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Crook County Natural Resource District RESOURCE ROUNDUP

February 2009

The Latest in Water Quality in Wyoming

In January, CCNRD hosted a meeting of landowners, elected officials, and water quality experts. Topics included the results of the CCNRD 2008 monitoring season, the setting of a TMDL (Total Maximum Daily Load) for the Belle Fourche River and Donkey Creek, and an introduction to UAAs (Use Attainability Analyses).

For those of you who could not make it, I would like to take this chance to update you on the things we discussed.

◆ Results from 2008 Monitoring Season
2008 marked the eighth year CCNRD sampled water from the Belle Fourche River and Donkey Creek. As per a request from the County Commissioners and local landowners, we also began sampling on the Little Missouri. Our primary concerns are *E. coli* bacteria, ammonium, and chloride, the pollutants for which the Belle Fourche and Donkey Creek are listed as impaired. We also test for turbidity, pH, temperature, conductivity, and total dissolved solids. This year's results from the Belle Fourche and Donkey Creek showed spikes of bacteria numbers which directly correlate with the high rainfall we experienced in May. After May and the end of the heavy rains, the numbers dropped back to normal levels. Unfortunately, the high numbers exceed WDEQ standards and, thus, complicate our efforts to get the Belle Fourche River and Donkey Creek delisted. We are petitioning WDEQ regarding this issue and hope that they will recognize that the numbers reflect excessive overland run-off, not an impaired water body.

Continued on page 2.

I would like to thank everyone who braved the snow and cold to join us! It is the input of local people that guides the District, and we appreciate the questions and comments shared at the meeting. Thanks, also, to Nephi Cole (NRCS) for attending our meeting to explain UAAs!

Stock water wildlife
escape ramps are
available!

Don't forget your tree
orders! Forms are
available at ccnrd.org
or at the office.

**ORDERS MUST BE IN
BY APRIL 4TH!**

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Mark your calendar!

Tuesday, March 3-

CCNRD Board Meeting
at 5:30 in the USDA
Conference Room

We encourage you to attend with any comments, suggestions, or questions you have!

Tuesday, March 10-

**Small Acreage
Workshop** at 5:30
in the Courthouse
Basement

Topics include: Weed
Identification/Control &
Gardening in Wyoming

Monday, March 2 -

Friday, March 6-
E-cycling Event!
Free to the public;
businesses pay \$.40/lb.

Drop-off your unwanted
electronics at Higbee's
café from 6 a.m. - 2 p.m.

◆ Monitoring, Continued

We began to monitor the Little Missouri River in May 2008. The County Commissioners asked the District to explore the issue of baseline testing and local support thereof. After meeting with landowners in the area, it was decided that CCNRD should monitor six sites and acquire baseline data on the water quality. The results showed low levels of bacteria and indicate a healthy watershed.

◆ TMDL for the Belle Fourche and Donkey Creek
The time has come for the setting of the TMDL (Total Maximum Daily Load) on all impaired water bodies, including the Belle Fourche and Donkey Creek. TMDLs are a tool of the Clean Water Act and are supposed to be set for all water bodies listed as impaired. There has been resistance to TMDLs from citizen groups and states citing questionable science, little regulation, and a lack of evidence that they effectively address pollution. In Wyoming, many people advocated postponing TMDLs where watershed plans are in place (i.e. Belle Fourche River Watershed Plan), but the courts ruled in 2007 that TMDLs must be set.

A TMDL is a document drafted by an environmental consulting firm which dictates who can put what into a water body. It is basically a pollution budget. The TMDL is the total amount of a pollutant that is allowed in a given water body each day. The point sources (i.e. city sewer) plus the non-point sources (i.e. waste from livestock or wildlife) plus a margin of safety (i.e. to account for urban growth or seasonal variability) cannot exceed the TMDL. However, there is currently absolutely no enforcement authority for TMDLs!

The Wyoming Department of Environmental Quality is currently soliciting bids from environmental consulting firms in the area. The selection process will take a few months, and CCNRD plans to be involved. The TMDL should be drafted by 2010 and after a period for public comment, will go to the Environmental Protection Agency for final approval. The TMDL then becomes a public document.

