



2020

Annual Report

Status of the Hazardous Waste Program in Colorado

February 1, 2021



COLORADO

**Hazardous Materials
& Waste Management Division**

Department of Public Health & Environment



Executive summary

The Hazardous Waste Program at the Colorado Department of Public Health and Environment (the department) in FY20 adopted the U.S. Environmental Protection Agency Pharmaceutical Rule. The Program provided compliance assistance and guidance regarding the new regulations which are intended to provide generators of hazardous waste pharmaceuticals at health care facilities with flexibility in managing these wastes and to simplify and facilitate their compliance with the regulations to strengthen environmental protections.

The program also continues to move forward in implementing requirements associated with adding two new hazardous constituents, perfluorooctanoic acid (PFOA) and Perfluorooctane sulfonic acid (PFOS), to the regulations. Listing of the compounds requires that certain facilities undergoing hazardous waste clean-up activities must also conduct monitoring and investigation of releases of these compounds to the environment. In FY20, certain facilities moved forward with additional monitoring of the groundwater to characterize the extent of any contamination associated with the compounds. Remediation of any contamination will be required as necessary to protect human health and the environment.

The Hazardous Waste Program continued to conduct inspections at hazardous waste management facilities in FY20, although the number of inspections conducted was down from last year due to COVID-19 restrictions. The Program also continued to conduct hazardous waste training during FY20 as we transitioned the classroom training to an on-line platform. The on-line training was attended by more than 380 people this year from across the state. Individuals attending the hazardous waste training are often trainers at their own organizations, and will pass on the knowledge gained to others.

The following report details some of the achievements of the Hazardous Waste Program over the last year.

The Hazardous Waste Program currently consists of 21 staff and managers in three units

- the Compliance Assurance Unit
- the Corrective Action Unit
- the Permitting Unit



Hazardous Waste Program background

Colorado’s Hazardous Waste Program is responsible for ensuring compliance with laws and regulations pertaining to the management of hazardous waste. The authority for this program is in the Colorado Hazardous Waste Act, 25-15-101 et seq., C.R.S., and the federal Resource Conservation and Recovery Act (RCRA). The U.S. Environmental Protection Agency (EPA) has authorized Colorado to implement the federal program requirements, and by doing so, the authority to implement requirements for the management of hazardous waste in Colorado rests primarily with the state. The EPA authorized Colorado for the base hazardous waste regulatory program in November 1984. In July 1989, federal authorization was granted to Colorado for significant additions to the base program, including authority for hazardous waste corrective action, which provided authority to investigate and clean up releases of hazardous waste constituents into the soil, surface water or groundwater at hazardous waste facilities.

Primary elements of the Hazardous Waste Program include compliance assistance, compliance monitoring and enforcement, corrective action, and permitting. Each of these program elements is discussed in the following sections. In addition, this report includes sections discussing ongoing program authorization by EPA and the status of program funding.

As of December 2020, the Hazardous Waste Program regulates seven active and permitted treatment, storage and/or disposal facilities (TSDs) and 15 closed TSDs with hazardous waste remaining buried on-site that need post-closure monitoring and/or maintenance. In addition, the program regulates about 125 large-quantity generators, about 561 small-quantity generators, about 89 transporters and more than 4,250 very small quantity generators of hazardous waste. The program also regulates about 200 facilities at which corrective action (remediation of environmental contamination) is required.

Maintaining authorization

One of the key values held by the regulated community, and one of the legislative directives from SB 00-177, is that Colorado “maintains program authorization by the federal government.” When the EPA authorizes a state for the hazardous waste program, it carefully reviews two aspects of the state program:

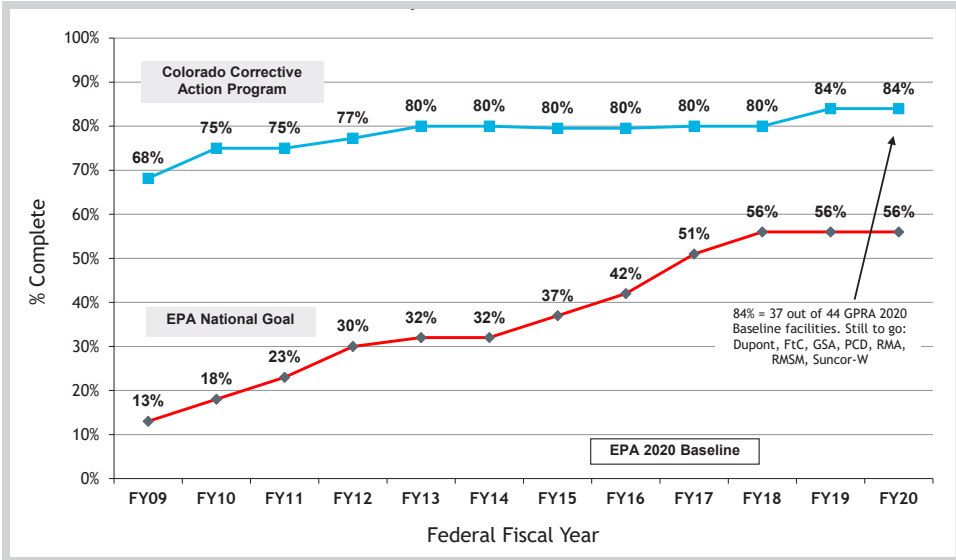
- 1) the state’s statutory authorities, funding and staffing, both quantitatively and qualitatively
- 2) the state’s regulations

Once the state is authorized, EPA monitors the state program to ensure it is being implemented in a manner that satisfies federal program requirements.

