

Annual Report

The Hazardous Materials and Waste Management Division

April 1, 2023



COLORADO

**Hazardous Materials
& Waste Management Division**

Department of Public Health & Environment



Tracie White, Director
The Hazardous Materials and
Waste Management Division

As the Hazardous Materials and Waste Management Division Director, I am pleased to share this annual report. It exemplifies our division's dedication and commitment to upholding and improving our community's health and safety. Specifically, the report discusses accomplishments in the areas of environmental justice, the implementation of new rules, compliance assistance, and environmental cleanup. Our division mission, "to improve the quality of the environment and public health for the residents of Colorado by continuously improving our efforts to ensure proper management of hazardous materials and waste," is the driving force behind the work we do everyday.

This report includes division highlights from the state fiscal year 2021-2022, followed by relevant statistics for each program within the division. These statistics are a reflection of the steadfast innovation, collaboration, and dedication of our staff, stakeholders, and partners, as we collectively work toward safeguarding public health and the environment for all Coloradans for generations to come.

The Hazardous Materials and Waste Management Division (the division, HMWMD) includes five programs: The Administration Program, Radiation Control Program, Solid Waste and Materials Management Program, Remediation Program, and Hazardous Waste Program. Below are division-wide highlights from the state fiscal year 2021-2022, which represent accomplishments and initiatives across the various programs within the division.

Environmental Justice Initiative

The division is committed to systematically addressing health equity and environmental justice through the administration of its programs, as well as ensuring decisions impacting the environment are made with the participation of those affected. On July 2, 2021, Governor Polis signed the Environmental Justice Act (HB21-1266) into law, which commits to strengthening environmental justice in Colorado. It prioritizes the reduction of environmental health disparities in disproportionately impacted communities. The division partnered with the newly-formed Environmental Justice Program within the Colorado Department of Public Health and Environment (the department) on a number of important issues ranging from providing financial assistance and free test kits to low-income families for radon mitigation, to creating more opportunities for disproportionately impacted community members to engage in environmental cleanup decisions that directly affect where they live, learn, work, and play. In March 2022, the department signed a memorandum of understanding (MOU) with the Environmental Protection Agency (EPA) to advance the environmental justice goals of both agencies. The MOU aims to enhance enforcement, compliance, and transparency to reduce pollution burdens in disproportionately impacted communities. Further, the division partnered with EPA and the Department of Defense to stay informed on best management practices for environmental justice and ensure that active cleanup sites are meeting state and federal environmental justice initiatives. In June 2022, the department launched Colorado EnviroScreen, an interactive environmental justice mapping tool, in collaboration with Colorado State University. The division continues to work with the Environmental Justice Program to better listen to and understand all residents of Colorado, especially those who may experience disproportionately-higher levels of environmental health harm.

PFAS rule changes

In 2021, Colorado amended the Colorado Hazardous Waste Regulations (6 CCR 1007-3) to adopt a Registration and Certificate Program for facilities and entities using or storing Class B firefighting foam containing per- and polyfluoroalkyl substances (PFAS). This new regulation applies to all persons that store or use Class B firefighting foam containing intentionally added PFAS, requiring them to register and obtain a certificate from the division. When testing fire systems using these PFAS-containing foams, the regulation also requires the following: (1) capture the spent foam in containment systems, and (2) store the spent foam in containers meeting certain requirements prior to off-site shipment for disposal.

The mandatory online registration program for these entities requires basic information about the fire department or facility and the quantities and configurations of the PFAS-containing foam storage. After reviewing the information, the division issues a Certificate of Registration through the online registration program.