The District will keep you posted on the setting of the TMDL for the Belle Fourche River.

◆ Use Attainability Analysis

Determining whether a water body is impaired by pollution hinges on how that water is to be used. For instance, water in a public lake where families swim and fish probably needs to be cleaner than water trickling through a nearly dry creek bed on private property. Specifying an appropriate use for a given water body means taking in to consideration its physical, chemical, biological, geographical, and economic characteristics. This did not happen when Clean Water Act stated its goal as having all waters in the U.S. “fishable and swimmable”. This is not a realistic goal, as most people in Wyoming know (most water dries up by late summer!).

Realistic or not, “primary recreation” is included in the description of intended uses for most water bodies. Therefore, many water bodies are wrongly classified and thus may be wrongly listed as impaired. In other words, if people are going to swim in and possibly ingest water, it should meet certain standards; if not, then the standards need not be so stringent. Simply changing a water body’s designated use from “primary recreation” (i.e. swimming) to “secondary recreation” (i.e. wading) changes the acceptable levels of some pollutants- the number of E. coli colonies per 100 mL goes from 126 to 630— and could keep some bodies of water off the “impaired” list.

To change the designated use of a water body, a Use Attainability Analysis must be conducted. Employees from CCNRD will be attending trainings to learn about the process this spring.

The Little Missouri River is an example of a water body which might benefit from a UAA. Currently, it is classified as 2AB and all its tributaries are classified as 3B. Both these classifications contain the “primary recreation” component, meaning the streams must be clean enough for full body contact, immersion, and possible ingestion. Most people would agree that this is not an accurate description of how water in the LMR and its tributaries is used. Pursuing a change in designation through a UAA is one possibility for keeping the LMR off the WDEQ list of impaired water bodies, should landowners in the area wish to pursue this.

Crook County Natural Resource District Mission Statement
To Provide Coordinated Leadership in Resource Conservation to Assist and/or Meet the Needs of Resource Users

Recycling— It Really Makes a Difference!

*75% of our trash can be recycled

*Recycling one aluminum can saves enough energy to run a TV for three hours -- or the equivalent of a half a gallon of gasoline.

*An aluminum can that is thrown away will still be a can 500 years from now!

*A 60-watt light bulb can be run for over a day on the amount of energy saved by recycling 1 pound of steel. In one year in the United States, the recycling of steel saves enough energy to heat and light 18,000,000 homes!

*Recycling a single run of the Sunday *New York Times* would save 75,000 trees.

* The amount of wood and paper we throw away each year is enough to heat 50,000,000 homes for 20 years.

* In 1993, U.S. paper recovery saved more than 90,000,000 cubic yards of landfill space.

*Americans use 85,000,000 tons of paper a year; about 680 pounds per person.

* The average household throws away 13,000 separate pieces of paper each year. Most is packaging and junk mail.

* Americans use 2,500,000 plastic bottles every hour! Most of them are thrown away!

* Americans throw away 25,000,000 plastic beverage bottles every hour!

* Recycling plastic saves twice as much energy as burning it in an incinerator.

* Every month, we throw out enough glass bottles and jars to fill up a giant skyscraper. All of these jars are recyclable!

* The energy saved from recycling one glass bottle can run a 100-watt light bulb for four hours. It also causes 20% less air pollution and 50% less

water pollution than when a new bottle is made from raw materials.

* A modern glass bottle would take 4000 years or more to decompose -- and even longer if it's in the landfill.

* Every year, each American throws out about 1,200 pounds of organic garbage that can be composted.

*The U.S. is the #1 trash-producing country in the world at 1,609 pounds per person per year. This means that 5% of the world's people generate 40% of the world's waste.

* About one-third of an average dump is made up of packaging material!

The charts below show what is put in an average dump—Notice how much of it is recyclable!! And how much Municipal Solid Waste (MSW) we generated over almost 50 years!