To measure corrective action effectiveness, the EPA has established four national environmental indicators since 1999. These indicators measure the hazardous waste corrective action program’s progress on risk containment at contaminated facilities. This approach measures “Human Exposures Under Control,” “Ground Water Releases Under Control,” “Remedy Construction” and “Corrective Action Completeness” at a defined group of high-priority facilities around the country.

Colorado currently has 44 of these high-priority facilities. The EPA established a national goal for each measurement in federal fiscal year 2006 and updated these goals in federal fiscal year 2009. Figures 1 and 2 show Colorado’s progress on remedy construction and corrective action completeness. We have had human exposures and groundwater releases under control at all 44 sites for the past several years and are well ahead of the EPA national goals for all four indicators.

Figure 1. Remedy constructed - CA550

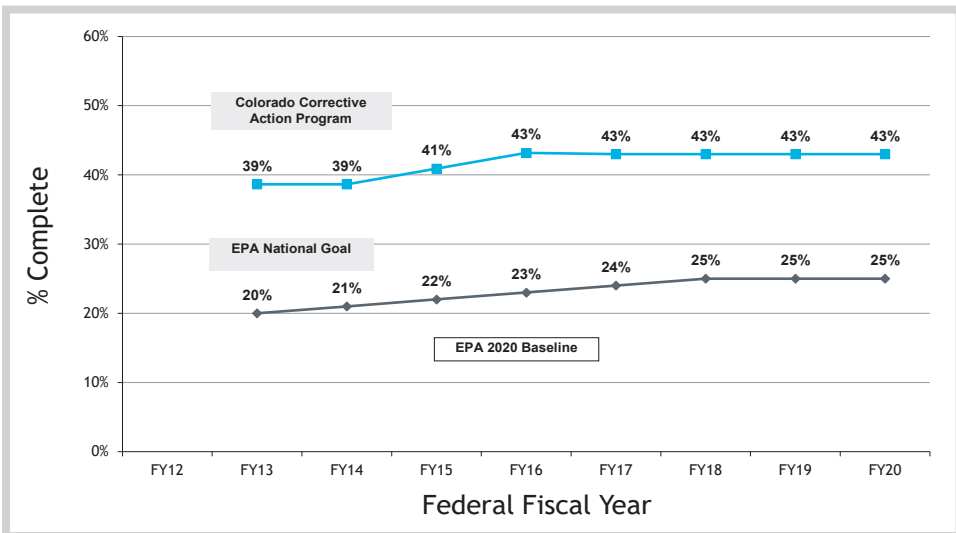


Colorado is working to construct remedies at 16 percent of facilities under corrective action. With 84 percent of remedies already constructed, we are far exceeding EPA’s goal of 56 percent.

For the last several years the EPA has rated all aspects of Colorado’s program very highly in its annual review.

Human exposures have been under control at all sites in Colorado since federal fiscal year 2013, exceeding the EPA National Goal of 87 percent of sites having human exposures under control. In addition, 100 percent of groundwater releases have been under control at the 44 high-priority facilities in Colorado under corrective action since federal fiscal year 2015.

Figure 2. Corrective action complete - CA999



The Hazardous Waste Program continues to be a leading contributor to national efforts to streamline the corrective action process through active participation in the Interstate Technology and Regulatory Cooperation Work Group (ITRC). State regulators lead this national organization to streamline regulatory approval processes for applying innovative technologies to environmental cleanup.

Inspections

Facility inspections are one tool the program uses to ensure hazardous waste facilities are in compliance with state laws. In 2020, 156 inspections were completed across all facility types. 64 inspections were for Large Quantity Generators and permitted treatment, storage and disposal (TSD) facilities. 77 inspections were at Small Quantity Generators and 5 were at Very Small Quantity Generators. 10 other facilities that were not notified as hazardous waste generators were also inspected.

Statute requires that active hazardous waste land disposal facilities be inspected monthly. In addition, all federal and state TSDs are inspected every year, as well as 20 percent of large quantity generators in accordance with the State and USEPA Performance Partnership Agreement. These requirements were met in 2020. The total number of inspections decreased significantly from previous years in FY20 as inspections were suspended intermittently for almost a quarter and a half in FY20 due to COVID-19 restrictions. On average, each full time inspector was able to complete roughly 15.9 inspections per quarter for the time inspections were not restricted in 2020.

Inspections also carry administrative responsibilities, such as report preparation, tracking return-to-compliance activities at the facility and data entry. In 2020 these administrative tasks were performed on time by all inspectors. Inspections also result in the issuance of formal and informal enforcement actions. 100 percent of both formal enforcement actions (compliance orders) and informal actions (compliance advisories) were timely in 2020, as measured against standards established by USEPA and adopted by the Colorado program. All inspection reports become public documents and are available to anyone through our online environmental records at www.colorado.gov/cdphe/hmwmd-records-review.

