contaminants:

Site-Specific Groundwater Quality Standard: On April 9, 2018, the Water Quality Control Commission voted unanimously to adopt a site-specific groundwater quality standard of 70 parts per trillion (ppt), or 0.07 micrograms/liter, for combined perfluorooctanoic acid (PFOA) and perfluorosulfonic acid (PFOS), as proposed by the Hazardous Materials and Waste Management Division. This site-specific standard will encompass the aquifers in El Paso County known to be contaminated with PFOA and PFOS. The standard will be used to compel investigation and cleanup of PFOA and PFOS in the region, while at the same time work to avoid additional PFOA/PFOS contamination of these important aquifers, which serve as a drinking water source for more than 60,000 people. The new site-specific groundwater quality standard became effective on June 30, 2018.

PFOA and PFOS Hazardous Constituent Listing: On February 20, 2018, the Solid and Hazardous Waste Commission listed PFOA and PFOS as Hazardous Constituents in Colorado Hazardous Waste Regulations. This will require all facilities already subject to the Resource Conservation and Recovery Act (RCRA) corrective action authorities, with potential for release of PFOA and/or PFOS, to monitor and implement corrective action, as necessary. This listing applies



One of two San Luis Valley community solar gardens that offsets energy use at the Summitville Mine.



CDPHE Environmental Programs Director Martha Rudolph speaking at the grand opening of the North Clear Creek Water Treatment Plant in Black Hawk.



statewide and will help the department gain a better understanding of the scope of PFAS issues across the state. This listing became effective on April 14, 2018.

Assess the need for statewide standards: Based on continued evaluation of the scope of PFAS issues across the state, the department will continue to assess the need for statewide standards associated with PFOA, PFOS, and other PFAS compounds.

Summitville Mine Superfund Site goes solar:

As of Aug. 1, 2017, electricity costs at the Summitville Mine Superfund Site were 100 percent offset by solar energy from two community solar gardens in the San Luis Valley. Summitville was the first Superfund site in the country to be completely solar-subsidized.

TENORM legislation:

The Colorado State legislature passed a bill this session that gives CDPHE the authority to promulgate rules for the safe management of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM). The bill requires CDPHE to work with stakeholders from various industries to conduct a comprehensive assessment and develop a report to create rules regarding the use and proper disposal of TENORM. The Division is working on the plans for the stakeholder process and is planning on a kickoff meeting later this summer.

Brownfields Program:

HMWMD continues to partner with the Colorado Housing and Finance Authority and Commerce City, Denver, Englewood, El Paso County, Lakewood, Loveland and Westminster to operate the Colorado Brownfields Revolving Loan fund (CBRLF). The CBRLF encourages the cleanup of unused or underused contaminated properties by offering loans with reduced interest rates, flexible terms and flexible collateral. The CBRLF is one of the most successful Brownfields RLFs in the country, having capitalized nearly \$16,000,000 in environmental cleanups since its formation in 2001. This year the fund received \$500,000 in supplemental funds from the Environmental Protection Agency (EPA) to apply to future Colorado Projects.

North Clear Creek Water Treatment Plant Opens:

In 2017 the North Clear Creek Water Treatment Plant began treating mining-impacted water flowing into North Clear Creek. The plant uses a lime-based high-density sludge process to treat contaminated water from the Gregory Incline and the National Tunnel near Black Hawk. A grand opening ceremony was held on July 31 for guests from government agencies, industry, academia and the public.

The plant treats 175 to 200 gallons every minute, removing more than 99 percent of iron, lead and cadmium, and 97 percent of copper and manganese from the water, before it's discharged to Clear Creek. Nearly 300 pounds of iron is extracted every day and the plant operates 24 hours per day. The water treatment plant is the final component of the remedy for the Central City/Clear Creek Superfund Site.

Small Landfill Initiative:

Division staff continued working with the operators of 19 small Colorado landfills as part of the Small Landfill Initiative, which aims to improve environmental conditions, protect groundwater wells and consolidate landfill operations. Staff recently finalized \$1.6 million in contracts to close six landfills and install groundwater monitoring wells at the remaining 13 sites. Initial site visits have been conducted by the contractors and field work should begin in August 2018 and continue into 2019.