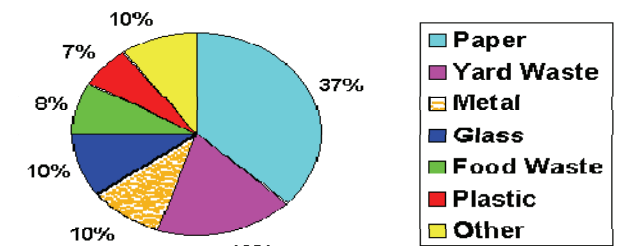
Sources: <http://members.aol.com/ramola15/funfacts.html>, <http://www.epa.gov/msw/facts.htm>

Wyoming's Solid Waste Facts – Not a Pretty Site!

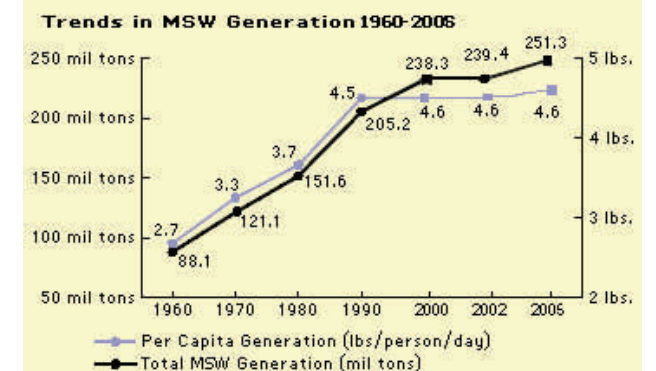
- ◆ The EPA estimates that, on average, Americans generate **4.5 pounds** of solid waste per day. About 32% of this is recycled or composted.
- ◆ The EPA estimates that, on average, Wyomingites generate **6.3 pounds** of solid waste per day. Most of this goes into our landfills.
- ◆ Only 3 of Wyoming's 51 operating landfills are designed and constructed with liners that capture and remove the pollutants that leak out of landfills.
- ◆ Wyomingites have always assumed that our semi-arid climate, abundance of fine-grained soils, and responsible operating practices would minimize environmental problems. Unfortunately, available monitoring data suggests that many unlined landfills are leaking and polluting groundwater.

Addressing the issue of how to handle solid waste is a problem everywhere, even in the open spaces of Wyoming. We can all do our part by reducing the amount of stuff we throw away and reusing or recycling as much as possible. It all adds up!

Compositon Of An Average Dump



(Paper= 37% ,Yard waste= 10% ,Metal= 10% ,Glass= 10%, Food waste= 8%, Plastic= 7%, Other= 10%)



Wildfire: Beware & Prepare



Remember—Maintain a “Defensible Space”

Crook County has grant funding through Wyoming State Forestry which is available to help you create defensible space around your home. If you require any further information, contact Jeff Garman at (307) 283-2778 or (307) 290-2237

CCNRD also has a video from Wyoming State Forestry on Defensible Space available for Crook County Residents, call the office or stop by to check it out!

Wyoming Is Talking Trash!

Changes are on the way for waste management systems in Wyoming. Population growth, aging landfills, and concern about the potential toxicity of improperly handled waste have prompted efforts aimed at the development of more economically and environmentally sustainable waste management systems. Elected officials and waste management professionals are working together, within and among communities, to find ways to meet the needs of Wyoming communities, now and in the future.

The process began in 2005 when the Governor asked a Citizen’s Advisory Group to investigate the problems caused by current solid waste management practices and to suggest solutions and improvements for the future. The group worked with the Wyoming Solid Waste and Recycling Assoc., the Wyoming Dept. of Environmental Quality, and the Joint Minerals, Business, and Economic Development Committee to prepare legislation that would help communities study waste management issues and identify safe and cost-effective solutions. In 2006, the Wyoming Legislature passed a law requiring operators of landfills to prepare 20-year integrated solid waste management plans and evaluate alternative systems that are more cost-effective and environmentally sustainable. In the process, three questions should be answered:

- 1.) What are we doing now?
- 2.) What options should we consider?
- 3.) What is the most reasonable, and how do we do it?

No changes must be implemented unless it is decided that they are reasonable, cost-effective, and in the best interests of the community affected by the changes.