Figure 3. Inspector efficiency

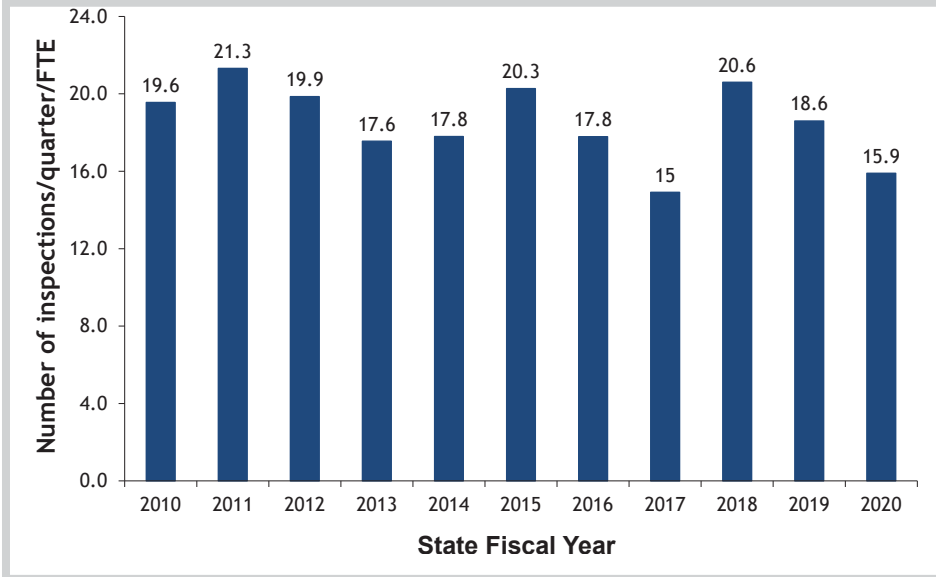


Figure 3 shows the average number of inspections performed by each inspector per calendar quarter. The performance plans for each inspector define the number of completed inspections needed to achieve an outstanding, satisfactory or unsatisfactory performance rating. To perform at a sustainable level, experienced inspectors should be expected to conduct 15 inspections per calendar quarter and 18 per quarter for an outstanding rating in this aspect of their job duties. This standard prevents staff burn-out, but also allows the program to adequately inspect the regulated universe. Inspections in FY20 were less than last year due to training of new inspectors and COVID-19 restrictions.

Common violations seen on inspections:



Failure to label containers with accumulation start dates, or accumulating for longer than one year.

Containers in disrepair or too close together, causing inadequate aisle space.



Lack of training or training documentation for employees handling hazardous waste.



Pharmaceutical Rule

In 2020, Colorado amended the Colorado Hazardous Waste Regulations (6 CCR 1007-3) to adopt the EPA Pharmaceutical Rule which was published in the Federal Register on February 22, 2019 and which became effective on August 21, 2019. The primary intent of the amendments was to create new management standards for hazardous waste pharmaceuticals in lieu of the hazardous waste generator regulations. The amendments foster improved compliance by facilities managing these hazardous waste, thus improving protection of human health and the environment.

The revisions included a prohibition on the disposal of hazardous waste pharmaceuticals down the drain and eliminated the dual regulation of RCRA hazardous waste pharmaceuticals that are also Drug Enforcement Administration (DEA) controlled substances. The revisions also maintained the household hazardous waste exemption for pharmaceuticals collected during pharmaceutical take-back programs and events, while ensuring their proper disposal, and redefined when containers that held hazardous waste pharmaceuticals are considered “RCRA empty”.

The amendments were also intended to revise the P075 hazardous waste listing for nicotine such that Food and Drug Administration (FDA)-approved over-the-counter (OTC) nicotine replacement therapies (NRTs) (i.e., nicotine patches, gums and lozenges) will no longer be considered hazardous waste when discarded. E-cigarettes, e-liquids, and prescription NRTs continue to be listed hazardous waste under the amendments.

The new regulations apply to healthcare facilities that generate, accumulate, or otherwise handle hazardous waste pharmaceuticals and reverse distributors engaged in the management of prescription hazardous waste pharmaceuticals. The new regulations on the whole are considered more stringent than the existing regulations, and Colorado therefore adopted all the changes from the new rule. The resulting changes amounted to several amendments to the Colorado Hazardous Waste Regulations. Colorado adopted these changes on May 19, 2020 and they became effective on June 30, 2020. At that time, all healthcare facilities generating above VSQG monthly quantity thresholds of hazardous waste pharmaceuticals were expected to be in compliance with the new requirements.