Colorado Sets Waste Diversion Goals:

In August 2017 the Solid and Hazardous Waste Commission established statewide waste diversion goals for the first time in Colorado's history. The new goals challenge Colorado to meet the national average of 35 percent by 2026 and to match the current diversion rate of the best performing states (45 percent) by 2036. The Materials Management Unit in our division helped craft the goals and provides technical support to communities striving to meet these goals.

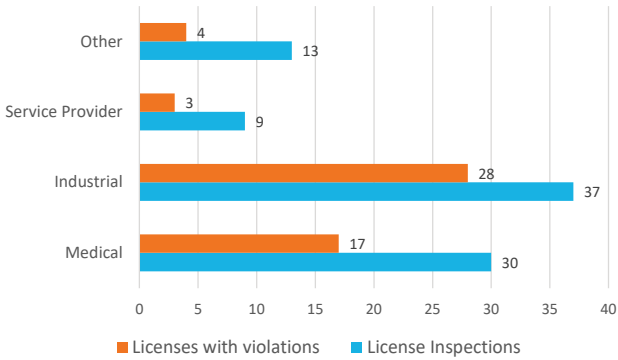
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RADIATION PROGRAM

The Radiation Program regulates the possession, use, management and disposal of radioactive materials and regulates radiation-producing machinery, such as X-ray machines. The program also works with local agencies to provide information regarding radon levels in homes and other buildings. The following information is from 2015 and 2016.

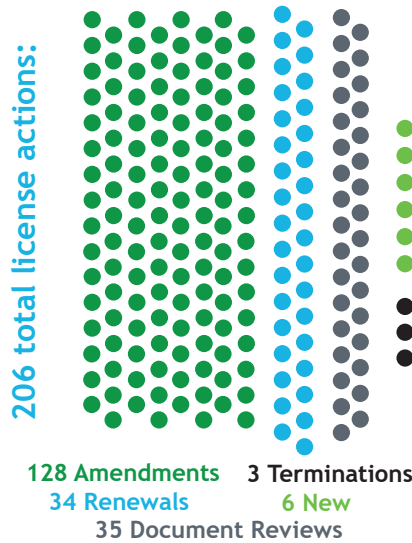
Licenses, Actions and Inspections

Inspections and violations by facility type:

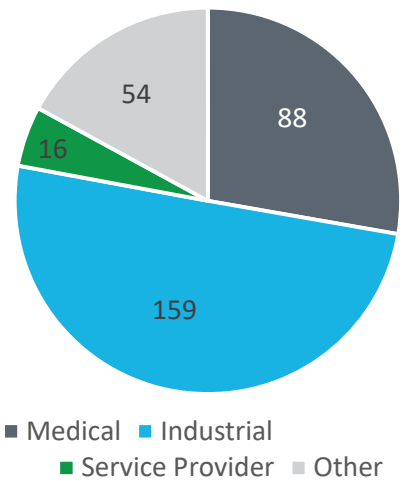


This figure captures both minor and major violations. Most violations are minor. Last year, 80 percent of medical facilities inspected had violations; this year only 57 percent had violations.

206 total license actions:



Radioactive Materials Licenses by facility type:



Radon Program



Granted approximately:
\$167,000
to 18 recipients



3,500
homes, schools and
other buildings installed
radon mitigation.



5,000
free radon
test kits were
distributed.



15 builders built approximately:
1,600
homes, schools and other
buildings with radon-
resistant features.



19,500
homes, schools and other
buildings were tested.

X-ray Program



16,000
radiation-producing
machines are
registered in Colorado.

56%
are in dental facilities.



5165
facilities are registered
by the X-ray Program.



4478 inspections.
were performed in FY 2018.



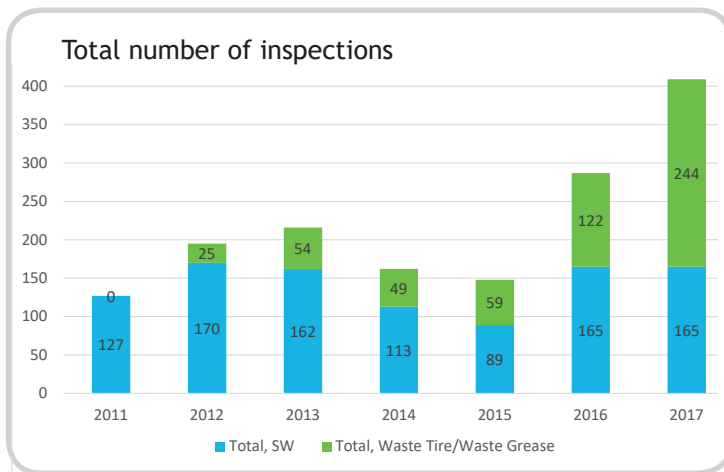
1327 at hospitals and hospital clinics.
& **1809** at dental facilities.