The purpose of integrated solid waste management planning is to identify and evaluate a combination of waste management options that complement each other, are cost-effective, protect the environment, and fit the needs of a particular community. Waste managers and elected officials in Crook County are working together to share ideas, resources and facilities. The District hopes to support this effort by facilitating meetings and continuing to pursue grant money for projects like the recent “E-cycling Event” (see “Mark your calendar!” on page 1).

To learn more or to get involved, go to www.NortheasternWyomingISWM.com.

Rural Well Testing at CCNRD

CCNRD is still offering free water testing for rural wells and springs. We test water for the presence of *E. coli* and other coliform bacteria.

Bacteria in drinking water can be dangerous and even fatal. Wells can become contaminated with bacteria through tainted groundwater, dirty water entering the well head through flooding, etc. If you are concerned about potential *E. coli* bacteria contamination in your well or spring, samples bottles can be picked up at the CCNRD office or town halls around the County.



Early readings from the snow courses in the Black Hills are encouraging. We are currently at 125% of normal moisture levels. If this continues, it will go a long way in the recharging of springs and reservoirs throughout the county. The EQIP batching date was Feb.6, so we are busy reviewing and ranking the applications on file. If you missed this date and still want to complete a project, stop by to sign up anytime. There may be additional funds later this year. There are new requirements for AGI eligibility from the ‘08 Farm Bill. What used to be a maximum of \$2.5 million AGI has been lowered to

\$500,000 - \$1 million depending on what programs you sign up for and what percentage is farm income. It’s a little more confusing this year, but bear with us, we’ll try to explain as best we can. Your CCNRD Board has been busy evaluating the implications of the Total Maximum Daily Loads (TMDLs) currently being set for impaired streams. Wyoming attempted to use a “watershed planning” approach for the past 10 years to encourage anyone with water quality concerns to work with the Districts on a voluntary basis. This approach tries not to blame any one sector and encourages all those involved to do the right thing.

The TMDL approach will assess the responsibility of sectors or land uses based on area wide modeling. TMDLs have the Board a little concerned as the data to be used is not highly scientific. There are still funds available for agricultural improvements and older septic systems in rural areas around Moorcroft. Successful projects will decrease fecal coliform bacteria in the Belle Fourche and Donkey Creek. Anyone with questions about cost-share assistance with these or other programs please call the office at 283-2740 ext. 3 or stop by. We’ll be glad to assist any way we can. -Terry

Cost Share Program for BMPs

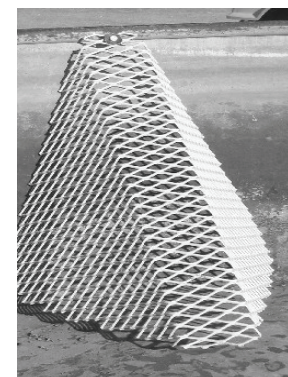
CCNRD needs more involvement in our Cost Share Program to Implement Best Management Practices (BMPs) to help remove bacteria from entering the Belle Fourche River, Donkey Creek or their tributaries. *We have funding that needs to be spent by September 2009 and want to see it put to good use!* We especially need projects above Keyhole Reservoir and in the Donkey Creek area. This is the area which is showing the highest bacteria levels and where we have had the least amount of involvement.

Project ideas include replacing or upgrading failing or malfunctioning septic systems installed prior to 1973,

relocating fencing or corrals, providing off site water, riparian habitat improvements, etc. We cost-share at a 50% rate, including in-kind time spent on the project.

Applications are accepted anytime and are reviewed anonymously by an advisory committee of Crook County landowners. While there are eligibility requirements, we have the flexibility to fund any project as long as it demonstrates the ability to remove bacteria from entering listed water bodies. If you have a project idea or want to be involved, please call the office at 283-2501.

FREE STOCK WATER TANK WILDLIFE ESCAPE RAMPS AVAILABLE!