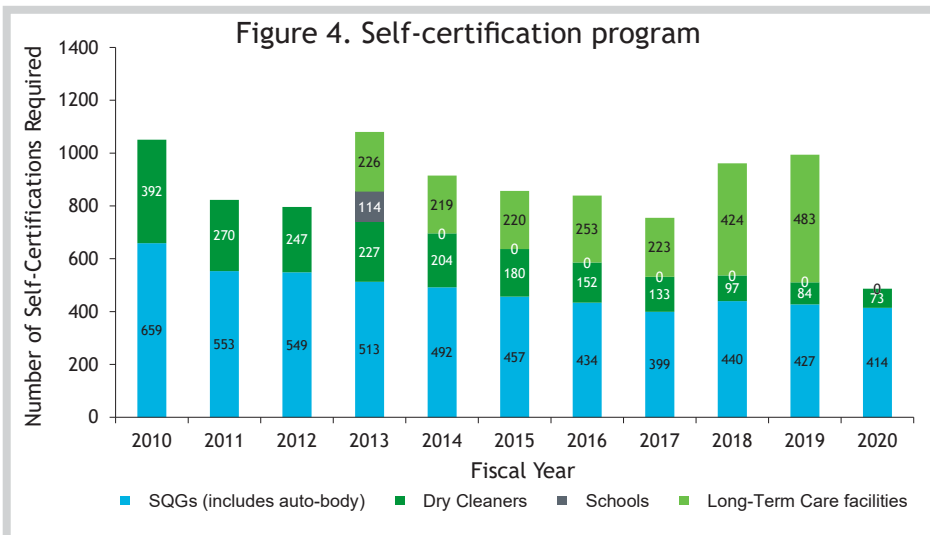
Since June of 2020 we have initiated extensive outreach related to the amendments, including website postings and references to EPA links. The Hazardous Waste Program also continued to educate hazardous waste pharmaceutical generators on the new rule changes in the program’s annual statewide hazardous waste training classes. In October 2020, the Hazardous Waste Program conducted an on-line three all-day training class for the entire state. Over 380 industry professionals attended the trainings statewide. Feedback from industry representatives indicated the trainings, including new on-line platform was well received and appreciated.

Self-certification

The self-certification program was created in 2005 to allow dry cleaning facilities to audit their own waste management, submitting annual checklists as documentation to the department. After launching the program we quickly saw a decrease in violations and expanded the program to include Small Quantity Generator facilities in 2006 and long term care facilities in 2013. Similar improvements occurred as self-certification was rolled out to these additional facilities, likely because the self-certification checklist walks the facility through a typical inspection and provides additional waste management guidance.

In 2020 the self-certification program did not include healthcare facilities as the new Pharmaceutical rule makes it easier for them to manage their wastes, allowing us to ensure that waste pharmaceuticals generated by these facilities are properly managed and dispositioned.

As Figure 4 shows, the number of dry cleaners in the self-certification program has continued to decrease over the years as facilities switch from perchloroethylene to alternative chemicals that do not create hazardous waste.



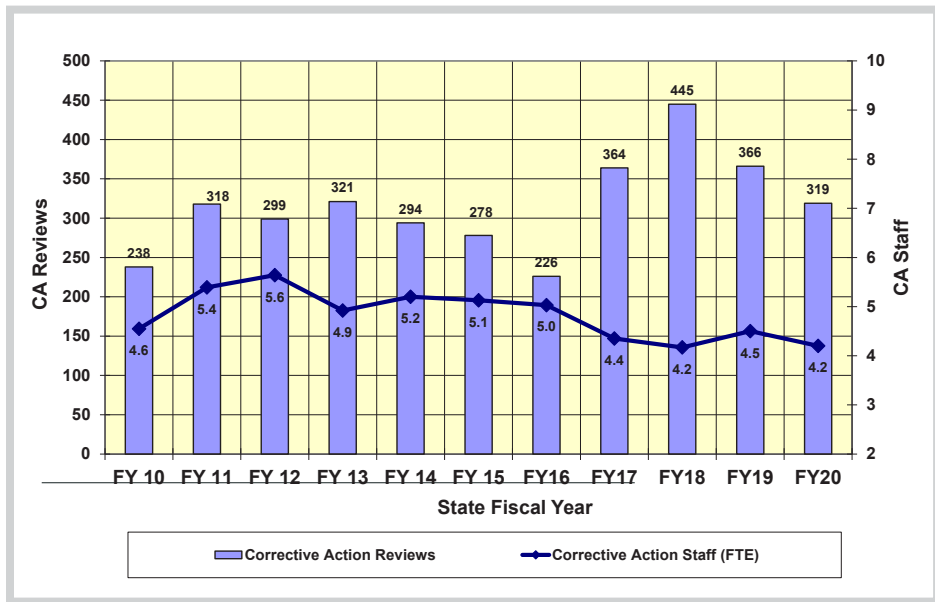
Corrective action

Corrective action, which is the environmental remediation and clean-up portion of the Hazardous Waste Program, continues to be a substantial part of the program's workload. Corrective action staff oversee the remediation and cleanup of more than 200 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 program uses Corrective Action Plans (CAPs) to initiate corrective action at facilities without the need for extensive enforcement. Though voluntary, this is a popular mechanism among industries, and an alternative to the resource-intensive options of a hazardous waste permit or compliance order. This year, reviewing a simple CAP took staff 3.1 hours over 30 days to complete, compared to 7.3 hours last year. This is still well below the target of 10 hours across 30 days set in 2007.

