

**ANNUAL REPORT  
OF ACTIVITIES PERFORMED  
BY THE  
STATE ENGINEER'S OFFICE  
IN 2014**



**COLORADO**

**Division of Water Resources**

Department of Natural Resources

**To Satisfy Requirements  
of Senate Bill 89-181  
Regarding Water Quality**

## **INTRODUCTION**

According to the provisions of Senate Bill 89-181 (SB-181), the Colorado Division of Water Resources/State Engineer's Office (SEO), has been assigned as one of the agencies responsible for implementing the water quality standards and classifications adopted by the Colorado Water Quality Control Commission (WQCC). The SEO will implement water quality standards and classifications only where water quality statutes other than the Water Quality Act require the SEO's involvement. This report provides an update on the activities undertaken by the SEO and its Division offices to accomplish its responsibilities pursuant to the provisions of SB-181 in calendar year 2014.

Few major water quality related problems actually fall within the jurisdiction of the SEO, per past experience. However, the SEO takes a proactive stance in this matter by cooperating with other agencies and organizations in the development of comprehensive and practical solutions for managing the quantity and quality of the state's waters.

There are three major areas where the SEO exercises its authority in implementing water quality standards and classifications. These are:

- Adoption of points of compliance for discharges to ground water
- Approval of substitute water supply plans and non-decreed water exchanges
- Adjudication process of plans for augmentation including water exchanges

### **A. Points of Compliance for Discharges to Groundwater**

The SEO ensures that well construction activities do not result in a pollution discharge to state waters through well permitting activities. All wells must be constructed in accordance with the rules and regulations established by the State Board of Examiners of Water Well Construction and Pump Installation Contractors (BOE). Domestic and commercial water wells are constructed by licensed well drillers. Monitoring and recovery wells can be constructed either by licensed drillers or under the supervision of professional engineers and geologists. The BOE takes corrective actions against licensed drillers or pump installers who violate the rules for proper well construction, including fines and suspension or revocation of their licenses. In the case of unlicensed contractors performing well construction activities, fines are levied and legal proceedings are initiated. Well owners have the ultimate responsibility to bring the improperly constructed well into compliance. Otherwise, the State Engineer may order the well plugged and abandoned to prevent contamination of ground water.

In 2014, the BOE investigated 27 new complaints and resolved 31 complaints. Thirteen (13) fines were levied for rule violations. No licenses were suspended or revoked; but 11 letters of admonition or reprimand were sent out during 2014. The staff reviewed and processed 106 requests for variances from the Water Well Construction Rules and plans for the construction of gallery-type wells – a decrease of 11% compared to the previous year. Approximately 6,852 work reports (well construction=3,876, pump installation=1,776, and well abandonment=1,200) were reviewed by staff for compliance with BOE/SEO rules and the data captured in the Well Database. Well abandonment reports document the plugging and sealing of a well. The Board licensed 227 contractors in 2014, 4 fewer than 2013. License renewal for 2014 marks the tenth year that each

contractor is required to obtain a minimum of eight hours of continuing education for license renewal.

The *Well Inspection Program* was authorized by the legislature in Senate Bill 03-45 and funded by a \$40 increase in well permit application fees. Presently, the program consists of a Chief Well Inspector headquartered in Denver and two additional well inspectors who perform inspections throughout the state. The Chief Well Inspector coordinates the activities of the program and provides additional support to the BOE. The primary objective of the program is to assist the Board with the enforcement of its rules and regulations for well construction and pump installation. A key focus of the well inspectors and the inspection program is to locate and initiate action against unlicensed contractors working illegally in the state. The well inspectors conducted 857 inspections in 2014, a 31% decrease from the previous year. This decrease was due to a retirement, turnover, and extended medical leave among the staff during 2014. Over the history of the Well Inspection Program, there has been a decrease in the proportion of violations discovered as a result of inspections. In recent years, the annual rate of BOE Well Construction Rule violations per the total number of well inspections has leveled at about 1%, but in 2014, that rate increased to 2.2%.

