



HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION ANNUAL REPORT

Colorado Department
of Public Health
and Environment

July 1, 2013 - June 30, 2014





A Message from Gary Baughman Director, Hazardous Materials & Waste Management Division

The Hazardous Materials and Waste Management Division marked several milestones during FY2014, from effective flood response to innovative regulatory approaches to new remedial technologies. Our accomplishments include:

Flood and Fire Response: In 2013 Colorado faced more debris management challenges caused by floods and wildfires. Solid Waste staff responded to the recovery effort by being available for meetings, conference calls and site visits, and by drawing on past experience to develop effective debris management solutions. Working in conjunction with local, state and federal agencies, the focus was on helping communities return to some level of normalcy while having minimal impact on public health and the environment. The solid waste permitting unit provided guidance on waste streams and granted temporary waivers to provided regulatory relief on a state-wide level. The experience gained when dealing with wildfires and floods has proven that an implementable debris management plan is critical toward successful recovery efforts that take into account the human and economic impact on communities.

Reborn Rivers: Once essentially dead due to historic mining impacts, the upper Arkansas River recently joined the ranks of Colorado’s Gold Medal Trout Waters. The Gold Medal section starts near Leadville and runs for nearly 102 miles. Streams designated as “Gold Medal” by the Colorado Wildlife Commission provide outstanding angling opportunities for large trout. Designations are given sparingly and represent the highest quality aquatic habitat in Colorado.

The Leadville area has come a long way since mining began at the mouth of California Gulch in 1859. Formerly one of the nation’s most contentious Superfund sites, California Gulch cleanup has progressed to the point where large areas have been deleted from the National Priorities List.

“Formerly one of the nation’s most contentious Superfund sites, California Gulch cleanup has progressed to the point where large areas have been deleted from the National Priorities List.”

Compliance Improvements: The Hazardous Waste Program released data demonstrating that its self-certification program for Small Quantity Generators (SQGs) of hazardous waste has dramatically improved compliance rates for this large sector that previously had low inspection penetration and poor compliance rates. Typical SQGs include auto body shops, electroplaters, dry cleaners and other small businesses. In the first four years of the self-certification program the percentage of SQGs in 100 percent compliance rose from 32 percent to 84 percent — a 52-percent increase. Easy-to-follow self-certification guidance helps de-mystify the regulations for business owners, while improving the working relationship between regulated facilities and inspectors. Because this sector is large and varied, program staff have been unable to inspect every single waste generator every year. Self-certification ensures 100 percent participation and makes more efficient use of staff resources.

This innovative approach has attracted national attention. Regulators from Vermont and Oklahoma met with division staff in spring 2014 to learn how self-certification can improve their states’ compliance rates.

Regulatory Innovation: In January 2014, the division finalized a new *Policy for Conditional Closure of Low-Threat Sites with Residual Ground Water Contamination*. Developed in coordination with the Water Quality Control Division and the U.S. Environmental Protection Agency (EPA), the policy addresses a small number of sites with residual contamination that is naturally attenuating, which pose no risk to human health and the environment, and where no further efforts are warranted. Because ongoing groundwater monitoring at such sites does not help environmental engineers select a new remedy, accelerate remediation or improve public health



Baughman addressing HMWM staff during the monthly division meeting update.

protection, there is no technical justification for gathering additional monitoring data.

New Superfund Priorities: In May 2014, years of work by division staff came to fruition when EPA proposed adding the former Colorado Smelter in Pueblo to the National Priorities List of Superfund sites (NPL). Superfund actions frequently convert contaminated land into productive resources and can increase local property values by eliminating or reducing real and perceived health risks and environmental contamination. A study by Duke and Pittsburgh universities concluded that, although a site's proposal to the NPL reduces property values slightly, property values around sites begin to rise when they are officially listed. Once all cleanup remedies are in place, surrounding properties see significant property value increases, compared to pre-NPL proposal values, the study concluded.

Exemplary Programs: The Radiation Program came through its quadrennial U.S. Nuclear Regulatory Commission (NRC) audit with flying colors, receiving the highest possible rating for seven of the eight performance indicators: Technical Staffing and Training, Status of Materials Inspection Program, Technical Quality of Inspections, Technical Quality of Licensing Actions, Technical Quality of Incident and Allegation Activities, Sealed Source and Device Evaluation Program, and Uranium Recovery Program. NRC did not make any recommendations and determined that the five recommendations from the 2010 review should be closed. NRC also identified a Good Practice during the review, regarding Colorado's implementation of the Commission's Web Based Licensing Program. The only incompatibility with NRC requirements was due to modifications to the Colorado statutes through legislation initiated by outside parties, and not concurred with by the Radiation Program.