Metal Ramp

Stock tank escape ramps prevent the drowning of birds and other wildlife. Two types of ramps are available- fiberglass and expanded metal. Both types can be used in any tank, however the fiberglass ramps may be more appropriate for a rubber tire tank. Also, if you water is corrosive, you may not want to use the metal ramps. The ramps are free (up to 3 per cooperater). Installation costs (hardware and labor) are the cooperater’s contributions to the project. The ramps are available to cooperators in Crook County due to the dedication and coordination of Lisa Shaw with the Niobrara Conservation District and the following groups who provide funding: Wyoming Wildlife and Natural Resources Trust, Wyoming Private Grazing Lands Team, local Sage Grouse Working Groups, Water for Wildlife. Come by the office to pick them up or call 283-2501.



Fiberglass Ramp

Best Management Practices for controlling bacteria from entering surface water

Livestock, wildlife and human waste contain many microorganisms such as bacteria, viruses and protozoa. Some do not cause sickness, others, however, are pathogens and are capable of causing disease in animals and/or humans. Best Management Practices (BMPs) are guidelines to reduce non-point source pollution. They are designed to protect water quality and to prevent new pollution.

In Crook County, impairments of the Belle Fourche River and Donkey Creek are a primary water pollution concern. To help address this from the level of individual landowners, CCNRD continues to offer a cost share program (see page 3). It allows for creativity and flexibility as long as a project demonstrates potential to remove bacteria from entering a listed water body or a direct tributary. We encourage anyone with a project idea to approach us. Let's get the money on the ground in Crook County before our grant expires and the funding disappears!

What can you do to reduce the potential contamination of surface and ground water from your operation or property? There are BMPs for livestock operations, septic system owners, and urban dwellers. Here is a list of some which are especially appropriate for Crook County.

BMPs for Livestock Operations:

Vegetative Filter Strips or Riparian Buffer Strips: Vegetative filter strips are very effective at removing pollutants and microorganisms. Buffer strips can be composed of woody or grassy vegetation and have

many important benefits. Plants help stabilize banks of streams, rivers, and lakes, minimizing erosion. Vegetative filters trap water-borne sediment (up to 80%) as well as fertilizer, pesticides, and other contaminants that pollute surface water (up to 40% of phosphorous and significant levels of nitrate). Bacteria and other pathogens that cause waterborne diseases in people, livestock, and wildlife are also trapped and prevented from entering surface water (up to 60% of pathogens). Vegetation also provides habitat for fish and wildlife and can prevent flooding.

Reducing Direct Access/Providing Off-Site Water:

Off-site watering areas are an effective alternative to stream fencing while improving water quality. Cows prefer drinking out of a tank to crawling down a muddy embankment. In one study, cattle drank from an off-stream water trough 92% of the time, choosing to avoid watering in the stream most of the time (Sheffield et al., 1997). For remote areas, solar and wind stock water pumps are ideal.

Keeping livestock out of live water bodies has additional benefits, such as improving animal health by reducing exposure to water-transmitted diseases and foot rot. Studies have shown that animal productivity increases by ensuring that animals have access to clean water while protecting the riparian area (Godwin and Miner, 1996).

Controlled Grazing Strategies: The majority of the research literature shows that totally excluding livestock from streams is the most

acceptable best management practice to follow. Exclusion of cows from the riparian zone is often unpopular with rotational grazers, because it is expensive and takes land out of production. However, well managed rotational grazing effectively reduces the time cows spend in riparian areas and has been demonstrated to reduce the impact in and along streams as compared to continuous grazing. If grazers actively manage livestock and limit the critical times that livestock are allowed to graze riparian areas, many detrimental effects can be minimized or eliminated. Grazing in riparian areas is best during late summer or early fall.

Catch basins: Catch basins can be used to contain contaminated water from an open lot. The water collected in catch basins can be land-applied or further treated by running through vegetative filter strips. Also, catch basins can be used to prevent runoff from permanently stockpiled manure from reaching surface water.

Diversions: Diverting runoff from corals into a hay meadow instead of allowing discharge to a creek ("dirty water diversion") can help prevent bacteria from entering surface water. You can also divert runoff from upstream sources from entering corals ("clean water diversion"), reducing the amount of water in corals and the related movement of manure and bacteria into live water bodies.



