

ANNUAL REPORT  
to the COLORADO WATER QUALITY CONTROL COMMISSION  
from the HAZARDOUS MATERIALS and WASTE MANAGEMENT DIVISION  
COLORADO DEPARTMENT OF PUBLIC HEALTH and ENVIRONMENT

SB 181 Implementation  
COMPLIANCE WITH WATER QUALITY STANDARDS AND CLASSIFICATIONS  
for the Fiscal Year Ending June 30, 2012

October 2012

This is the annual report provided to the Colorado Water Quality Control Commission (Commission, WQCC) by the Hazardous Materials and Waste Management Division (HMWMD). This report documents HMWMD activities that protect water quality in Colorado, support the mission of the Commission, and implement state water quality standards.

The paragraphs that follow present issues and examples of sites where releases have impacted ground water quality and where HMWMD decisions and actions concerning water quality classifications and standards have established clean-up criteria. There are numerous other examples, not chosen, where the state water quality standards have been used to determine the need for further site investigations or remediation to address chemical releases to the soil, ground water or surface water. For any site, added information that is of interest or use to members of the Commission will be provided on request.

## **GENERAL**

Previous reports discussed the actions undertaken by the HMWMD to develop a policy and guidance for the conditional closure of low threat sites, including terminating continued monitoring of ground water contamination that persists above State standards, by achieving certain remedial objectives and relying on enforceable institutional controls to prohibit exposure to residual contamination. This approach would rely on natural attenuation to gradually restore ground water quality, eventually achieving state standards at some future date. Following an exhaustive internal review process, the draft policy (“Policy for Making Conditional Closure Determinations”) and guidance (“Guidance for the Closure of Low-Threat Sites with Residual Ground Water Contamination”) was made available for public review and comment in late 2010, followed by several meeting with EPA who were in opposition to the use of the policy and guidance at facilities regulated under the Resource Conservation and Recovery Act (RCRA) Program. In a meeting with senior EPA management on November 2, 2011 the issue was discussed and a decision was made to allow the HMWMD to implement the policy and guidance on a provisional basis for one year, requiring that we keep them informed of any eligible sites that may come up and to amend the guidance to exclude its application to certain RCRA facilities.

Some of the more difficult facilities to remediate and achieve State standards are dry cleaners, the release of tetrachloroethene (PCE) difficult to remediate to complex hydrogeologic settings with limited financial resources. As was noted in reports from the last two years, a stakeholder work group consisting of attorneys, environmental consultants and representatives of the HMWMD attempted to generate interest in establishing a dry cleaner remediation fund and program similar to what is found in 13 other states across the country. Unfortunately our attempts to gain the support of the dry cleaning community behind the effort failed, largely due to their opposition to any funding mechanism that would have them pay a fee, subjecting them to added hardship in these tough economic times. Faced with this opposition from the regulated community, and the likelihood that our efforts would fail to produce any successful legislative result in the face of such opposition, the effort to develop such a remediation program has effectively come to an end with not prospect of its resumption. In the meantime, remedial efforts at a number of dry cleaning facilities are faltering when property owners and dry cleaner operators claim a financial inability to perform required activities, leading to an increase in enforcement actions and bankrupt/abandoned

properties.

During the August 2012 rulemaking hearing, the Water Quality Control Commission proposed revisions to the Basic Standards for Ground Water, Regulation #41 (5 CCR 1002-41), amending ground water standards for a number of constituents to reflect recent changes in toxicity assessments for those organic compounds. These changes will have a direct impact on what we do, particularly for those constituents whose allowable concentrations went up (less remediation) as well as those that went down (more remediation or some other actions in response to the change). For example, the State standard for PCE will increase to 17 ug/L effective January 31, 2013. This change alone will probably result in closing a half dozen cleanup actions regulated by the HMWMD because measured concentrations of this constituent exceed the existing standard (5 ug/L) but are below the new standard of 17 ug/L.

## **SOLID AND HAZARDOUS WASTE PROGRAM**

### **Solid Waste:**

No major changes have been made in the Solid Waste Program that alters the way in which HMWMD applies Colorado's water quality standards and classifications. HMWMD is still working to upgrade our solid waste database to better track facility analytical data and compliance data. The Solid Waste Program continues to implement water quality standards and classifications in remedial cleanup actions, enforcement actions, and design and operations reviews for new or existing facilities.

### **Specific Site Summaries:**

Black Mountain Solid Waste disposal facility had a release of benzene and brine contaminated wastewater to ground water several years ago that occurred because of a ripped impoundment liner. On March 1, 2011 we negotiated a mediated settlement with Black Mountain Recycling, LLC. On April 4, 2011 we approved the site-wide groundwater characterization report. The groundwater contamination plume is delineated and does not leave the property. In addition, the source has been eliminated. The settlement includes requirements for a groundwater remediation plan and financial assurance for the corrective action activities. On September 2, 2011 we commented on the proposed groundwater remediation plan and are awaiting their response.