Technology Improvements: During the fall of 2013, the division oversaw conversion of the Argo Tunnel Water Treatment Facility's existing process to a high-density sludge (HDS) process. Located in Idaho Springs, the plant removes heavy metals that can harm fish from water discharged by historic mines into Clear Creek. The HDS process sends metal hydroxides into a conditioning tank where they are coated with lime and sent back through the system for up to 30 additional treatment cycles. The process improves the plant's efficiency, resulting in less material sent to landfills and savings for the state.

Division staff collaborated with the Department of Defense on an innovative technology demonstration to detect buried munitions on the former Camp George West

Artillery Range in Jefferson County. As a result of this successful demonstration, nine unexploded ordnance (UXO) items left from military training conducted at the site in the 1930s and 1940s were detected, recovered and safely destroyed. The demonstration not only removed hazardous items from a portion of the site, it illustrated that the technology can be successfully implemented across the rest of the area, raising the site's national cleanup priority.

Redevelopment Incentives: On May 15, 2013, Gov. Hickenlooper signed the new Brownfields Cleanup Tax Credit bill into law. The law allows the Voluntary Cleanup program to certify cleanup costs and notify the Colorado Department of Revenue that a project is eligible to receive a tax credit for cleanup and redevelopment of contaminated properties. The tax credit is available to sites that are eligible for the department's Voluntary Cleanup Program. Program staff were instrumental in organizing stakeholder meetings to craft and support this new law, which reinstates the previous credit that expired in 2010. Available statewide, the credit is transferable, making it potentially available to local governments and non-profits that do not pay state taxes.



Colorado Department
of Public Health
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Hazardous Materials and Waste Management Division

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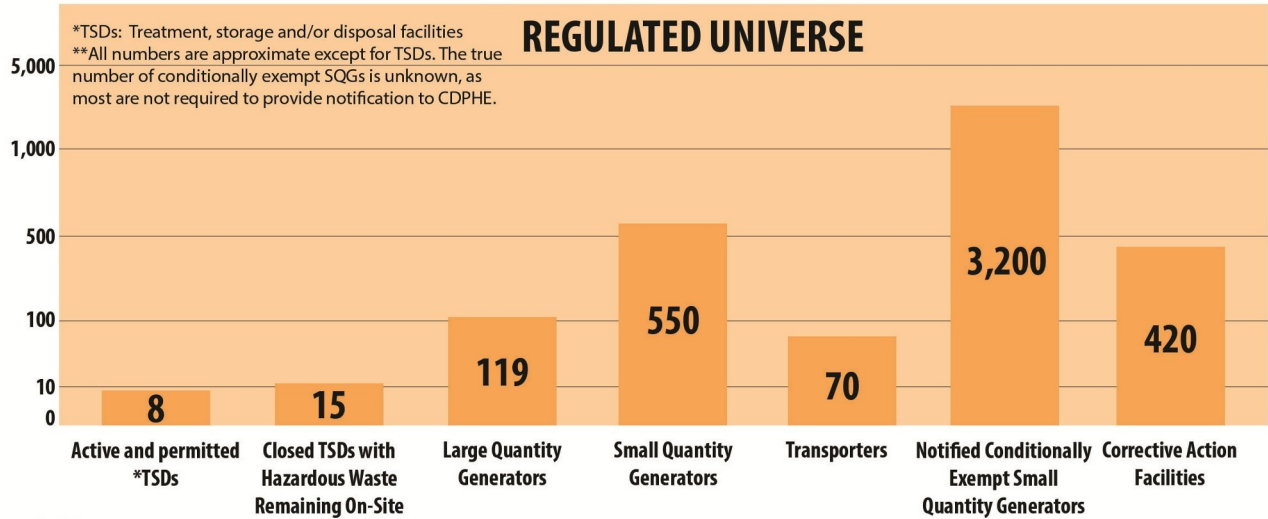
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HAZARDOUS WASTE PROGRAM

Colorado's Hazardous Waste Control 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 over 400 individual facilities ranging in size from large facilities such as Fort Carson and Lockheed-Martin, to very small facilities like neighborhood dry cleaners and plating shops.

