

WATER QUALITY COORDINATING COMMITTEE

DNR Conference Center
Roaring River Conference Room
1730 E. Elm Street
Jefferson City, Missouri

May 19, 2009

10:00 a.m.

MEETING AGENDA

Green Infrastructure Projects in Missouri State Parks,
Don Stier & Jon Fitch, Division of State Parks

Source Water Protection in Missouri: An Overview and Assessment,
Ken Tomlin, Water Protection Program, Public Drinking Water Branch

Well Drilling in MO - Special Areas and Requirements,
Beth Marsala, Division of Geology & Land Survey

Other

Agency Activities

Meetings & Conferences

MISSOURI WATER QUALITY COORDINATING COMMITTEE

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MINUTES

Attendees:

Sarah Fast	DNR, Water Protection Program	Greg Anderson	DNR, Water Protection Program
Darlene Schaben	DNR, Water Protection Program	Terri Brink	EPA, Region 7
Beth Marsala	DNR, Water Protection Program	Angel Krusen	Water Sentinel
Don Stier	DNR, Division of State Parks	Wayne Maresch	DNR, Environmental Services Pgm
Jon Fitch	DNR, Division of State Parks	Tucker Fredrickson	DNR, Water Protection Program
Ken Tomlin	DNR, Water Protection Program	Susan Higgins	DNR, Water Protection Program
Jack Dutra	Syngenta	Stacia Bax	DNR, Water Protection Program
Davis Minton	DNR, Director's Office	Anne Peery	DNR, Water Protection Program
Mandy Sappington	DNR, Water Protection Program		

Introductions were made.

Green Infrastructure Projects in Missouri State Parks, Don Stier & Jon Fitch, Division of State Parks
PowerPoint Presentation

Sarah showed that an article on one of the Parks' projects was printed in the Spring/Summer 2009 issue of **Missouri Resources** (<https://dnr.mo.gov/magazine/2009-summer.pdf> - "One Last Word – Paving the Way," page 25).

Don said it all started with the paver. They had a very small parking lot to develop at Ozark Caverns. The site sits above a natural area and beside a small stream that is a state outstanding waterway. They felt it would be a good pilot project to see how the pervious pavers worked. The pavers were laid and filled with an aggregate. They are still learning with this project. One lesson learned is that a square area is preferred so as to not have to cut the pavers to fit the lot. A concrete curb was poured around the parking lot to hold the pavers in place. They also used the pavers on another project at Johnson Shut-ins where there is occasional flooding. A contractor was hired to lay the pavers. They used local aggregate. They are anxious to see the results after the Park opens.

At Rock Bridge Memorial State Park they converted a park residence to an office. They received funding from a grant through the Little Bonne Femme Watershed Protection group. They purchased the pavers for the contractor. This was a bigger project. They didn't go all around the pavers with concrete on this project. A larger size of sand was used for the bedding material, which proved easier to work with and compacted better. Instead of cutting the pavers to fit the parking lot shape, concrete stabilizers or footers were poured. The site also included a rain garden to capture and process some of the roof runoff, as well as a rain barrel. Water from the rain barrel will be used for the rain garden during dry periods. An interpretive sign was installed to help explain how this all works and the benefits. All reports from the Park are that all is working really well.

A 300-ft. wall to stabilize a bank at Campground #1 at Bennett Springs State Park was another project. Instead of a concrete wall, they used "plantable" walls (called Hercules block). The blocks are layered, most voids filled with dirt, and bridged. Native plants were planted and will grow out of the unfilled voids. Course gravel

wrapped in fabric was used behind the wall. Water will go through the fabric to water the plants. Don felt this project has worked well. More maintenance is required during the early years.

Jon said they removed an old motel site and remodeled the existing campground at Bennett Springs State Park. They milled all the asphalt and reused it on-site. The cost was about the same as buying all the aggregate for bedding for all the roads and sewer and water lines. Actually there was a cost savings in that they could use it instead of hauling it off-site. This process was also used on the Route 66 State Park where a trail in the park was paved with chipseal using this material. There should be less runoff in the Bennett Springs campground areas since there is more distance and a grass area in between the sites. They also installed a settling basin. The contractor who laid the water and wastewater pipe felt the milled asphalt was the best bedding material he had worked with.

A flood went through Sam A. Baker State Park in 2002, which tore out the group camp area in campground #1 and an area around a flow berm at campground #2. To replace the areas they considered the budget and low impact and used gravel for the roadway surfaces. As an experiment, on the downstream side, they placed concrete curbs (wide as a sidewalk) to prevent the water from coming over and washing the gravel away. They used trap rock gravel, from Annapolis, Missouri, which is a black granite rock. After a recent flood event, neither campground had any damage. Trap rock was placed around the fire rings too.

