ANNUAL REPORT
OF ACTIVITIES PERFORMED
BY THE
STATE ENGINEER'S OFFICE
IN 2013

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, the 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 2013.

According to our past experience, few major water quality related problems actually fall within the jurisdiction of the SEO. 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 will take corrective actions against the drillers who violate the rules for proper well construction including suspension or revocation of their licenses. The 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 2013, the BOE investigated 14 new complaints and resolved 12 complaints. Six (6) fines were levied for rule violations. No licenses were suspended or revoked; but two (2) letters of admonition or reprimand were sent out during 2013. The staff reviewed and processed 119 requests for variances from the Water Well Construction Rules and plans for the construction of gallery-type wells – a decrease of 15% compared to the previous year. More than 6,769 work reports (well construction=3,736, pump installation=1,609, and well abandonment=1,424) were reviewed by staff for compliance with BOE/DWR rules and the data captured in the Well Database. Well abandonment reports document the plugging and sealing of a well. The Board licensed 231 contractors in 2013, two more than 2012. License renewal for 2013 marks the ninth 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 1,245 inspections in 2013, a 2.4% decrease from the previous year. 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% and 2013 continued at that rate. Since inception of the inspection program, it is evident that licensed contractors have refined their well location and construction practices to ensure compliance with the Board's Rules.

The SEO well permitting staff received and acted upon 4,968 new well permit applications in 2013, a decrease of 3% over 2012. Of this total, 880 were applications for replacement wells. The majority of the wells were to be used for domestic purposes. In addition, the staff processed 662 notices to drill monitoring holes (increase of 20%).[1] 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.

Post-fire issues in the Black Forest area were of great concern in 2013 because water is supplied primarily by wells. With the high burn temperatures, the integrity of some wellhead structures were compromised, which can pose a risk to aquifer water quality from post-fire runoff events. Immediately after the fire, DWR's Hydrogeological Services staff wrote up guidelines to protect damaged wellheads from runoff contamination until a licensed well contractor could permanently reconstruct the wellhead. DWR also mobilized staff and helped organize volunteers to inventory all wells in the burn area to assess wellhead condition.

The 2013 northeast Colorado flood event also affected many wells. Where flood waters rose above the top of the wellheads, if the wells were not physically buried or damaged, well owners were at high risk of contaminated water entering their wells. In the midst of the flood event, DWR published guidelines for well owners to take care of their damaged or contaminated wells. Reconstruction or abandonment of damaged wells was outlined, recommending licensed water well contractors perform the necessary work when required. For contamination issues recommendations were made to pump wells without consumption until relatively clean water was obtained, then disinfect the well and entire distribution system per BOE rules, and finally confirm that water was potable and met drinking water standards with repeated water quality samples.

[1] 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.

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 upon 311 general SWSPs (including emergencies), a 22% increase over 2012. Of these, 89 were related to gravel pits. The majority of substitute supply plans use river water as the source of substituted water.

The after effects of the Hewlett Park and High Park Fires in 2012 are still affecting the Cache la Poudre River basin. Ash and sediment from the burn areas continue to be entrained in runoff during rain events affecting the City of Fort Collins and other businesses that divert water from the Poudre River for their water supply. Because of poor water quality, a SWSP was implemented in early 2013 that allows Fort Collins an alternate point of diversion from the Munroe canal, which flows out of Horsetooth Reservoir, instead of their normal diversion structures on the Poudre River when the need arises. The SWSP was renewed in early 2014 and may be renewed annually through 2017.

Post-fire issues in the Black Forest area did not result in a need for SWSPs for surface water quality reasons. The Black Forest area water supply comes primarily from groundwater.

In the South Platte River basin (Division 1), the SEO renewed a SWSP related to the Suncor Refinery hydrocarbon plume remediation in 2013. The SWSP allows for the operation of three new recovery wells, four sump wells, and ten existing tributary wells. Upon request, the current plan can be renewed annually.

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.

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

A sediment release issue that arose in 2012 regarding the Broken Shamrock Pond in Teller County continued into 2013. The SEO and WQCD continued to cooperate to achieve a solution to the water quality and water rights issues at this impoundment (illegally storing water). The owner initiated and completed work to bypass surface water flows around the pond without breaching the pond, which would have caused sediment to enter Four Mile Creek.

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.

Water quality (e.g. salinity and selenium) continues to be discussed in the Arkansas River basin in a variety of forums including compact meetings, water court cases, and the Basin Roundtables. We have periodic discussions and contacts at public and interagency meetings about water quality concerns relating to the discharge of produced water from oil and gas operations. Predominantly, this has concerned the discharge of coalbed methane production water to drainages in the Raton Basin (Division 2) and the San Juan Basin (Division 7). Also, the SEO regularly receives water quantity and quality questions related to hydrofracturing operations.

The State Engineer and SEO representatives continue to meet quarterly with other DNR agencies, WQCD managers, representatives of the Department of Agriculture, and various board members from WQCC and CWCB to discuss improved coordination on water quality and quantity issues. DWR staff members regularly respond to referrals from the WQCD to comment on potential for injury from actions related to discharge permit applications.