

WaterresourceIssues

January forecast

The beginning of the new year is an auspicious time for water-resource professionals for a number of reasons. First, it is hard not to look to the high country and check the snowpack on the web for some inkling of how Mother Nature will treat us this year. Second, nearly all the water-rights accounting in the state is managed on an annual calendar basis, so it is time to reconcile behavior with budget. Lastly, our elected state representatives meet each January for either 30 or 60 days to wrestle with funding priorities, policy and changes to law. This year is a short session focused on budget, and it will be half over by the time this column is published... check the daily edition of the paper or Staci Matlock's blog (staci-on-water.livejournal.com) for breaking news.

Snowpack and runoff forecasting have received increasing interest in past years as our part of the Southwest has

experienced record high and record low precipitation, with a profound effect on people's lives and regular media coverage of flood and drought. The debate around climate change and global warming also has New Mexicans looking for local evidence of their side of the argument.

Perhaps the most respected resource for water-resource forecasting is the NRCS New Mexico State Basin Outlook Report, prepared by the National Water and Climate Center (www.wcc.nrcs.usda.gov). The January report begins with an analogy to poker and reminds the reader that we were on track for record low snowpack until last Nov. 23 and that it is still too early to really know anything yet.

A second great resource for tracking drought and climate, and one that is presented in an easily digestible form, is the NM Drought Status Report. This report is prepared by the Governor's Drought Task Force and can be found on

the Office of the State Engineer website (www.ose.state.nm.us) under the "Help me Find" dropdown menu. The latest report is dated in December and includes our early-season heavy snowfalls; a new report should be coming out shortly.

For those of you who want to follow the details of the Year After The Year Of Water, the State Engineer's website will provide a list of the bills that the Office of the State Engineer and Interstate Stream Commission staff are tracking. Links from that page take you directly to the Legislature website for a copy of the bill and some of the analysis. From the home page of the Legislature (legis.state.nm.us) you can track a bill's committee referrals, each of the committee's agendas, use the Bill Locator to track action on bills, and lots of other information under locator reports.

In case you thought that I would provide a forecast from the title of this



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column... I find that my forecasts are always better in hindsight. We will keep an eye on the snowpack and legislative action in future columns.

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OurwaterQuality

Check out anti-scalant technology

One of the ironies on the subject of water purification is that for some water contaminants (such as hardness, uranium, and nitrate), additional water use is required to remove or "exchange" these contaminants. Backwashing or regeneration with water may be required to clean contaminant-specific synthetic resins. This complete process is collectively known as "ion exchange" and when hardness minerals are being removed, this process is also known as "softening." Cation resins are used to exchange positively charged ions such as hardness minerals, and anion resins are used to exchange negatively charged ions such as uranium and nitrate. These resins are regenerated using a brine solution consisting of the salts sodium chloride or potassium chloride.

There are several manufacturers that offer "salt-free" systems, but most of these also require backwashing and may actually use more water than conventional softeners. Often these systems are little more than a combination of a carbon filter and a catalytic system. Even though

they solve the task of removing chlorine from municipal water, they are also commonly, and inappropriately, employed for well water, where carbon may become a breeding ground for bacteria. These systems are not considered "softeners" as they simply rearrange hardness minerals.

The most promising development in water purification is the appearance of salt-free systems that employ nanotechnology and do not require wasteful backwashing. Hardness minerals form seed crystals that detach from the polymer resin and pass through the pipes without forming hardness or "scale" deposits. High colloidal silica content in both city and water can sometimes impair the efficiency of some of these systems, whereas others exhibit no such effect and have worked with great success in the Santa Fe area. This methodology, which is not designed to soften water, is properly called "anti-scalant" technology and is ideal for consumers who want to eliminate scale buildup, avoid using salt regenerants, and conserve water because backwashing is not required.

On municipal-water supplies a carbon filter is placed ahead of the anti-scalant system for the purpose of removing chlorine. Many consumers achieve satisfaction with these systems just because they effectively remove the unpleasant taste and odor, but the real test is the ability to inhibit scale formation. Sometimes these systems are particularly effective in removing existing scale (where no protection or an ineffective softener existed) and treated water may actually appear cloudy or milky for a few weeks; this is an indication that the system is working well in dislodging existing scale. Water-conscious consumers find this acceptable because of the elimination of wasteful backwashing and salt discharge. Anti-scalants are ideal for new construction. Water testing is required to determine whether or not any of the system-limiting water contaminants (iron, sulfur and copper) are present in the water and must be treated ahead of the anti-scalant system.

In future columns we will review the latest technologies becoming available



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to treat the "problem water" so common in Santa Fe area wells. Even though ion exchange may still be the best method for removing some contaminants, our emphasis will be on informing you of new water purification technologies which, wherever applicable, also conserve water.

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