Fencing project to prevent direct access to a riparian area and provide vegetative buffer along the water body



Project that removed a water gap and provided an off-site water source in a corral

BMPs for removing bacteria..... Continued from page 4

Livestock Stream Crossing and Livestock

Exclusion: If livestock need to cross streams, controlled stream crossings can be provided to reduce pathogens entering the stream. Cover the stream bottom with coarse gravel to provide animals with firm footing, and discourage them from congregating or wallowing in the stream. Encouraging animals to drink or cross at managed points reduces the random trampling of stream banks and decreases the risk of animal injury. Dry stream crossings, where animals have no access to live water bodies, is the most effective option.



Example of a gravel-controlled crossing
Photo: http://www.marionettecounty.com/t_marionette/d/best_management_with_photos.pdf

Providing Alternative Shade: Along with off-site water, alternative shade sources can be provided to minimize animal use of riparian areas. Options for alternative shade include portable shade structures, permanent shade structures and trees. If rotational grazing is employed, portable structures may be ideal, as these structures can be moved relatively easily. Off-site water tanks can be designed using covered concrete or stone pads, providing permanent, artificial shade. Natural shade created using trees must be carefully planned, as excessive use by animals may eventually kill trees.

Urban BMPs

Septic System Maintenance/Repair

Many people in Crook County have septic systems. Some are newly installed or updated, but many are quite old and may not be functioning properly. If properly designed and maintained, a septic system can provide long-term, effective treatment of household waste water. However, failing septic systems pose risks for serious ground and/or surface water contamination. If you have a septic system, it is your responsibility to maintain and monitor it and to ensure there is not ground or surface water contamination. If you are concerned that your septic system is outdated or not properly functioning, please act immediately. Fixing or replacing a failing septic system is a BMP!

CCNRD does have some cost share funding available for septic system installed prior to 1973.

Storm Drains and Pet Waste

Like many places, Crook County has some storm drains that drain to live water bodies. Often, storm drain systems are separate from municipal sewer systems, and the water running through them is not treated. Therefore, anything on the ground could eventually end up in a water way.

Pet waste in the yard or on the sidewalk can easily end up in the storm drain, gutter or near the edge of a pond or stream. Animal fecal matter contains pathogens such as bacteria, viruses and worms which can transmit diseases to humans. You can help lessen the impact you or your pet can have on surface water by picking up after your pet and disposing of waste properly. You can also bury the waste in your yard, compost it or flush it down the toilet.

Runoff/Overland Flow:

Dealing with overland flow and runoff is an important thing to consider when thinking about ways to keep bacteria from entering listed water bodies in Crook County. How landowners manage their storm water affects not only the enjoyment of their property, but also the health of water bodies. Runoff can transport soil particles (sediment), bacteria and anything in its path to water bodies with negative effects on stream health and possibly human health.

Diverting rainwater to areas where it least impacts your activities and where it can

least affect surface water is the least expensive and most effective BMP.

Diversion of water:

Diversion to vegetated areas or into dry wells increases infiltration into the groundwater and protects surface water. Downspouts can outlet into dry wells to help water infiltrate into the ground. A dry well is a pit dug and filled with gravel and lined with weed cloth or geotextile material that keeps the soil from filling in the void spaces between the gravel.

French drains:

French drains are shallow trenches with perforated corrugated plastic pipe surrounded by gravel and covered with soil. The pipe drains water from around building drip lines (from the roof) and carries



Example of a vegetated swale
http://www.northbarrington.org/files/newsletters/Guide_Final_110404.pdf

the water to an area where the water can infiltrate safely into the ground.

Grassy Swales:

Swales are shallow, gently sloped trenches that intercept runoff and transport water away from areas of activity. Swales planted with grass slow down the runoff, facilitate infiltration of the runoff, and remove sediment. These are sometimes called infiltration trenches.

Sources: BMPs for Pathogen Control in Manure Management Systems, University of Minnesota Extension (M1211-2007), <http://ohioline.osu.edu/lb-fact/0004.html>, <http://www.ext.vt.edu/pubs/bse/442-766/442-766.html>, <http://deq.state.wy.us/wqd/watershed/Downloads/NPS%20Program/92171.pdf>