Jon said the Division of State Parks has the largest number of permits in the state for water and wastewater. They have identified over \$30 million for future needs for water and wastewater infrastructure. The needs are prioritized by benefit to human health and environment. They connect to water/wastewater districts whenever possible. When they can't regionalize, they land apply lagoon effluent wherever allowed. They have been aggressively reducing the infiltration/inflow of the aging sewers, which lowers energy costs and capital costs.

They received a \$3.3 million grant with \$2.7 million match. At Roaring River State Park, they spent \$1.6 million on sewer rehab and irrigation expansion. They designed a treatment system for existing flows. Bennett Spring State Park received sewer rehabilitation (approx. \$200,000). Route 66 State Park replaced water and sewers lines (approx. \$750,000). They also did work on more than 12 other water/wastewater projects.

Through the Natural Resources Damages account, using a \$4.5 million settlement from the Taum Sauk Reservoir Collapse, they plan to do work at three state parks: at Babler State Park they will rehabilitate sewers and three lagoons (\$1.5 million); at Stockton State Park replace the lagoon in High Collapse Zone and close lagoons (\$700,000); at Montauk State Park rehabilitate the water system, add standpipe, and replace three wellhouses (\$1 million). They have one year to complete these projects, which must be done by June 30, 2009.

Source Water Protection in Missouri: An Overview and Assessment, Ken Tomlin, Water Protection Program, Public Drinking Water Branch

PowerPoint Presentation; handout: Drinking Water Protection Partner bumper sticker

Ken presented an overview of source water protection efforts in Missouri with an emphasis on the legislative/regulatory framework that exists for implementing formal source water protection activities, programs, or plans, and to provide a general assessment of the advantages and disadvantages that exist within this framework as it relates to 'on the ground' protection of source waters.

Ken explained the role of Clean Water Act of 1972 as it pertains to source water protection and ground water quality. The Safe Drinking Water Act that was amended in 1986 and again in 1996, established authority for regulation of Public Drinking Water providers and set standards and guidelines for public drinking water quality. The 1996 amendment established a foundation for a six-step process for protecting public drinking water sources. The steps include: Delineate source water areas; Inventory of potential or known contamination; Susceptibility determination; Public involvement and notice; Develop protection strategies (i.e., BMPs); and Contingency planning.

The Environmental Protection Agency is the lead agency with respect to source water protection but many others are involved. At the state level, Department of Natural Resources is the lead agency and has the role to establish guidelines and standards with which public water supplies can develop and implement local source water protection plans. The Department can also direct federal funds toward achieving this goal and toward projects that support this mission. One phase of grants is the well-plugging grant which has been very successful. The next phase will be for source water protection implementation grants. The Safe Drinking Water Act required the state to establish a federally-approved program to facilitate local voluntary wellhead protection plans by public water systems and implementation/development of local voluntary source water protection plans. The plan must be submitted by the public water system. Only public water systems can receive federal funds for source water protection activities.

One advantage of having the existing source water protection framework is that a formal program for developing and implementing source water protection plans does exist at the national and state levels. Other advantages include the existence of standardized formal programs that promote awareness within the water industry and all levels of government about source water protection and its potential benefits to communities; there are thousands of public water systems in Missouri so having a standard template can greatly facilitate participation; and the greatest advantage is that it provides a very convenient 'proving ground.' Ken also talked about some of the disadvantages. The framework cannot directly protect anyone's source water areas; it only provides avenues, guidance, and funding. It is not designed to protect non-public drinking water sources. The public water system has the largest responsibility and role for developing and implementing the source water plan, which is really a disadvantage if the system does not want to participate. Another disadvantage is that external groups or individuals that could have considerable contribution to the development of a source water protection plan are not directly involved in the process.

There is a huge responsibility placed on the public water system to provide a functional plan. Improved communication between public water systems and watershed protection and management groups would improve the quality and effectiveness of any community's source water protection plan.

Ken said in Missouri approximately five million people are served by Community Public Water Systems. Of those, approximately 6% purchase water from systems with an approved Source Water Protection Plan. This means there is a lot of work to be done. An internal workgroup has been formed to enhance coordination and collaboration between water quality issues and regulations. Some new tools have also become available. New Source Water Inventory Project maps and materials have recently become available on CARES Web site. Ken said they have also been working to streamline the information that is required to be included in an approvable plan. The Watershed Profile Tool is now available on CARES' Web site, which can provide a snapshot of information all in one place. The hope is that by having easy access to this information it can promote awareness by the public water system and local community of the larger picture and regional water quality concerns; promote awareness by those working to protect the watershed of the public water systems that operate in the region; will facilitate greater coordination and communication between these entities; and increase opportunities for collaboration.

Ken had bumper stickers available, which are used to help get the word out to support source water protection.