SOLID WASTE AND MATERIALS MANAGEMENT PROGRAM

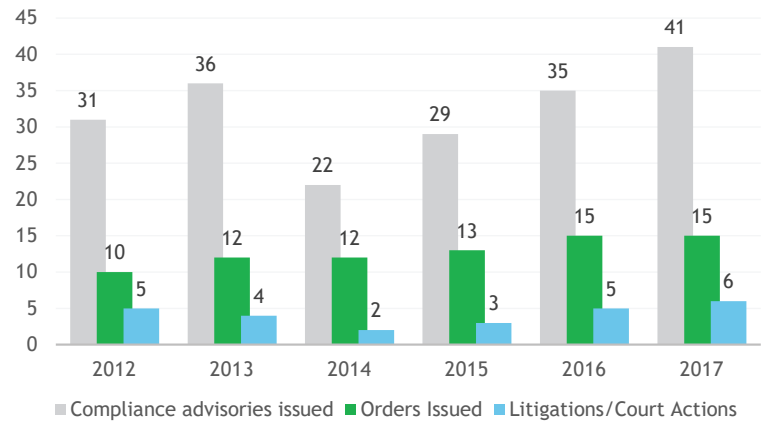
The **Permitting Unit** reviews all permit applications for solid waste sites to determine if the proposed facility is protective of human health and the environment and works with local governing bodies to permit solid waste facilities. The **Compliance Assurance Unit** is responsible for ensuring compliance by conducting inspections, visiting sites, and reviewing facilities that manage, treat, recycle, reuse and/or dispose of solid wastes. The **Materials Management Group** oversees recycling and beneficial reuse of waste materials. The unit also implements the waste tire/waste grease management and recycling programs.

Inspections and Compliance

Inspections have steadily increased the past two years due to additional staff members.



In FY 2017, the program received 52 complaints. Of those, 24 were investigated and/or inspected by division staff and 28 were referred to local governments or other agencies. In addition, 92 spill reports were received. Division staff followed-up on 81 of those spills to ensure appropriate cleanup actions were completed, and the remainder were referred to local governments or other agencies.



The number of compliance orders issued has risen steadily in recent years. The number of cases that require legal action has remained low, although these cases are time-consuming and expensive.

39%

of inspections include compliance assistance

In 2017, each inspector averaged

46

inspections

In FY2017 the program provided 28 compliance-assistance training sessions, reaching nearly

900 people.



Program Highlights

PaintCare

724,047
gallons
of used paint was processed by the PaintCare program in 2017.

PaintCare was established to keep paint from damaging the environment. PaintCare now has over 155 drop-off sites in Colorado that accept unwanted latex and oil-based paints for free. Fees on new paint sales fund the paint take-back program.

278,000 lbs
of metal and plastic paint containers were recycled in 2017.

Waste Tire Program

Every year the Waste Tire Program manages millions of waste tires, which are both fire hazards and prime mosquito breeding grounds, by conducting inspections, taking enforcement actions and promoting recycling of waste tires into different tire-derived products.

More than **9,500,000** waste tires were recycled or salvaged in 2017.

109,571
Total waste tires cleared from illegal tire sites

REMEDIATION PROGRAM

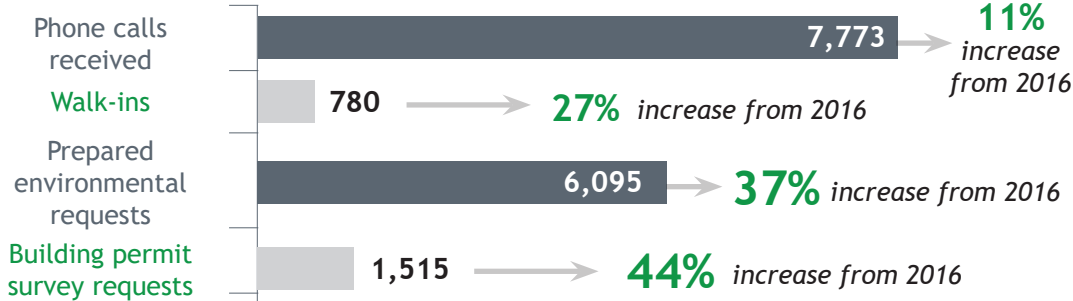
The Remediation Program performs preliminary assessments and site investigations of potentially contaminated sites to determine whether they should be included on the National Priorities List for Superfund designation. The program also oversees remediation activities at Superfund and federal sites, encourages the voluntary remediation and redevelopment of historically contaminated sites and assures cleanup of sites contaminated by uranium mill tailings.