The SEO well permitting staff received and acted upon 5,123 new well permit applications in 2014, an increase of 3% over 2013. Of this total, 685 were applications for replacement wells. The majority of the replacement wells were for exempt domestic purposes. In addition, the staff processed 794 notices to drill monitoring holes, an increase of 20%.<sup>1</sup> Monitoring holes are predominantly used for temporary monitoring of groundwater quality at environmental remediation sites. The SEO can request water quality data from the applicants when necessary.

## **B. Substitute Water Supply Plans and Non-Decreed Water Exchanges**

Substitute water supply plans (SWSP) provide water users the flexibility of exchanging and replacing out-of-priority depletions on an interim basis or, if the applicant was to continue such operation permanently, until a court approved plan for augmentation is obtained. For approval of substitute water supply plans, the State Engineer requires that the quality of the substituted water meet the use requirements to which the senior appropriators have normally put the water. The SEO reviewed and acted on 282 general SWSPs (including emergencies), a 9% decrease over 2013. Of these, 82 were related to gravel pits. The majority of substitute supply plans use river water as the source of substituted water.

Non-decreed water exchanges generally do not involve written approval. They are limited to daily or seasonal timeframes and require the local water commissioner's approval prior to the exchange occurring. The water commissioners keep records of these exchanges in the diversion records for the structures involved. The exchanged water usually comes from reservoirs or from bypassing stream diversions. Seldom has an applicant used treated wastewater or other supplies in a non-decreed exchange. Therefore, the water used in these exchanges generally does not create water quality problems.

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<sup>1</sup> Applicants are required to notify the SEO before constructing monitoring holes. These holes are required to be plugged and abandoned within one year unless a "monitoring well" permit is obtained for each hole.

### **C. Decreed Exchanges and Plans for Augmentation**

The SEO may oppose applications to Water Court for augmentation plans and exchanges in which the substituted water does not meet the use requirements to which the senior appropriators have normally put the water. The SEO generally does not participate in Water Court cases where the parties who are directly impacted can be expected to raise concerns with respect to water quality issues. However, the SEO will become involved in two instances. First, where there are exchanges involving treated wastewater, the SEO requires the exchanged water be of a quality that meets the requirements of use to which other vested water rights have normally been put or that exchanged water meet the existing water quality standards for discharges to the receiving stream. Second, the SEO, in administering water decrees, will become involved with issues of water quality where water quality monitoring is made a part of the decree by the Water Judge. The Water Judge has the ultimate responsibility to determine the adequacy of water quality when approving new water right applications, plans for augmentation, or exchange plans.

### **D. Other Activities (2014 and 2015)**

Every year the staff at the SEO and its Division offices cooperate with public and private agencies and participate in various forums where water quality and quantity issues are considered. The staff at the SEO plays an important role by providing input and advice on the impacts of proposed water policies and regulations on the water using community.

During 2014, SEO representatives continued to meet quarterly with other DNR agencies and WQCD managers, to discuss and improve coordination on water quality and quantity issues. Personnel turnover among the agencies and difficulty in schedule coordination have hampered attempts for the group to meet in the latter half of 2015. SEO staff members regularly respond to referrals from the WQCD to comment on potential for injury from actions related to discharge permit applications.

In April 2014, the Division Engineer in the San Luis Valley (Division 3) informed WQCD of the impending drainage of Beaver Park Reservoir near South Fork. Dam safety issues required that the CPW-owned reservoir be completely drained. SEO and CPW employees monitored the reservoir outflow daily to ensure minimal disruption to downstream water quality.