The agreement also includes provisions to update the engineering, design and operation plan (EDOP) to improve the design, construction and operation of the facility to minimize solid waste releases and improve groundwater protection. On July 31, 2011 we received the revised EDOP and subsequently forward comments on August 8, 2011. The facility responded to the EDOP comments on September 19, 2011.

In early October 2011, the current owner of the facility, Jeff Been, filed for Chapter 11 bankruptcy protection. The facility emerged from bankruptcy during August 2012. The new owners plan on submitting the revised engineering design and operations plan including the updated groundwater remediation plan should be received during October 2012.

### **Hazardous Waste:**

No major changes have been made in the Hazardous Waste Program over the last year, which is Colorado's equivalent of the federal RCRA, Subtitle C program. There have been no significant changes in implementing regulations that alter the way in which HMWMD applies Colorado's water quality standards and classifications for discharges to state waters, including ground water.

A review of the Hazardous Waste Program and the various mechanisms contained within the Colorado Hazardous Waste Statute and Regulations governing the protection of state waters may be found in the document entitled "Hazardous Materials and Waste Management Division Report Describing How Programs Are Assuring Compliance With Water Quality Standards and Classifications" (April 16, 1991). As discussed in that report, water quality standards are used as clean-up criteria unless a site-specific demonstration can be made showing that alternate concentration limits are equally protective of human health and the environment. In this regard, the Hazardous Waste Program has recently begun evaluating the use of this existing flexibility within our regulations for establishing ground water cleanup goals that may differ from the standards established by the Water Quality Control Commission. Section 264.94(b) of the Colorado Hazardous Waste Regulations outlines a process by which an Alternate Concentration Limit (ACL) can be established at a RCRA regulated facility. ACLs are risk-based concentration limits that can be used to establish alternate ground water protection standards that the Hazardous Waste Program determines will not pose a substantial hazard to human health or environmental receptors (given exposure pathways and a variety of other factors). Internal discussions have commenced on the subject, with the goal of defining the process by which ACLs will be established, including how risk plays a role in the process, the level of detail that will be required to support a determination and the public notification/involvement process. The Hazardous Waste Programs first ever attempt to establish an ACL may occur in 2013.

The Hazardous Waste Program's Corrective Action Guidance Document, published in May 2002, provides an overall implementation framework and model scopes-of-work for site characterization, interim actions, evaluation of remedial alternatives and remedy implementation. Section 5.1.3.1 of the Corrective Action Guidance Document states that clean-up standards for ground water are established in "The Basic Standards for Ground Water" of the Water Quality Regulations (Section 3.11.0 in 5 CCR 1002-8). The guidance also informs facilities that they have the option of developing site-specific ground water standards and petitioning the Water Quality Control Commission for their adoption.

### **Specific Site Summaries:**

#### **First Conditional Closure Application**

In the year since that November 2, 2011 meeting with EPA approving the HMWMD's use of the policy and guidance, there has been only a single site that has asked for a conditional closure determination, a site with concentrations of two constituents marginally above the State ground water standard where the remnant plume had migrated beneath an adjoining manufacturing facility, with no reasonably anticipated exposures for the foreseeable future. The conditional closure review board did not agree that the facility was eligible primarily because one of the wells showed a slight uptick in concentrations (although already below the State standard) and because the low level contamination extending onto the adjoining property required the use of an environmental

covenant. The facility representative expressed disappointment at the outcome, and although they were willing to place an environmental covenant on their property they refused to consider asking their neighbor to do the same because they felt the levels found in ground water did not warrant the time and expense of developing and maintaining this institutional control (including payment of a \$1000 annual fee). The facility will continue monitoring ground water quality until standards are met in all wells or the HMWMD reconsiders this sites eligibility for a conditional closure determination.

NFA Determination: Mark's Cleaners at Austin Bluffs Plaza, Colorado Springs

The HMWMD recently evaluated a request for a No Further Action determination with respect to hazardous waste corrective action requirements for Austin Bluffs Plaza. After nearly 10 years worth of data collection characterizing and monitoring the site, a review of that soil and ground water quality data supported the termination of all corrective action activities at Mark's Cleaners. The historical soil sampling data from multiple soil borings inside and just outside the operating dry cleaner tenant space demonstrate that remnant soil contamination found in 2003 and 2006 would not act as a future source of ground water contamination. The ground water sampling data from 2003 showed low to moderate concentrations of the dry cleaning solvent tetrachloroethene (PCE) in the groundwater adjacent to, and downgradient of the dry cleaning space. The quarterly ground water samples collected in 2012 indicated that concentrations of PCE in the ground water had actually decreased to levels below the State of Colorado Basic Standard for Groundwater of 5 ug/L. On this basis the No Further Action determination was granted, ending our involvement at the facility.