A complex CAP, on the other hand, was processed by staff in approximately 8.2 hours over 40 days in 2020. This was an De/increase from 2019, but still well below the division's goal of 40 hours across 60 days.

Figure 5. Corrective action reviews and staff levels

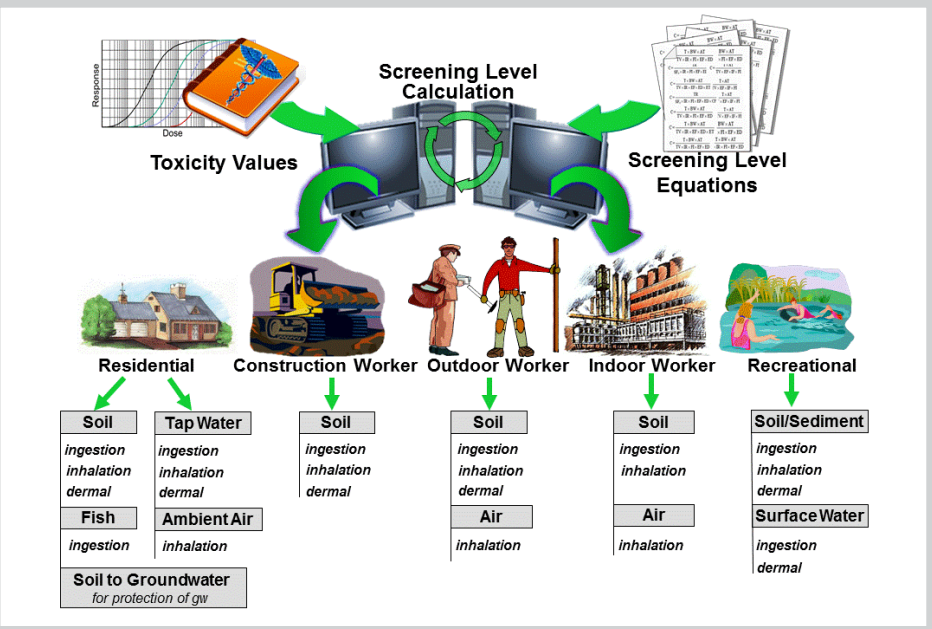


The program continued to be productive in completing corrective action reviews this year. Staff were able to complete 76 reviews per full time employee in FY20, compared to 75 reviews per employee in FY19.



Figure 6. Soil, air, and water screening process

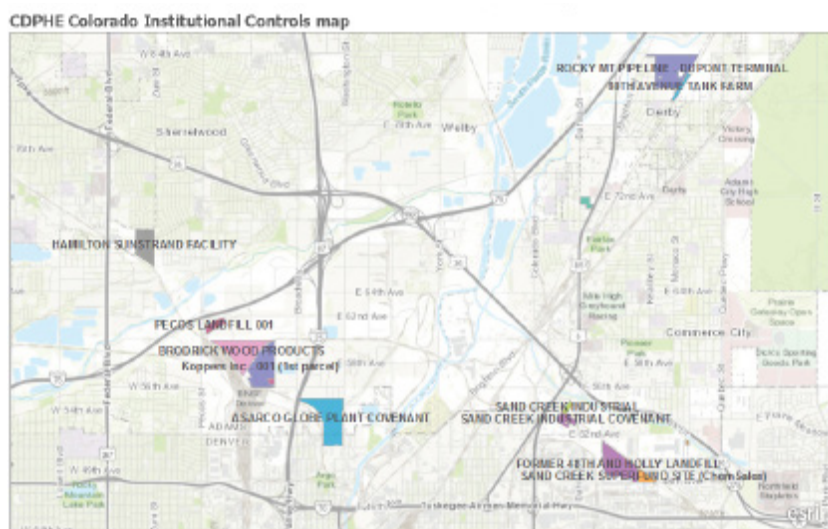
In 2020, the Hazardous Waste Corrective Action Unit (HWCAU) led the effort to change soil and air cleanup values used by the Division for remediation of hazardous waste contamination. In years past our Division used soil cleanup numbers generated by EPA, groundwater and air protection numbers generated by our Division. These multiple sources for cleanup standards lead to confusion within the Division and also within the regulated community. In 2020 the HWCAU shifted all cleanup numbers for soil and air to the U.S. EPA's Regional Screening Levels. This change now allows regulators and the regulated community to refer to a single source of information when evaluating environmental contamination.