UMTRA Program

The UMTRA program provides guidance and outlines resources for building contractors, private citizens, utility companies and local governments when faced with newly discovered radioactive uranium mill tailings.

Public Interaction

FY 2017 to 2018



Tailings were found on the property in **23%** of physical inspections

Site updates:

Camp George West

As part of the munitions response work at the former Camp George West Artillery Range in Lakewood, Colorado, the Division successfully advocated for the use of an advanced geophysical technology to detect and remove military munitions that may be present on residential properties. Efforts to deploy this technology have involved working with the Army National Guard Bureau and SERDP/ESTCP, the research and development arm of the Department of Defense. To date, over 20 residents have signed rights-of-entry to allow use of the technology on their properties.

Lowry Landfill Superfund Site

A major milestone during the past year was EPA's completion of the Fourth Five-Year Review on September 28, 2017. In this review, EPA identified several issues related to the groundwater and landfill gas operable units that must be addressed before EPA can make a definitive protectiveness determination. Numerous work plans are currently being reviewed and approved by EPA to address all issues identified in the 2017 Five-Year Review. The Division closely supports EPA Region 8 during all technical, regulatory and community involvement related activities at this site.

15 million gallons

of impacted groundwater was treated at the Lowry Landfill Superfund Site.

Captain Jack Mill Superfund Site

Construction was completed on the underground remedy for the Captain Jack Mill Superfund Site and the system was placed into operation on May 7, 2018. The innovative remedy includes treatment of the contaminated water formed behind an installed flow-through mine plug. Water quality data will be monitored for the next two years, at which point EPA and the state will decide whether an additional treatment component is required. If necessary, a polishing bioreactor will be designed and installed at the site to remove additional heavy metals from the mine discharge.

Voluntary Cleanup Program

The Voluntary Cleanup Program aims to facilitate the redevelopment and transfer of contaminated properties.

2,057 acres

were cleaned up through the program

3,494

jobs were created*



5,078

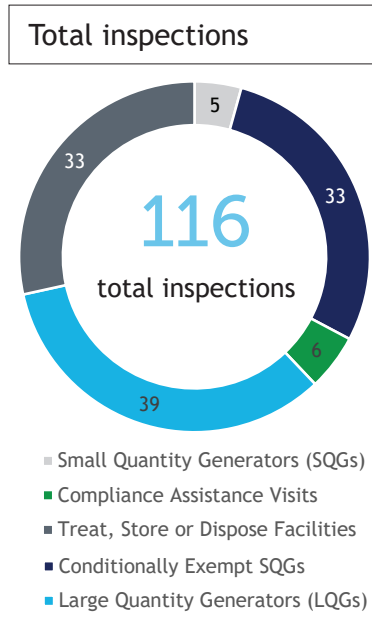
houses and condos were built

Due to Denver's economy and need for housing, the Voluntary Cleanup program has been instrumental at devising cleanups which have enabled previous contaminated properties be eligible for residential use and have created over 5,000 new homes/condos/townhomes.

*Jobs created were through retail, restaurants, property management and business which have either been created here or have grown and hired new people. We did not include any temporary construction jobs.

HAZARDOUS WASTE PROGRAM

Colorado's Hazardous Waste Program is responsible for ensuring compliance with laws and regulations pertaining to the management of hazardous waste. Primary elements of the program include compliance assistance, compliance monitoring and enforcement, corrective action, permitting, and information management. The corrective action staff oversees the remediation and cleanup of more than 400 individual facilities ranging in size and complexity, from Fort Carson and Lockheed-Martin to facilities like neighborhood dry cleaners and plating shops.