NFA Determination: Williams Village Cleaners, Boulder

Ground water contamination was first identified at the Williams Village Cleaners site in 2006, the low level contamination derived from a dry cleaning establishment. Following site remedial activities in the source area beneath the building, continued monitoring of ground water determined that State standards were eventually met. Based on its review of all information contained within our file, the HMWMD in 2012 approved the facility's request for a No Further Action designation.

NFA Determination: Corkle Oil, Berthoud Pass, Hwy 40 near Berthoud Falls

A tanker truck accident released 6,000 gallons of unleaded gas into the Hoop Creek ravine, a tributary of Clear Creek on September 21, 2009. The surface water in Hoop Creek was impacted above standards for about 750 feet downstream of the spill site. Following this incident, the responsible party diverted surface water flow to another ravine, performed in-situ treatment of surface soil within the ravine, collected confirmation soil samples to verify that soil had been remediated to cleanup standards for direct exposure and protection of surface water and diverted surface water back down Hoop Creek ravine. Surface water samples were then collected from seven different locations over a period of about 2-1/2 years, confirming that water quality in the creek met State standards. Earlier in the year, the site was issued a No Further Action determination from the HMWMD.

**RADIATION PROGRAM**

The Radiation Program, in part, regulates the operational activities and cleanup of current and former uranium processing, mining, and disposal facilities. It works to isolate the radioactive and heavy-metal wastes and by-products produced in Colorado from the public and environment. This program works in conjunction with CERCLA programs in the Hazardous Materials and Waste Management Division (HMWMD) and implements the Water Quality regulations for surface and ground water at those sites. The Program works with the Division of Reclamation, Mining and Safety and with the Oil and Gas Conservation Commission on issues relating to treatment or monitoring of radioactive materials in ground water. The Program is also currently evaluating the first new application in over 25 years in the US for a conventional uranium mill.

NORM/TENORM: Program staff continued to work closely with Water Quality Control Division (WQCD) staff and Solid Waste Unit staff to implement the guidance document to address proper management and disposal of water treatment residuals that may contain elevated levels of naturally occurring radioactive material (NORM) or technologically enhanced naturally occurring radioactive materials (TENORM). HMWMD and WQCD staff continue to work together to assess compliance for some of the smaller public water supply systems to help them meet treatment requirements while adequately addressing waste management issues for water treatment residuals. There has been an increase in the number of information requests relative to NORM/TENORM in oil and gas production. The HMWMD is working on how to apply existing policy to the issue of oil and gas production wastes.

Lincoln Park / Cotter, Fremont County: Uranium and molybdenum continue to be monitored in ground water in the Lincoln Park Water Use Area (Operable Unit 2) near the Cotter / Cañon City uranium mill tailings site. The Division-approved plan for soil remediation in the Old Ponds Area in the mill site (Operable Unit 1) has been implemented. Approximately 240,000 cubic yards of contaminated soil have been excavated. This soil was a major source of ground water contamination at the Cotter Mill facility. Ground water concentrations of uranium and molybdenum have dropped in waters down gradient of the Old Ponds Area and in Lincoln Park. The investigation into the source, extent, and character of uranium in ground water found moving north-northwest from the Cotter facility is being performed. Wells have been drilled to define where contaminated ground water is moving in Sand Creek. Some of these wells will be used in a system to stop the flow of contaminated ground water into Lincoln Park. The Cotter facility is undergoing full decommissioning in addition to addressing ground water contamination. 4.02 million gallons of contaminated water was removed and disposed on site.

UMETCO Uravan: Complete remediation of the Uravan site was accomplished in 2008. Alternate Concentration Limits (ACLs) are in place for several contaminants in ground water. A long-term program of ground water and surface water monitoring is being developed to demonstrate that the ACLs continue to be protective of the river and that contaminant concentrations are stable or decreasing now that the source has been removed. At license termination and deletion from the National Priorities List (Superfund), the facility will be transferred to the U.S. Department of Energy for long-term surveillance.

Schwartzwalder Mine, Jefferson County: The Radiation Control Program licenses the treatment system being used to clean uranium-contaminated ground water before it enters Ralston Creek.

Department of Energy atomic blast sites, Garfield and Rio Blanco Counties: The Radiation Control Program advises the Oil and Gas Conservation Commission on the monitoring and testing of ground water for radioactive materials from gas wells being drilled near the Rulison and Rio Blanco atomic blast sites.