Environmental Covenants: Senate Bill 01-145 created environmental covenants, which provide a mechanism for property owners to establish certain restrictions or conditions for their properties, and for those restrictions or conditions to be enforceable by the Colorado Department of Public Health and Environment. We can now approve long-term clean-up plans that rely on environmental covenants to manage risks associated with residual contamination, thereby avoiding the difficulty and expense of remediating sites down to unrestricted-use levels. To date, accomplishments include:

- A registry of sites has been created as required by the statute. Currently, there are 196 sites on the registry, one-third of which are hazardous waste sites. Several others are in process and will be added soon.
- The Colorado Attorney General’s Office has developed model covenant language.
- Our geographic information system (GIS)-based map web page has been implemented; the sites with covenants have been included, with a link to the actual covenant document. This tool allows the public to have access to the information, as the map above shows.
- After meeting with several local governments to discuss communication and implementation issues, we created a guidance document on what covenants are, the opportunities they offer, what is needed to create a covenant, and the tracking and notification responsibilities of the state and local governments.
- Program staff and staff from the Attorney General’s Office (AGO) have developed a policy describing when the covenant should be finalized within the clean-up process so that remedies cannot be compromised through subsequent property transactions.
- The ArcGIS maps showing properties under environmental covenants provide an excellent way to partner across state agencies. For example, when the State Engineer of Division of Water Resources receives a permit for a new well, the office cross-references the site with the environmental covenant map to make sure the well will be protective of human health and the environment. The Colorado Oil and Gas Conservation Commission has also made use of the interactive environmental covenant maps.
- In 2008, via passage of SB08-037, the environmental use restriction was added to the statute as a second mechanism

to ensure long-term control of residual risks. Federal facilities throughout Colorado were unwilling to enter into environmental covenants because the federal government feared the covenants represented interest in real property. Rather than litigate the issue, Colorado worked with the federal entities to develop the environmental use restriction as a mechanism that federal entities could agree to, thereby accomplishing long-term control of contaminated sites equivalent to that afforded by environmental covenants.



Example of properties under environmental covenants



Permitting

Facilities that manage hazardous waste in a manner that requires permitting by the Colorado Hazardous Waste Program are referred to as treatment, storage or disposal facilities (TSDs). There are currently 22 of these facilities in Colorado – seven are active and required to have an operating permit and the remaining 15 require a post-closure permit or equivalent enforceable document. Colorado has operating permits in place for all seven of the operating facilities and for 49 of the 50 individual units on those facilities. The only unpermitted unit is at the Pueblo Chemical Depot, which includes 94 chemical weapons storage igloos (considered a single “unit”). We do not plan to permit these igloos, but rather to regulate them under a compliance order until they are emptied and closed by the Army under its Chemical Demilitarization Program no later than 2023.

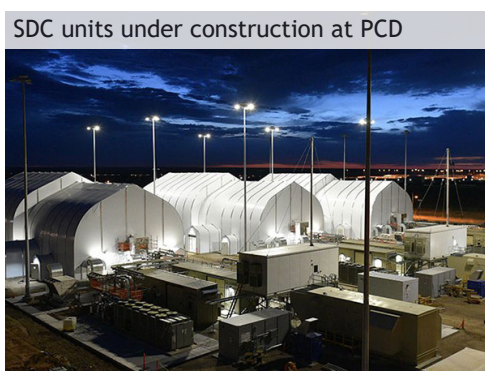


The other 15 TSD facilities in Colorado are no longer actively managing hazardous waste, but have left waste or contamination in the ground. These facilities require post-closure care or monitoring controls. As of FY 2020, Colorado has post-closure controls in place at all of the units at these facilities. We also issue emergency permits to entities that want to treat any potentially reactive hazardous wastes. This ensures that the disposal method is safe for each specific type of reactive hazardous waste. Common reactive wastes that require an emergency permit are fireworks, ammunition and unstable chemicals. We work closely with local health departments, police departments and bomb squads who frequently need to dispose of these reactive wastes. In calendar year 2020 we issued 33 emergency detonation permits across the state.

In 2020, the permitting unit reviewed and/or approved 40 permit modifications for the Pueblo Chemical Agent-Destruction Pilot Plant, as well as approximately 15 modifications for the Pueblo Chemical Depot (PCD) permit. In addition, the Permitting Unit continues work on a Class 3 permit modification requested to PCD's existing permit to add three Static Detonation Chambers (SDCs) at the facility and has issued numerous Temporary Authorization approvals for the construction of the units, which is now nearly complete.

The Permitting Unit approved the permit renewal for the Veolia facility in September 2020 allowing for continued operations at this hazardous waste treatment and storage facility for the next five years.

Permitting Unit staff also conducted inspections for several permitted TSDs in FY2020, and issued a number of Compliance Advisories and Inspection Reports associated with these efforts.



Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP). This plant is one of Colorado's permitted facilities. The plant was taken off-line in September 2020 to change over equipment to process a different type of chemical weapon, 105 mm projectiles containing mustard agent. The plant was recently restarted, and is gradually increasing chemical weapons throughput.

In 2019 the facility achieved consistent operation and processed the number of munitions required to complete the Integrated Facility Demonstration (IFD). The IFD is required to generate data that is fed into a Multiple Pathway Health Risk Assessment that determines parameters for the operating permit. PCAPP applied for, and the Division issued a hazardous waste operating permit in FY2020, to achieve chemical weapons stockpile destruction completion by 2023.

To obtain the 2023 destruction goal, the permittees are developing a permitting strategy to operate three Static Detonation Chambers to destroy the entire 4.2" mortar round campaign (~100,000 weapons) as well as any problematic rounds that cannot be processed in the main plant.