Well Drilling in MO - Special Areas and Requirements, Beth Marsala, Division of Geology & Land Survey PowerPoint Presentation

Beth is with the Wellhead Protection Section of the Water Protection Program. The wells they regulate protect groundwater. Well construction is regulated under two laws – Public Drinking Water Law and Water Well Drillers Act. Community wells have to be drilled according to engineering plans and specifications. Non-community wells do not necessarily need an engineer. That determination and the permitting are done through the Regional Office. Engineers use two design standards--Design Guide for Community Water Systems and Standards for Non-Community Public Water Systems.

The Water Well Drillers Act was passed in 1985. They were basically put into effect to protect the groundwater. They don't regulate the water quality but the construction standards are meant to protect that quality of water. The required minimum casing standards are based on geology. The contractors who drill wells or set pumps have to be permitted to operate in Missouri, as do contractors who put in monitoring wells and ground source heat pumps. The laws were changed in 1991 to include regulations for construction of monitoring wells, heat pump systems, and mineral exploration test holes.

The regulations protect the groundwater resources by preventing surface water or other contaminants from entering wells. The contractors are held to standards of construction when drilling wells or setting pumps. The regulations ensure that heat transfer fluids are safe; certain types of fluids cannot be used. The wells drilled to monitor conditions underground must be ensured to not threaten the groundwater. Plugging of abandoned wells is encouraged.

After a well is drill, the contractor submits a record of construction. The record is signed by the contractor certifying the construction details are accurate. The well owner also signs the record certifying the use of the well. The record is checked by staff to ensure well construction meets minimum standards. A certification number is assigned if the construction meets minimum standards. This number is then sent to the owner. This number is entered into the Department's database (includes 1987-present).

The certification means the well was drilled by the standards. If the owner has a problem, they can contact the Wellhead Protection Section. They have equipment to check for proper construction. The certification also includes information on the well construction, i.e., how much casing was used, how deep the pump was set, what the water level was at the time of drilling, etc. It does not guarantee sediment-free or bacteria-free water. The Missouri Department of Health and Senior Services is the lead agency on water quality.

The well construction regulations are based on geology of the state. Well drillers are responsible for meeting the minimum construction requirements. The certification on the well being sealed from contamination from the surface expires after three years. This can be due to ground movement or something else. So, be sure to contact the Wellhead Protection Section right away if there are problems. The regulations also delineate setback distances from contamination sources. Beth is on a workgroup with the Department of Health, who regulate the private wastewater systems, to develop consistent rules. The wellhead regulations require a 50-foot setback from septic tanks and 100 feet from a lateral field. Beth displayed a groundwater map of Missouri from the Department's Division of Geology and Land Survey, also a generalized geologic map and the water well drilling areas. She mentioned the geology map and special area maps are very similar. There are six drilling areas, 3 sensitive areas, and 4 special areas. Beth went through each of the areas and explained the requirements of each. She talked about the required depths, amount of casing requires, types of rock, and common water quality problems. Some areas require steel casing. All new wells in Special Area 2 must be tested before allowed to be used for potable purposes.

They are getting ready to open the water well regulations and are expecting negative feedback from the area drillers. She felt some areas needed larger holes and more grouting requirements.

If you have the alluvial location, lat/long, or owner's name or address, they can tell you anything about your water if it was drilled after the effective date of the rules. They can also provide assistance with well problems (whether better to use a liner or to just plug the old well and drill a new one). Their focus is always to focus on the protection of the groundwater. If groundwater is protected, then there is better quality drinking water. Owner's can also call with their location to get the well depth and amount of casing needed in order to ensure the driller's bid is accurate.

Beth said there are an estimated 500,000 unplugged, abandoned wells in Missouri. There are about 2,000 plugged per year but the majority of those are monitoring wells. Ken said they are hoping to have a second round of the grant to assist public water supplies in plugging wells in their areas. The City of Ava used this grant funding to plug 100 domestic wells in their community. Beth said there are brochures available on "Plugging Your Abandoned Well" and "Your New Water Well" and can be found at: (<http://www.dnr.mo.gov/env/wpp/wellhd/wellpub.htm>).

Agency Activities

Wayne Maresch mentioned the CSI volunteers, from the Volunteer Water Quality Monitoring Program, are going to do their first E. coli sampling in Watkins Creek next Wednesday. CSI is a four-year program. The following Saturday they will be sampling in Barry County. Wayne also mentioned the Stream Team 20th Year Anniversary celebration will be held June 13-14 in Waynesville.

Angel Kruzen said the Jack's Fork Cleanup will be on June 6; the upper Current River cleanup will be June 20. Prizes include two canoes at the Jack's Fork cleanup and a kayak at the Current River cleanup.

Greg Anderson mentioned the 604(b) and 319 Request for Proposals should be coming out soon.

Ken Tomlin said the solicitation for another round of grants should be out within the next couple of months. Grants are available to water systems. There are incentives for individuals to get their abandoned wells plugged.

Sarah Fast announced this would be her last meeting as she is retiring at the end of May. She said she appreciated everyone's help over the last couple of years.

Meeting adjourned.