UMRSWPP POWERPOINT PRESENTATION
PROJECT OBJECTIVES TEXT

1. Calculate time of travel on the Crow River

- An understanding of the travel time of a contaminant in the Mississippi River or its tributaries is important to St. Cloud, St. Paul, and Minneapolis. In response to a contaminant release upstream of an intake, a water supplier may have to modify treatment protocol or close the intake until the contaminant has passed.

- In the previous phase of the project, a dye trace study on the Sauk River established travel times for the Sauk, and on that basis, travel times were estimated for the Elk, Rum, and Crow Rivers and Elm, Rice, and Coon Creeks. This work was carried out by the U.S. Geological Survey (USGS). The U. S. Army Corps of Engineers had earlier calculated travel times in the main stem of the Mississippi River.

- Among the major Mississippi River tributaries in the Composite Source Water Protection Area, the Crow River is distinctive, due to its geomorphology and relatively fine-textured soils. Moreover, because of the proximity of the Crow River confluence to the St. Paul and Minneapolis water intakes (17 and 21 miles upstream of their respective intakes), a contaminant release into the Crow would be of particular concern to the two water suppliers.

- The results of the Crow River dye study showed that travel times in the Crow were greater than had been previously estimated by the USGS.

- The results of this study will also be useful to the local units of government on the Crow River, as well as other downstream users of the river.

2. Identify Potential Contaminant Sources of Concern

- Because of the large size of the Source Water Protection Areas delineated by St. Cloud, St. Paul, and Minneapolis, it is necessary to establish geographic priorities within the delineated areas. Typically, these high-priority areas will have direct natural or artificial drainage pathways to a downstream intake.

- Due to the large numbers of potential contaminants and sources within the delineated Source Water Protection Areas, the water suppliers will need to identify those contaminants, and their sources, that are of highest concern to them in terms of source water protection.

- In many instances, accurate locational data are not available for certain potential contaminant sources. In these instances, efforts will have to be undertaken to determine more accurately the location of such potential contaminant sources. These efforts will likely involve collaborative work with local units of government within the source water protection areas.

- The St. Cloud-Twin Cities corridor will continue to see significant growth in the future. The land use changes associated with this growth will lead to impacts on source water quality and quantity. Water suppliers will need to work with local units of government in this area to understand the extent and nature of future growth and for these units of government to incorporate source water protection strategies in their plans.

3. Test a Protocol for Measuring Mississippi River Gains from and Losses to Ground Water

- The Composite Source Water Protection Area includes areas of shallow ground water aquifers that serve as public drinking water supplies. Certain of these aquifers may be hydraulically connected to the Mississippi River and tributaries. In these instances, contaminants may be readily transported between surface and ground water.

- Understanding where such hydraulic connections, and the potential for cross-contamination, exist would enhance source water protection and wellhead protection efforts, particularly in the event of a large contaminant release.

- In 2006, the USGS conducted a pilot project to test a procedure by which areas where the Mississippi River is discharging water to and is being recharged by ground water. This procedure required stable and low-flow conditions in the Mississippi River, conditions which existed in late-2006. Fieldwork was conducted and measurements taken, in a reach of the Mississippi River extending from Monticello to Anoka.

- Even though suitable flow conditions existed on the Mississippi River during the study period, the flow variations in the river exceeded the margin of error inherent in the measurements. These variations are attributable to the fact that the Mississippi River in this area is a large river with many users appropriating water from, discharging water to, and storing water on the river.

- A different methodology may be tested in the future to identify areas of recharge and discharge on the Mississippi River in the project area.

4. Source Water Protection Education and Outreach

- The implementation of source water protection plans will require collaboration among water suppliers, the cities they serve, local units government within their respective Source Water Protection Areas, landowners, state and federal agencies, schools, and the general public. This will require the establishment or relationships among water suppliers and those upstream organizations and individuals whose actions influence source water.

- The St. Cloud, St. Paul, and Minneapolis water suppliers will participate in specific education and outreach activities such as 1) developing curricula and materials for use by educators, 2) preparing public service announcements and press releases, and 3) participating and hosting forums to inform audiences of the need for and opportunities to advance source water protection.

- Source water protection rests largely on land use and watershed management. Therefore, local government will be prominently involved in implementing source water protection measures and practices. It will be necessary to integrate source water protection activities with water and watershed management programs, especially at the local level.

- Because source water protection is not required by law, it is important that source water protection plans be recognized and supported by local, state, and federal levels of government.

- Several communities within the Composite Source Water Protection Area rely on ground water for their public water supplies. It is important that St. Cloud, St. Paul, and Minneapolis coordinate their source water protection activities with the wellhead protection plans of these communities, in order to avoid inconsistent or conflicting practices.

5. Identify Areas of High Sedimentation Potential in the South Fork Crow River Watershed

- The Crow River contributes disproportionately high levels of total suspended solids (TSS) into the Mississippi River. In terms of TSS loading, the South Fork of the Crow is of particular concern, due to current and anticipated future land uses and fine-textured soils present in its watershed. TSS levels are of concern to water suppliers because elevated TSS levels reflect upstream erosion; many different types of contaminants are associated with the solids that are eroded.

- The primary goal of this study is to trace suspended sediment found in the South Fork of the Crow River to specific geologic source areas within the watershed. Information is currently lacking as to whether sedimentation results from agricultural field runoff or stream channel erosion.

- The Minnesota Geological Survey and the Science Museum of Minnesota are conducting this study, which includes 1) reviewing maps, photos, and other data to identify sampling locations, 2) creation of a surficial geologic map, 3) collection of surficial soil samples, and 4) radionuclide analysis of soil samples to determine the location of sediment sources.

- This study will allow the identification of those areas within the South Fork Crow River watershed that are the sources of relatively high levels of sediment loading to the Crow River. This work will complement water quality and mapping work being conducted elsewhere in the watershed. Study results will provide the basis for developing, targeting, and implementing best management practices for controlling erosion and reducing levels of TSS and associated contaminants in the Crow and Mississippi Rivers.