An additional Immobilized Cell Bioreactor (ICB) formally intended to be backup to the primary two ICBs was brought online in FY2020 to provide additional treatment for hydrolysate being generated from increased plant processing activity. The ICBs use microbes to biodegrade hydrolysate, a neutralized mustard agent. The bioreactors have proven to be a highly effective and efficient technology for degrading hydrolysate leaving only water (recycled through the plant) and salt cake (appropriate for hazardous waste landfill disposal.)

In mid-summer of FY2020, the plant completed treatment of 50% of the stockpile by agent volume.

Compliance assistance

A goal of the Hazardous Waste Program is for all regulated facilities to be in compliance with state laws and regulations. The traditional inspection and enforcement program is one way to reach that goal. Compliance assistance, is another important method for obtaining and maintaining compliance. The General Assembly recognized the value and importance of compliance assistance as one of the expectations set out in SB 00-177, Section 25-15-301.5(2)(g), C.R.S., calling for the department to “establish a preference for compliance assistance with at least 10 percent of the annual budget amount being allocated to compliance assistance efforts.” In FY 2020, the program met that requirement with 13.3 percent of staff time devoted to compliance assistance.

Program inspectors incorporate compliance assistance and pollution prevention into compliance inspections when appropriate. Inspectors provided guidance documents and person-to-person consultation on 87 of the 156 inspections performed this year. Two site visits were requested this year under the Generator Assistance Program, where a free site visit is offered to help facilities come into or stay in compliance with Colorado’s hazardous waste requirements.

By the numbers:



56% of inspections offered compliance assistance.



Our Customer Technical Assistance line responded to 1,709 calls and emails in 2020.



7,500 web hits for Hazardous Waste Program pages on the division website.



1,097 web hits for information about residential electronics and computer waste.



5,156 web hits for medical and pharmaceutical waste guidance.



4,497 web hits for hazardous waste management guidance and policy.

Hazardous Waste Regulations training

Hazardous waste program staff presented trainings on the Colorado Hazardous Waste Regulations using an on-line platform this year, reaching over 380 people.



Two guidance documents were created in FY20 to offer compliance assistance to healthcare facilities and other generators of hazardous waste pharmaceuticals under the new Pharmaceutical Rule that was adopted this year. The first guidance document provided Very Small Quantity Generators with a discussion of how they could comply with the new pharmaceutical waste rules which are optional for them, while the other guidance document provided Large Quantity Generators and Small Quantity Generators with a discussion of how the new pharmaceutical rules apply to them, which is mandatory. The guidance documents detail the requirements under the Pharmaceutical Rule and were sent out to all the healthcare facilities and other healthcare providers that the Division has on record.

Our program also assists schools with their chemical inventories. We help organize inventories and advise schools on which chemicals are defined by state law as Hazardous Wastes and which chemicals can be disposed of safely. We also assist with the disposal of old chemicals and those that are extremely reactive and potentially explosive. We work closely with the Sustainability Unit to assist schools in the proper management and training of their chemical inventory.

Program funding

Funding for the Colorado Hazardous Waste Program comes from federal grants, cash fees and an annual Chemical Demilitarization Grant. The program receives no Colorado General Fund money. Currently, without considering federal funding for the Chemical Demilitarization Project and Rocky Flats, fee revenues fund about 72 percent of program costs and the EPA grant covers the remaining 28 percent.

Because the EPA grant has remained essentially flat for more than 15 years, the fees have had to be increased several times to cover increasing program costs. Since the passage of SB00-177, the Colorado Solid and Hazardous Waste Commission has increased the fees three times – in February 2003, May 2006 and again in May 2009. The fees also have been decreased twice – in 2011 and 2012. At the beginning of state FY 2015, with the exception of one fee type, the decreased fees were moved back to the fee levels established in 2009.

Figure 9 tracks the revenue, expenditures and fund balance for the Hazardous Waste Program. The key data lines on Figure 9 are the total revenue (blue line near the top), total expenses (green line) and the cash balance (red line) in the Hazardous Waste Service Fund. Figure 9 shows that, if our projections are correct, the fee level is adequate for at least three more years.

It is important to note that personnel costs are the largest single expense item for the program. Therefore, managing staffing levels is an important part of managing the program budget. The ability to continue with the current fee level is largely due to the process improvements implemented by staff. The program is committed to using technology, acting on ideas from our regulated entities and stakeholders, and continuous quality improvement

Figure 7. Program funding (approximate)

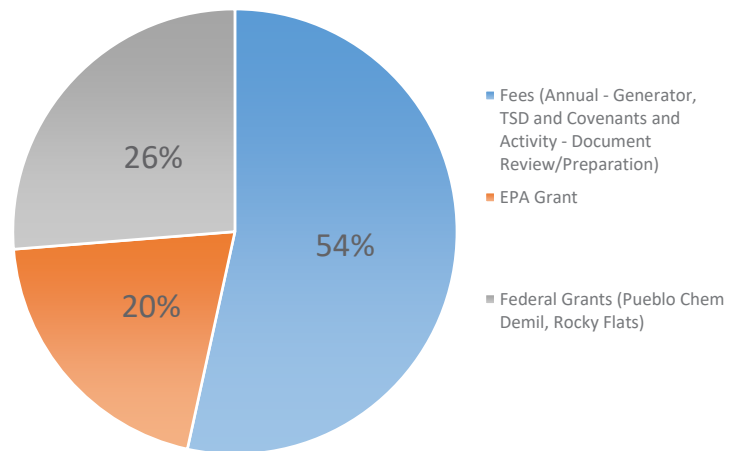


Figure 8. Program expenditures (percent)