Integrated Materials Performance Evaluation Program (IMPEP) review

The U.S. Nuclear Regulatory Commission (NRC) conducted the Radioactive Materials Unit Colorado Agreement State Program review from May 2-6, 2022. IMPEP is a performance evaluation process that provides the NRC and Agreement States with systematic, integrated, and reliable evaluations of their respective radiation control programs. It identifies program strengths, and areas that need improvement. The program's performance achieved the highest possible rating for all eight performance indicators reviewed. The NRC did not make any new recommendations for areas needing improvement and found the Colorado Agreement State Program fully adequate to protect public health and safety and compatible with the U.S. Nuclear Regulatory Commission's program. This is the second consecutive review where all performance indicators have received the highest rating, and as a result the NRC extended Colorado's review period from four to five years. This is the first time in the program's history that the state program has been granted an extended review period.

Low Income Radon Mitigation Assistance Program

The division's Low-Income Radon Mitigation Assistance (LIRMA) program provides 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 annually. As of February 2023, 26 contractors are qualified to participate in the program. As a result of the LIRMA program, over 866 residents of 362 mitigated homes have experienced improved indoor air quality and decreased likelihood of lung cancer. In 2022, contractors who are certified and licensed by the division, mitigated 118 homes at an average cost of \$2,148. The program saved participating residents between \$495 and \$4,435 on mitigation systems, improved indoor air quality, and reduced exposure to potentially harmful levels of radon gas.

Peterson Space Force Base

The Air Force, in partnership with the division, initiated the Remedial Investigation for PFAS at Peterson Space Force Base (SFB) in 2020. This effort was funded through 2023. The primary intent of the Remedial Investigation is to define the extent of PFAS contamination both on and off the installation. The division is integrally involved in planning this work, using extensive sampling data gathered during the expanded site inspection, which took place from 2017-2019. The Remedial Investigation Report documenting PFAS investigative activities conducted between 2020-2023 is anticipated to be complete in Fall 2023.

Additionally, Peterson SFB initiated 14 pilot studies to test a number of new and innovative technologies to detect and remove PFAS from soil and groundwater. One of the pilot studies includes a dynamic groundwater recirculation system, which started operating in late April 2022.

In 2019, Peterson SFB received approximately \$50 million from the FY18 National Defense Authorization Act. Peterson SFB then used that money in 2020 to design, purchase, and install longer-term mitigation measures for the affected public water systems in El Paso County in order to supplement the short-term mitigation measures installed in 2017. These new public water treatment systems are all operating and supplying safe drinking water to the communities.

Bonita Peak Mining District Superfund Site

In 2021, the division and its counterparts at the Colorado Attorney General's Office worked with EPA Region 8 and the U.S. Department of Justice to negotiate and finalize a settlement with Sunnyside Gold Corporation and their parent company, Kinross Gold Corporation, resolving the mining companies' potential federal and state liability related to cleaning up the Bonita Peak Mining District (BPMD) Superfund Site. The division continues working with EPA Region 8 to conduct response actions at BPMD to address the contamination from legacy mining activities. In 2022, the division conducted remedial action at the Pride of the West Mine Site and the Campground 4 site, which contained surface lead concentrations as high as 80,000 mg/kg. The remedial actions reduced exposure to lead-impacted soil by putting the soil into an onsite container, surface regrading, and revegetation.

Captain Jack Mill Superfund Site

The division is operating an innovative in-tunnel water treatment system in the Big Five Tunnel at the Captain Jack Mill Superfund site in Boulder County. Treatment occurs within the mine tunnel behind the bulkhead; once treated within the mine pool, water goes from the bulkhead piping through a temporary water treatment plant that aerates the water before going into Left Hand Creek. The Big Five Tunnel treated approximately 15 million gallons of water in 2022. Although the in-tunnel treatment has already improved the water quality in Left Hand Creek downstream of the site, the division is designing and constructing an external aeration system from 2023-2025, which will ensure the system reliably meets the necessary treatment goals to protect aquatic life downstream.