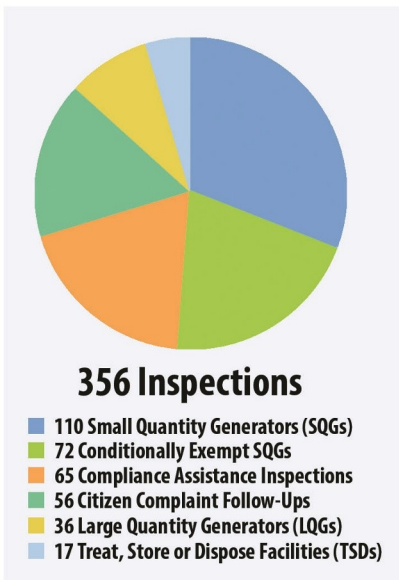
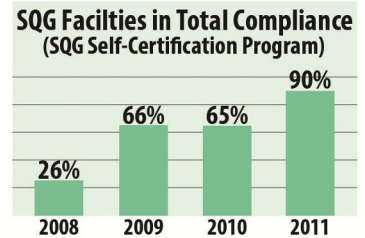
The following information pertains to fiscal year 2013.



During Fiscal Year 2013

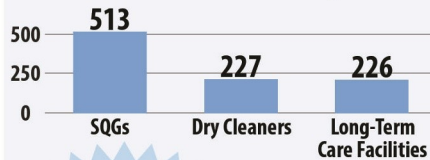
The division provided **26** compliance assistance trainings in Colorado and reached **1,817** people.

Through the technical assistance phone line, division staff responded to **2,104** calls and **573** emails.



2013 was the 7th year of the mandatory SQG self-certification program, the 6th year of the mandatory dry cleaner self-certification program and the 1st year of the long-term care facility self-certification program.

Facilities Asked to Self-Certify in 2013



In 114 high school chemistry labs in Weld and El Paso counties, a pilot program ensures proper management and disposal of dangerous waste chemicals.

Ensures waste pharmaceuticals are properly managed and disposed.

The only unpermitted TSD unit is at the Pueblo Chemical Depot.

94 chemical weapons storage igloos

are considered a single unit. The division does not plan to permit these igloos, but regulate them under a compliance order until they are emptied and closed by the US Army, no later than 2021, under its Chemical Demilitarization Program.

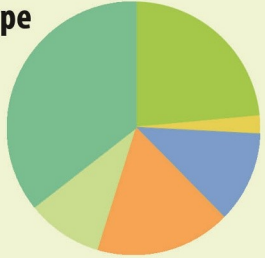


REMEDIATION PROGRAM

The Remediation Program performs preliminary evaluations and field investigations of potentially contaminated sites to determine whether they should be included on the National Priorities List for Superfund consideration. 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. The sources of the following information include the FY-13 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Annual Report and the FY 2012-13 Uranium Mill Tailings Remedial Action (UMTRA) Annual Report.

Superfund Sites by Type

-  5 Industrial
-  1 Wood Treatment
-  3 Smelters
-  4 Radiation
-  2 Landfills
-  9 Metals Mining

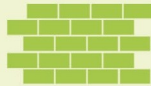


CERCLA/Superfund Sites in 2013



Design for the Big Five Tunnel subsurface remedy at the Captain Jack Mill Site was completed in September 2013.

At Central City/Clear Creek, construction of a retaining wall to prepare the future North Clear Creek water treatment plant site was completed in 2013. Mill tailings were removed from North Clear Creek and stream stabilization was completed.



A focused feasibility study was completed at the Eagle Mine in July 2013 and posted on the website in August. The department is preparing a plan for public review and comment to propose the preferred remedy.

The U.S. Fish and Wildlife Service approached regulatory agencies in 2013, requesting a lift of the restriction of on-site game consumption and agricultural use, as the on-site bison herd is over carrying capacity.



During the 2012-2013 fiscal year, the UMTRA program received

1,086 requests for building permit surveys.

30 properties were found to contain radioactive tailings.

From July 1, 2012 to June 30, 2013, approximately

3,188 cubic yards

of radioactive tailings material was placed in an interim storage facility in Grand Junction, where tailings are stored until a sufficient quantity exists to warrant opening the Cheney Disposal Cell.

Voluntary Cleanup Program

62 applications for voluntary cleanup projects were received in 2013.

497 acres were cleaned up through the program.



3,560 jobs were created.