## **REMEDIATION PROGRAM**

Superfund Activities: The Comprehensive Environmental Response Compensation and Liability Act (CERCLA or Superfund) requires that remedies chosen to address hazardous substance releases must either meet existing standards or, in limited cases, waive those standards. During each remedy selection process, the Hazardous Materials and Waste Management Division (HMWMD) submits to the United States Environmental Protection Agency (EPA) a list of state regulations that are either directly applicable to a particular cleanup situation or which are relevant and appropriate requirements (ARARs). Water quality standards are identified after consultation with the Water Quality Control Division (WQCD). The following site summaries are provided for sites that, over the past year, had new activity related to compliance with water quality standards. Information on other Superfund sites can be provided on request.

The Central City/Clear Creek Superfund Site is located in Clear Creek and Gilpin counties. Over the years, work along the main stem has been completed, including the capping of more than 15 mine waste piles and the construction of a water treatment plant in Idaho Springs to treat the Argo and Big Five tunnel discharges and Virginia Canyon groundwater. Work has been completed on the North Fork, with 25 waste piles addressed through removal or erosion control measures, and construction of an on-site repository and sediment control dams. Design has been completed for a new mine drainage water treatment plant on the North Fork of Clear Creek to treat the Gregory Incline and National Tunnel discharges and Gregory Gulch alluvial ground water. In preparation for construction of this new plant, the division completed the construction of a mine water conveyance pipeline during the past year. We are now waiting on funding from the EPA to put the new plant out for bid. Over the past year we have also completed the design for improvements to the Argo Water Treatment plant in Idaho Springs, the construction of these improvements began in September on 2012, and will result in the transformation of this facility into a high density sludge plant which should reduce the operation cost for the state.

At the Broderick Superfund site, the trust that was responsible for operation of the ground water extraction and treatment system ran out of funds to continue operating the system. The EPA and the state have been working with the Broderick trust to explore options to continue operating the ground water treatment system. Broderick has been in discussions to sell a portion of the property which would provide up to \$3 million to the trust and allow the treatment system to be reactivated. Broderick's consultants are working to get the treatment system operating but have run into issues with the NPDES permit, where standards have now been added for iron and manganese. Neither of these chemicals are site contaminants nor was the ground water treatment system designed for their removal.

South Adams County Water and Sanitation District (SACWSD) has found 1,4-dioxane in their ground water supply wells, that may be a newly discovered Rocky Mountain Arsenal (RMA)

ground water constituent. 1,4-dioxan is found at low levels north of the RMA and at higher levels on-post. The Program is awaiting new analytical results from our sampling at the Chemical Sales Superfund site regarding 1,4-dioxane. The exact origin of this contaminant is still unclear.

The Remediation Program has been working with EPA on listing three new possible sites to the NPL. The Penn Mine in Summit County has been the subject of investigation and study by the Snake River Stakeholders group. At this time the local community has express a desire that the site not be put the NPL until without additional investigations of the mine pool. This summer the Division of Reclamation Mining and Safety opened the Penn mine to investigate the possibility of installing a plug in the adit. In Silverton, the Animas River Stakeholder group has been investigating and performing cleanup of mine waste in the Cement Creek drainage basin. EPA held a series of meetings with the local community about the potential of listing Cement Creek to the NPL, the community expressed an interest in using a cooperative approach with Sunnyside Mining Co. rather than listing at this time. The Animas River Stakeholders have been reviewing various technologies to address the contamination in Cement Creek. EPA and the state have also been involved in discussions for the potential listing of the former Colorado Smelter in Pueblo; these discussions are still ongoing, though the community has not been very receptive to the potential listing.

Voluntary Cleanup and Redevelopment Activities: The Voluntary Cleanup and Redevelopment Act (VCRA) staff continues to encounter issues related to surface and ground water contamination. The staff works closely with the WQCD on each site-specific decision to assure compliance with the appropriate regulations. Meeting ground water standards is an ongoing issue at VCRA sites. Since these sites are most often the subjects of real estate transactions, the buyers and sellers try to assure that the cost of cleanup does not make the economics of the deal unfeasible. Therefore, most clean-up plans focus on source control or removal rather than treatment of contaminated ground water plumes. The VCRA staff strives to assure that ground water standards are met at the property boundary. HMWMD requires any applicant that exceeds ground water standards at the property boundary to apply to the Water Quality Control Commission for a variance, a site-specific standard, or a change in point of compliance (unless this will only be temporary during cleanup activities and the applicant can show that no surface water body is impacted and no exposure is occurring during this period). This assures that the program complies with water quality regulations.