An upper settling pond outside Big Five Adit Portal at the Captain Jack Mill Superfund Site

Radiation Control Program

The Radiation Control Program regulates the possession, use, management, and disposal of radioactive materials as well as radiation-producing machinery, such as X-ray machines. The program also works with local public health agencies and members of the public to provide information regarding radon levels in homes and other buildings, as well as funding for radon mitigation to low income homeowners throughout the state.

Radon Program



\$234,478

Given to 25 grantees



9,005

Homes, schools and other buildings installed radon mitigation systems



5,600

Free radon test kits distributed



62

Colorado cities and counties require radon resistant systems in new homes



37,176

Homes, schools and other buildings tested for radon

Learn more about radon



coloradoradon.info

X-Ray Program



20,030

Registered radiation producing machines



5,474

Registered facilities



49%

Registered facilities are dental facilities



8,889

Total machine inspections performed in 2022



3,643

Inspections performed at hospitals and other medical facilities



4,000

Inspections performed at dental facilities

The X-ray Certification Unit (XRCU) enforces regulations that ensure the safe use of radiation-producing machines. The XRCU performs compliance audits and inspections of facilities that have radiation-producing machines and maintains the registration of X-ray facilities, qualified inspectors, service companies, and machine operators.

Radiation Control Program

Radioactive Materials Program: Licenses, actions, and inspections



Inspection facts

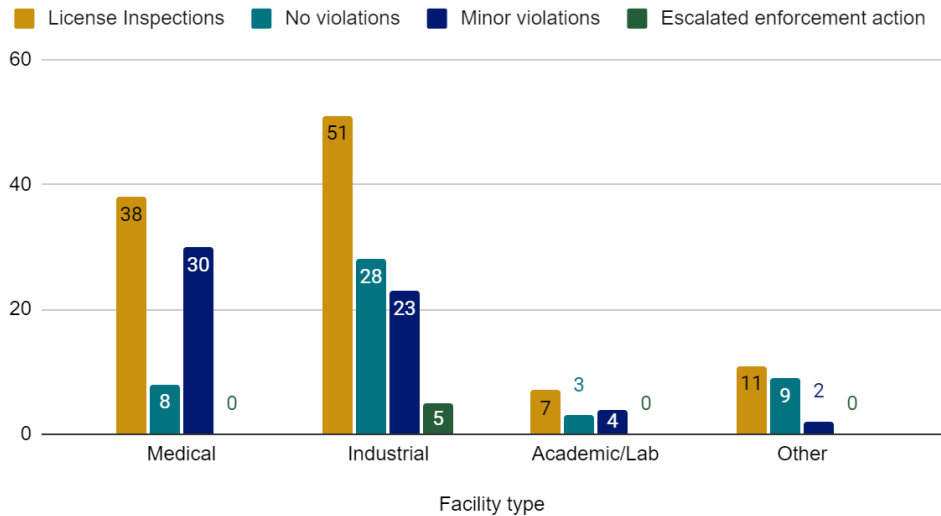
111 total inspections

95.5% inspections required no escalated enforcement

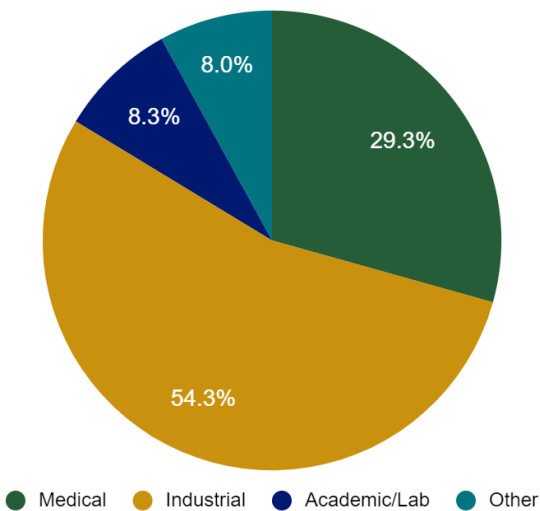
48 inspections with no violations

63 inspections with minor violations

Inspections and violations by facility type



Types of Specific Radioactive Materials Licenses



There are a total of 300 specific radioactive materials licenses in Colorado. In addition to these licenses, the Radiation Control Program registers 719 generally licensed entities who manage devices containing radioactive materials received through an authorized transfer by a device manufacturer or distributor.