In 2013, through the Brownfields Program, the Ute-Ulay mining town site cleanup was completed. Approximately \$92,000 of state brownfields grants were awarded to Hinsdale County to clean up lead contamination under the department's Voluntary Cleanup Program. Lead contamination as high as 40,000 ppm in surface soils at the town site was cleaned up to 400 ppm.

The Federal Facilities program oversees the remediation and redevelopment of formerly used defense sites, including:

- Air Force Academy
- Atlas Missile Sites
- Buckley Air Force Base
- Buckley Annex
- Camp George West / Green Mountain
- Camp Hale
- Craig National Guard Training Site
- Delta Range
- Fort Carson
- Lowry Air Force Base
- Lowry Bombing and Gunnery Range
- Peterson Air Force Base
- Pueblo Chemical Depot
- Rocky Mountain Arsenal
- Titan I Missile Complexes

Atlas Missile Sites

2 of 5 sites have been closed.

Titan I Missile Complexes

1 of 5 sites have been closed.

SOLID WASTE AND MATERIALS MANAGEMENT PROGRAM

The source of following information is the FY-13 Annual Solid Waste Report.

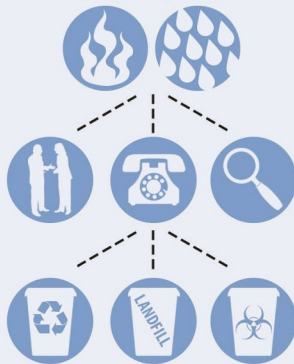
The Permitting Unit reviews of applications for solid waste sites to determine if the proposed facility is protective of human health and the environment, and works with local governing bodies to permit solid waste facilities.

The Compliance Assurance Unit conducts compliance inspections – site visits and document review – at facilities that manage, treat, recycle, reuse and/or dispose solid wastes. This unit also investigates complaints alleging mismanagement of solid waste, and oversees cleanup of asbestos-contaminated soil.

The Materials Management Group oversees materials management activities and facilitates future innovation in recycling and beneficial reuse, and implements waste tire and waste grease management and recycling programs.

The Compliance Coordination and Assistance Unit aids the regulated community, local governments and the public in understanding the importance of state requirements, and by promoting lower operating and contamination cleanup costs, lower penalties and increased community acceptance. This unit also fosters communication between industry and regulators through technical workshops and educational materials.

During devastating wildfires and floods in 2013, the Permitting Unit provided debris management guidance to affected communities. Temporary waivers also provided regulatory relief, and fast and environmentally protective debris management.



Stakeholder processes evaluated the use of recyclable materials and feasibility of increasing waste diversion through management practices including:



Recycling



Composting



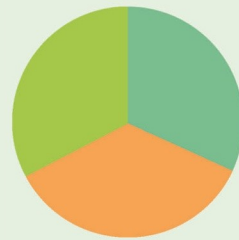
Pyrolysis

The Electronic Recycling Jobs Act went into effect on July 1, 2013. It prohibits the disposal of residential e-waste in Colorado landfills.



As the number of e-waste recycling facilities increases, job opportunities will also likely increase.

136 Solid Waste Compliance Assurance Inspections



- 45 Complaint Follow-Ups
- 45 Facility Inspections
- 45 Compliance Assistance Site Visits and Enforcement Follow-Up Inspections

Fewer court actions and more cases settled freed staff to focus on inspections and assistance activities.

Colorado has 3 approved commercial oil- and gas-produced water recycling facilities. In 2012, they cleaned and recycled

11,197,494 gallons

of produced water for reuse in oil and gas operations.



2.1 million tons of municipal solid waste were recycled in 2012.



2.3 lbs. per capita of municipal solid waste were recycled in 2012.

In 2013:

One inspector led a large stakeholder group aimed at revising asbestos-contaminated soil regulations.

Another inspector assisted with development of guidance for new waste impoundment regulations.

One stakeholder process culminated in the passage of an electronic waste ban from Colorado landfills.

A statutory stakeholder process reviewed, discussed and updated Colorado's waste tire-related statutes to remove implementation barriers for the Waste Tire Program.

In 2013,  multiple bills impacting solid waste were vetted through the legislature.

SB 13-030 passed a multi-year, stepped increase in the Recycling and Resource Economic Opportunity fund portion of the solid waste user fee from the current **\$0.07** to **\$0.16** per cubic yard.

SB 13-252 included a Senate Joint Resolution to study the influences of **pyrolysis** on Colorado's existing recycling market.



HB 13-1018 spawned a statewide oil- and gas-produced water (used for dust suppression) stakeholder process.