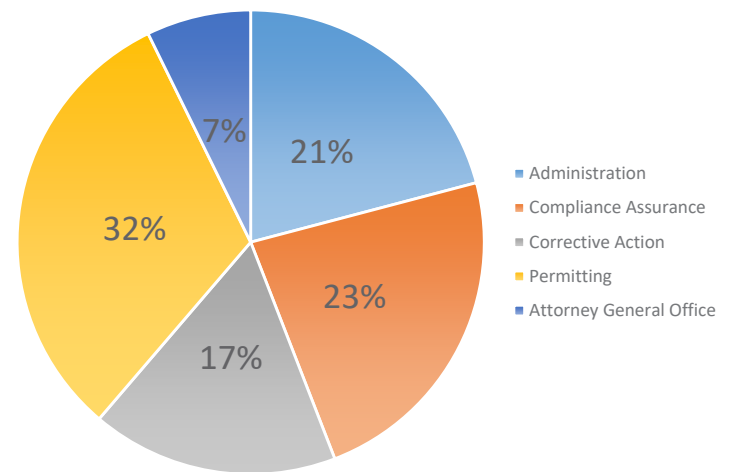
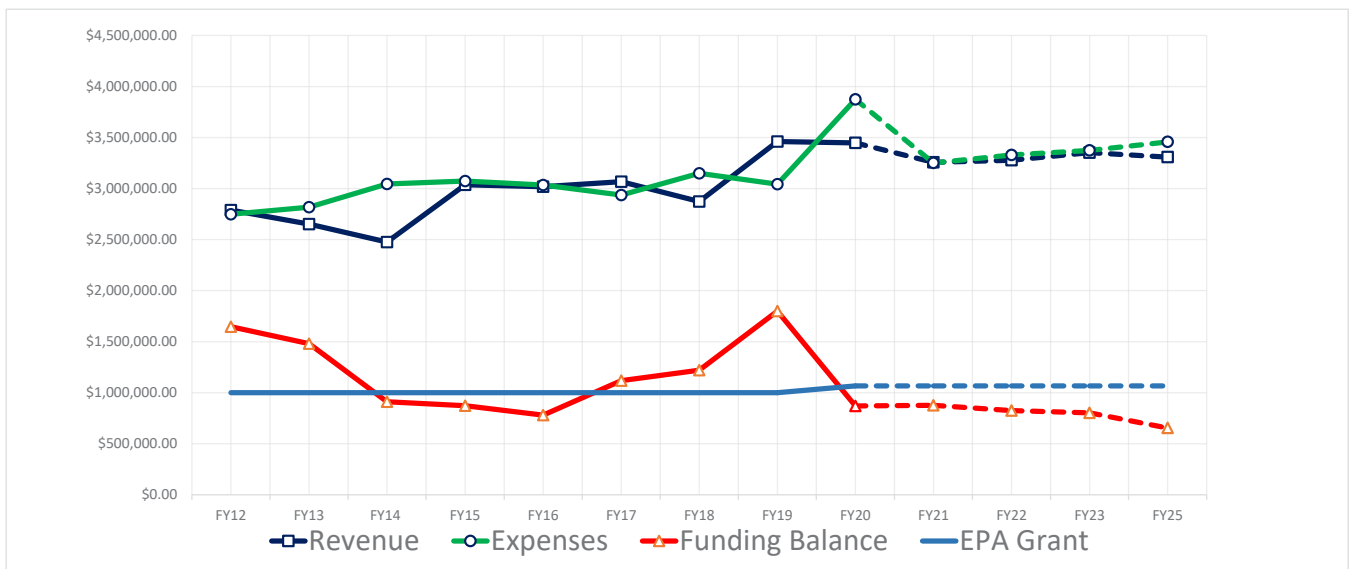


Figure 9. FY20 Hazardous Waste Program budget analysis



Conclusion

As discussed in this report, the division has implemented and maintained significant improvements to the Hazardous Waste Program to satisfy the expectations set out by SB 00-177 (Section 25-15-301.5, C.R.S).

Key accomplishments include:

- Maintaining program authorization by the federal government (EPA);
- Maintaining a program that is credible and accountable;
- Maintaining a program that is innovative and cost-effective;
- Maintaining an effective inspection rate;
- Training over 380 people across the state on Colorado's Hazardous Waste Regulations;
- Emphasizing compliance-assistance efforts.

Efforts undertaken by the Hazardous Waste Program have significantly improved both the efficiency and effectiveness of the program. Major program accomplishments include continuing emphasis on innovative compliance assistance projects; maintaining high inspection efficiency and corrective action efficiency; maintaining high timeliness of enforcement actions; and exceeding national goals set by the U.S. Environmental Protection Agency for corrective action, permitting, inspections and enforcement.



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