Visit the website



cdphe.colorado.gov/radiation-management

Solid Waste and Materials Management Program

The Solid Waste and Materials Management Program is responsible for ensuring compliance with laws and regulations concerning the management of solid waste. The authority for this program is in the Colorado Solid Waste Act, 30-20-100.5, et seq., C.R.S. Colorado's solid waste management program is approved by EPA, so the authority to implement requirements for managing solid waste in Colorado rests completely with the state.

Solid Waste Program: Facility Inspections



The number of overall inspections slightly increased from FY 2021 to FY 2022, but lagged behind FY 2019. The program has shifted its inspection priorities to focus on facilities that are known to be out of compliance with the solid waste regulations, which often result in enforcement. Inspections with enforcement actions require more time and resources.

Small landfill initiative:

In 2016, the program began a compliance effort to bring small landfills (those where owners and operators dispose of less than (20) tons of municipal solid waste daily. The twenty tons per day are measured as an annual aggregate average) into compliance with the solid waste regulations. The program offered to fund closure of small landfills that elected to close. Six small landfills elected to close with the program's assistance. 13 small landfills elected to stay open and upgrade their facilities to comply with the regulations. In 2022, the program funded groundwater sampling at the landfills that elected to stay open. The program intends to fund sampling efforts in 2023, but sampling will be the financial responsibility of the facilities beginning in 2024.

In 2016, the program required six local government-owned landfills to revise their Engineering Design and Operations Plan (EDOP) to comply with the current solid waste regulations. The program received draft EDOPs from all six landfills, which will be reviewed at no cost to the local governments that own the small landfills.

Fast facts



35

Complaints in FY 2021



8

Complaints investigated/inspected by staff



27

Complaints referred to local governments/other agencies



167

Spill reports



101

Spill reports reviewed, ensuring appropriate cleanup actions were completed

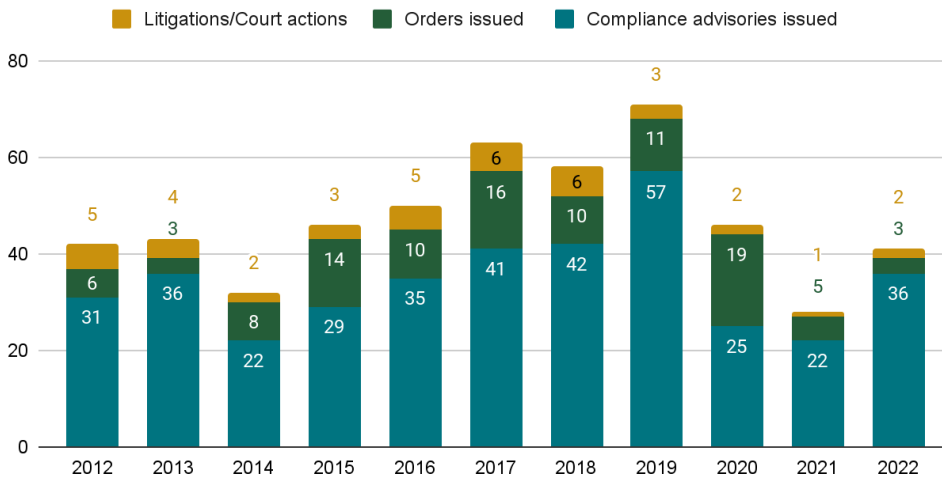


66

Spill reports referred to local governments/other agencies

Solid Waste and Materials Management Program

Solid Waste Program: Enforcement Actions



Visit the website



cdphe.colorado.gov/solidwaste

7,561 web hits
in FY 2022

Since July 2015, PaintCare has collected:

4.5 million gallons of paint

Over 97.3% of Coloradans live within a 15 mile radius of a permanent paint drop-off location

Every year, the Waste Tire Program oversees the management of millions of waste tires, which are both fire hazards and prime mosquito breeding grounds. The program conducts inspections, initiates enforcement actions, and promotes the recycling of waste tires into various tire-derived products.