Federal rule changes

This year Colorado adopted rules that correspond to the federal Generator Improvements Rule. The EPA wrote the rule primarily to reorganize the regulations that apply to hazardous waste generators and address gaps in the existing regulations. Colorado adopted all of the rule that is more stringent than the existing regulations and retained those provisions of Colorado law that were already more stringent than the federal regulations. The rule changes were effective as of June 30, 2018.

Corrective Action

364 > **83.7** > **2x**
 corrective action reviews reviews per full time employee Nearly twice as many as 2016

The program had high numbers of corrective action reviews to complete this year and fewer people on staff to do so. Staff were able to complete more than 83.7 reviews per full time employee in FY2017, a large increase from the 44.9 reviews per full time employee in FY2016.

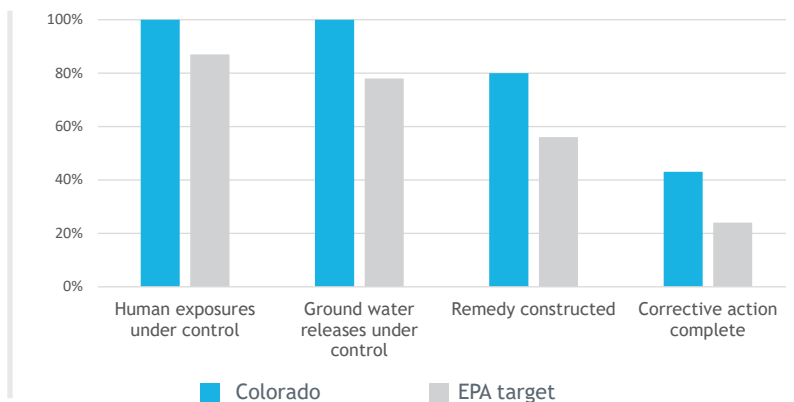
4000 facilities are in the regulated universe of the Hazardous Waste Program.

Fast facts

The hazardous waste program surpasses EPA goals at all high-priority facilities for the four EPA indicators:

October 2017 Training
 Four full-day hazardous waste generator trainings were given to over **400** attendees.

Compliance assistance
 13 percent of staff time was spent on compliance assistance in 2017, surpassing the 10 percent standard in SB 00-177.



Pueblo Chemical Depot

To date, approximately 43,446 munitions, or 5.5 percent of the chemical weapons stockpile, have been destroyed during the first year of pilot testing. This number is short of the goal of approximately 80,000 munitions required for completion of the pilot testing evaluation. Full-scale operations are not expected to begin until CY 2019.

Multiple munitions from two Recovered Chemical Warfare Materiel (RCWM) disposal trenches were also safely excavated and removed. Removals from one trench have been completed, while removals at the second trench are still in progress. Seventy-five intact munitions have been recovered to date. Sixty-eight of the munitions have been disposed, and seven are awaiting proper disposal.



continued from page 3:



Waste Tire Program changes:

Beginning Jan. 1, 2018, the Waste Tire Program changed significantly as required by House Bill 14-1352. The bill required all market development activities funded by the State of Colorado to cease on Dec. 31, 2017. This included all end user rebates and market development efforts administered by our division.

Reflecting the reduction in state expenditures, the Waste Tire Fee on the sale of new motor vehicle tires and new trailer tires decreased as required from \$1.50 per tire to \$0.55 per tire on Jan. 1, 2018.

Other Waste Tire Program activities continue, including fee collection, registrations, inspections and enforcement.

Phoenix Award:

Our Brownfields Program was recognized with a Phoenix Award on Dec. 6, 2017, for the 25 years of cleanup work the program has dedicated to the Asarco Globeville smelter site in north Denver and Commerce City. The Phoenix Award is granted at the EPA Brownfields Conference by a private foundation, which grants one award for outstanding achievement of excellence in brownfield development in each EPA region each year. Crossroads Commerce Park, as the redevelopment is now called, was selected as the 2017 Phoenix Award Winner for EPA Region 8. Crossroads Commerce Park was once a highly contaminated site due to smelting operations from the 1880s through 2006. Now the environmental contamination has been cleaned up and the grounds house Class A industrial buildings with one million square feet of space supporting 1,000 new jobs.

Historic Preservation Award:

On Oct. 4, 2017, the department received a Stephen H. Hart Award for Historic Preservation for the division's work on the Ute-Ulay Mine and Mill stabilization and nomination of the site to the National Register. The award, presented each year by History Colorado, honors the best in historic preservation and archaeology in Colorado.



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