Water quality (e.g. salinity and selenium) continues to be discussed in the Arkansas River basin (Division 2) in a variety of forums including compact meetings, water court cases, and the Basin Roundtables. During 2015, multiple entities within the Arkansas River basin began to work together and migrated toward the concept of creating a multi-use Colorado account in John Martin Reservoir. This multi-use account would benefit multiple well associations and those who are members of compact compliance plans under the "Surface Water Irrigation Improvement Rules" in SEO's Division 2. Since irrigation best management practices (BMPs) to improve water quality often center around (1) converting flood to sprinkler/drip irrigation and (2) lining ditches, allowing those who have made these improvements to access strategically located water storage - e.g., the John Martin multi-use account - is a key element to the water quality improvement discussion. Of course, changing water storage practices in the Arkansas River basin involves Arkansas River Compact considerations, so Kansas and Colorado officials were briefed on the concept at a September 25<sup>th</sup> meeting, which included WQCD staff.

In another water quality/water supply nexus, SEO Division 2 staff are participating in the newly formed Arkansas River Management Action Committee (ARMAC) to help direct a water quality and agricultural practice project in the lower Arkansas River basin. The project is being led by Colorado State University. Using over 15 years of research along the lower Arkansas River in Colorado, the project is planning to implement pilot programs of BMPs for agriculture and irrigation. The goal of the BMPs is to boost agricultural productivity while conserving water and improving water quality in the river system and in groundwater.

In the San Juan River basin (Division 7), the August 2015 Gold King Mine blowout and subsequent drainage of acidic, metal-laden water into the Animas River caused the shutdown of intake structures downstream for irrigation ditches, municipalities, and other water users. Most irrigators voluntarily shut down their diversions for two to three weeks after the spill. SEO assisted in communicating information about the contaminated plume of water to irrigators and other water diverters. Staff assisted the efforts of the federal incident response team and local emergency response team, including county, municipal, CPW, and WQCD personnel by helping responders get to problem areas along the river through our contacts with water diverters.

After the Gold King event, a mine leak was reported in the Rustic area on the Cache la Poudre River. On September 14 2015, the CDPHE Office of Emergency Preparedness asked SEO to notify the water users downstream along the Cache la Poudre and South Platte rivers. Later, the report was found to be essentially incorrect. The leak was very small from a small mine site draining clear water that infiltrated into the subsurface before encountering surface water.

On August 8, 2015, the Twin Lakes Canal Company, owner of Grizzly Reservoir, drew down the reservoir water level to allow removal of a driftwood tree that was plugging its outlet structure. The reservoir is located southwest of Independence Pass on Lincoln Creek, a tributary to the Roaring Fork River. The tree damaged the outlet structure and when the tree was removed, the outlet could not be closed to keep the remaining water in storage from draining. Consequently, the drainage entrained metal-laden sediment accumulated over many years in the reservoir bottom and released it downstream. Metals compounds accumulate in the reservoir sediment due to acid mine drainage from the Ruby Mine and natural acid rock drainage from the local geology. The Aspen Times reported that the sediment release caused levels of aluminum and iron to acutely exceed stream water-quality standards; copper and manganese concentrations were also significantly elevated. Both SEO Division 5 and the Twin Lakes Canal Company informed the Colorado Division of Parks and Wildlife of the sediment-laden water release. Pitkin County has subsequently set up an emergency response system specifically for Grizzly Reservoir. SEO is now seeking a legal way to store water in Grizzly Reservoir that will allow for a "settling pool" for metal laden water/sediment at the base of the reservoir. The settling pool would eliminate the need to fully drain the reservoir during future water rights calls for stored water.

The BOE has embarked on a new rulemaking to update the Water Well Construction Rules (2CCR 402-2). BOE/SEO staff have engaged stakeholders in this process by holding several presentations and open meetings since July 2014 to solicit comment. Well construction contractors and engineering, geological, geotechnical and

environmental remediation professionals have participated in commenting on two drafts of the rules. A third draft will be available in December 2015. The formal hearing before the BOE is scheduled for March 15. The goal of the Water Well Construction Rules is to safeguard public health and welfare and protect Colorado's groundwater resources.