The Waste Tire Program

99%
of waste tires generated in, or imported into Colorado were either recycled or salvaged.

Tire derived fuel, windbreaks, alternative daily cover, and salvaging were the largest end uses of waste tires in 2021.

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 facilities sites, encourages the voluntary remediation and redevelopment of historically-contaminated sites (VCUP), and assures cleanup of sites contaminated by uranium mill tailings.

The Uranium Mill Tailings Remedial Action (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.

Visit the website



[cdphe.colorado.gov/
environmental-cleanup](https://cdphe.colorado.gov/environmental-cleanup)

UMTRA Program



2,027

Building permit
survey requests



11,190

Direct
communication
received



22%

Properties surveyed
with radioactive
uranium mill tailings



5,652

Prepared
environmental
requests



1,468

Total cubic yards
of mill tailings
removed

Brownfields program:

Brownfields are properties whose future use is affected by real or perceived environmental contamination. During the past year, the Brownfields program:

- Completed Targeted Brownfields Assessments for six local governments.
- Provided \$156,000 of cleanup grant funding to local governments and nonprofits.
- Conducted workshops, webinars, and technical assistance meetings to support the efforts of local governments to address and redevelop brownfields properties.

In 2022, the Remediation Program actively administered five loans through the Brownfields Revolving Loan fund that provided \$2.7 million in funding to address contaminated sites in disproportionately-impacted communities. The fund received repayment of three large loans totaling almost \$4.5 million. The fund currently has \$6 million available for loans.

Community
outreach

In 2022 the Remediation Program
participated in **6** UMTRA
community outreach meetings

Remediation Program

Treatment of mine impacted water:

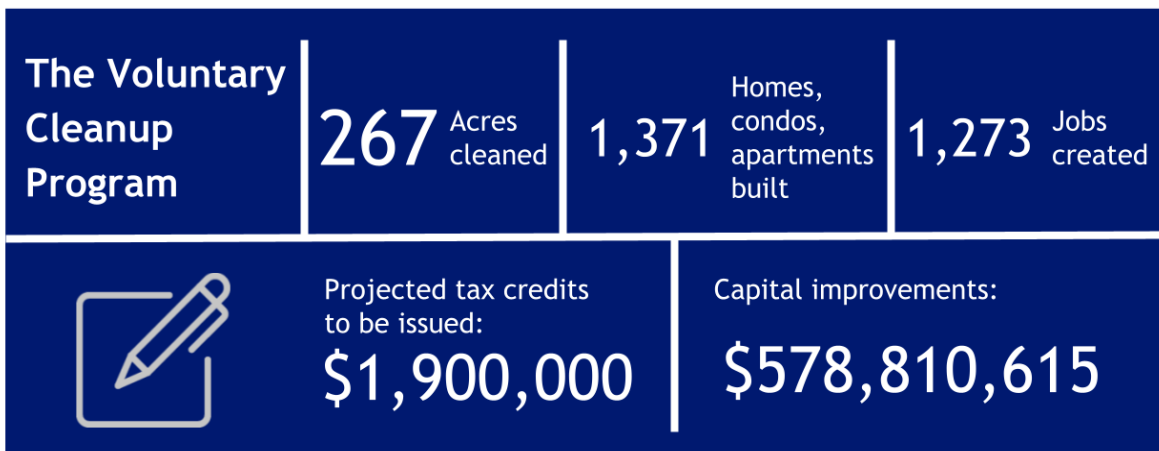
Colorado is home to hundreds of abandoned gold and silver mines. Many of Colorado’s abandoned mines discharge metals-contaminated water, which creates significant environmental impacts to streams and rivers. Since the 1990s, the Remediation Program has worked with EPA to address abandoned mines that cause the most severe environmental impacts. This includes treating mine-impacted water at water treatment facilities operated by the Remediation Program, as well as those operated by responsible parties.