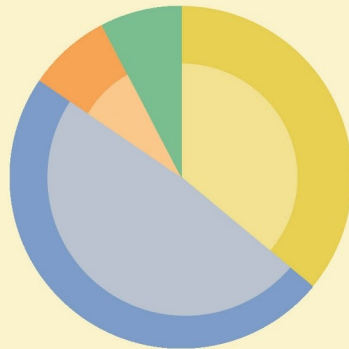


RADIATION PROGRAM

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 2013.

167 License Inspections

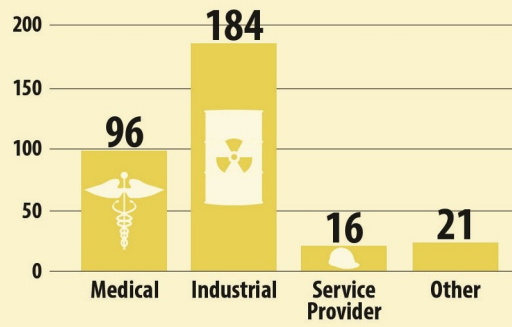
- 59 Medical
- 80 Industrial
- 15 Service Provider
- 13 Other



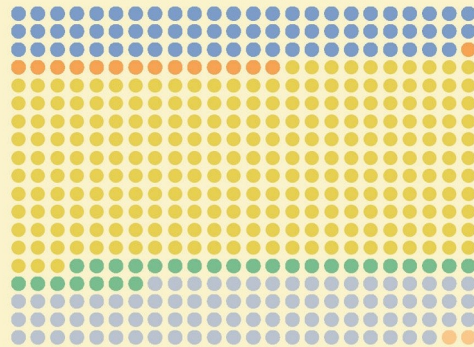
98 Licenses with Violations

- 33 Medical
- 58 Industrial
- 7 Service Provider

317 Radioactive Materials Licenses

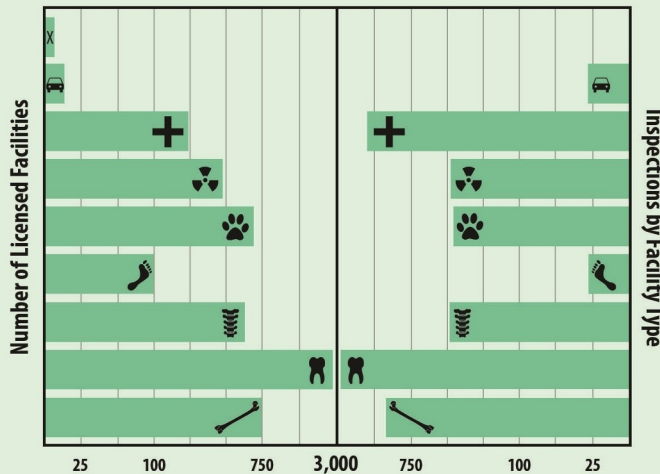


456 License Actions



- 71 Renewals
- 15 New
- 253 Amendments
- 28 Terminations
- 87 Document Reviews
- 2 Device Evaluations

5,185 facilities are licensed by the X-Ray Program and 6,722 inspections were performed.



- X Undeclared
- Mobile Medical Services
- Hospitals and Hospital Clinics
- Industrial
- Veterinary
- Podiatry
- Chiropractic
- Dental
- Orthopedics and Private Med. Clinics

Approximately 13,501 radiation-producing machines are registered with the department, including:

- 9,185 Dental
- 1,233 General Medical
- 738 Industrial
- 1,104 Fluoroscopy

The Radon Program

Granted approximately **\$98,610** to 17 recipients.

Distributed approximately **1,600** radon test kits to Colorado citizens.

15 builders built approximately **1,206** homes, schools and other buildings with radon-resistant features.

25,041 homes, schools and other buildings tested for radon in 2013. **8,223** homes, schools and other buildings installed radon mitigation.



**Colorado Department
of Public Health
and Environment**

Hazardous Waste and Waste Management Division

**Hazardous Waste Program
Radiation Control Program
Remediation Program
Solid Waste Materials Program**

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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

Cover photos (left-to-right, top-to-bottom): 1. Entrance to the Argo Tunnel, Central City/Clear Creek; 2. Crumb rubber from recycled waste tires; 3. Installing radon mitigation equipment in a home; 4. CDPHE employee giving compliance assistance; 5. Electronic recycling efforts on the rise; 6. Another beautiful day in the state of Colorado.