The Remediation Program is responsible for operating the Argo, North Clear Creek, and Summitville water treatment plants, which provide significant water quality improvements in the Clear Creek and Alamosa River basins. In 2022, the Argo Tunnel water treatment plant, constructed in 1998 in Idaho Springs, treated approximately 100 million gallons of metals-contaminated water. The North Clear Creek water treatment plant, completed in 2016 in Black Hawk, treated approximately 85 million gallons. The Summitville water treatment plant, constructed in 2011 near Del Norte, treated approximately 326 million gallons.

Treatment of mine-impacted water by responsible parties in 2022 included approximately 397 million gallons at the Yak Tunnel facility near Leadville, 84 million gallons at the Eagle Mine facility near Minturn, and 24 million gallons at the Wellington-Oro facility near Breckenridge. Treating mine-impacted water not only improves water quality and biological density and diversity in receiving streams, but in the case of the Argo and North Clear Creek facilities, protects the drinking water supply for approximately 350,000 people in the Denver metro area.



A photo of an old mining bridge on Red Mountain Pass near Ouray, CO



Hazardous Waste Program

The Hazardous Waste Program is responsible for ensuring compliance with statutes 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 oversee the remediation and cleanup of more than 200 individual facilities ranging in size and complexity, from large complex sites such as the Denver Federal Center and Lockheed-Martin, to smaller facilities such as neighborhood dry cleaners and plating shops.

5,320

Regulated facilities
in the Hazardous Waste
Program

Corrective
action

250

Corrective action
document reviews

50

Reviews per full-time
employee

Pueblo Chemical Depot:

The Pueblo Chemical-Agent Destruction Pilot Plant (PCAPP) continued munitions destruction operations and completed the 105mm projectile destruction campaign in July 2022. As of December 2022, PCAPP destroyed over 89% of the chemical weapons stockpile, bringing the total number of chemical weapons destroyed to 703,769. This is approximately 90% of the total mustard agent in the Pueblo stockpile.



Munitions processing
at PCAPP

703,769
chemical
weapons have
been destroyed

First runs of the iCAM system successfully flush 4.2" HT mortars



Types of munitions processed



105 - MM M60



4.2" mortars
M2 & M2A1



155 MM M104 & M110

Hazardous Waste Program

Fast facts



Staff spent **12.7%** of their time on compliance assistance



Hosted **812** online attendees at the hazardous waste regulations training



19,381

web hits for the main Hazardous Waste Program webpage.



Staff completed **202** total inspections

Environmental Indicators

45%

Sites meet corrective action indicator

86%

Sites meet remedy constructed indicator

100%

Sites with human exposures under control

100%

Sites with groundwater releases under control

Hazardous waste regulations training

As part of its compliance assistance efforts, the Hazardous Waste Compliance Assurance Unit hosts a training every year in October for facilities that generate hazardous waste. The training presents an overview of the Colorado Hazardous Waste Regulations. In 2020, the COVID-19 pandemic required a shift to the new remote format. However, the unit found that pivoting to a webinar-based platform made the training more accessible to a greater number of people and facilities located throughout the state. In 2020, the first year of the webinar-based platform, 382 people registered. After more outreach the next year, including mailing postcard notifications and offering early online registration options, 695 individuals attended the training in October 2021 and 812 individuals attended in October 2022.

Visit the website



cdphe.colorado.gov/hazwaste

Total Inspections



The Hazardous Materials and Waste Management Division

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