## SOURCE WATER PROTECTION PLAN FOR THE CITY OF ST. CLOUD, MINNESOTA



## Part II

## POTENTIAL CONTAMINANT SOURCE INVENTORY AND MANAGEMENT STRATEGY

NOVEMBER 2007

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### PUBLIC WATER SUPPLY PROFILE

#### PUBLIC WATER SUPPLY

St. Cloud Public Utilities
400 Second Street South
St. Cloud, MN 56301
320-255-7225
publicutilities@ci.stcloud.mn.us
320-650-2830

#### SOURCE WATER PROTECTION MANAGER

NAME	Lisa Vollbrecht
ADDRESS	400 Second Street South
	<u>St. Cloud, MN 56301</u>
TELEPHONE	<u>320-255-7225</u>
E-MAIL	lisa.vollbrecht@ci.stcloud.mn.us
FAX NUMBER	<u>320-650-7225</u>

#### **CONSULTANTS**

NAME	David L. Brostrom	Bayerl Water Resources
ADDRESS	2159 Berkeley Avenue	9083 State Hwy 114 SW
	St. Paul, MN 55105	Alexandria, MN 56308
TELEPHONE	651-690-0690	320-283-6127
E-MAIL	brost004@umn.edu	bayerl@runestone.net

#### **TECHNICAL ADVISORS**

NAME	<u>Mike Howe, MDH</u>	Art Persons, MDH	Chris Elvrum, Metropolitan Council
ADDRESS	<u>3400 N First St</u>	18 Woodlake Drive SE	390 N Robert St
	St. Cloud, MN 56303	Rochester, MN 55904	<u>St. Paul, MN 55101</u>
TELEPHONE	<u>320-650-1076</u>	<u>507-292-5138</u>	<u>651-602-1066</u>
E-MAIL	mike.howe@health.state.mn.us	art.persons@health.state.mn.us	christopher.elvrum@metc.state.mn.us
FAX NUMBER	<u>320-255-4264</u>	507-285-7745	<u>651-602-1130</u>

<u>Dave Neiman, MRWA</u>
217 12 <sup>th</sup> Avenue Southeast
Elbow Lake, MN 56531
<u>218-820-0595</u>
dave.neiman@mrwa.com
<u>218-825-7411</u>

<u>Charles Regan, MPCA</u> 520 Lafayette Rd N St. Paul, MN 55155 651-296-7363 charles.regan@pca.state.mn.us 612-297-7178 Douglas Hansen, MPCA 520 Lafayette Rd N St. Paul, MN 55155 651-296-9192 douglas.hansen@pca.state.mn.us 651-297-7708

#### **GENERAL INFORMATION**

NAME OF SOURCE WATER: <u>Mississippi River</u> POPULATION SERVED AND CAPACITY: St. Cloud Public Utilities: <u>68,000</u> and <u>16-MGD</u>

## **DOCUMENTATION LIST**

STEP	DATE
Scoping Meeting 2 Held (SWP Surface Intake Guidance (SIG) Chapter 6)	July 14, 2005
Scoping 2 meeting results letter received (SWP SIG Chapter 6)	August 11, 2005
Part 2 SWP Plan Submitted to Local Units of Government (LGUs) (SWP SIG Chapter 7)	
Response to Comments From Local Units of Government (SWP SIG Chapter 7)	
Public Hearing Conducted (SWP SIG Chapter 7)	
Part 2 SWP Plan Submitted (SWP SIG Chapter 7)	
Final Part 2 SWP Plan Review Received (SWP SIG Chapter 7)	
Final State Approved Part 2 SWP Plan Submitted to LGUs (SWP SIG Chapter 7)	

## ABBREVIATIONS

ACOE Army Corps	of Engineers	MPCA	MN Pollution Control Agency
BMP Best Manage	ement Practices	MRWA	MN Rural Water Association
BN Burlington No	orthern Railway	MSP	Minneapolis / St. Paul
BWC St. Paul Boar	rd of Water Commissioners	MWW	Minneapolis Water Works
BWSR Board of Wat	er and Soil Resources	NFRAP	No Further Remedial Action Planned
CERCLIS Comprehens	ive Environmental Response,	NPDES	Point Discharge
Compensatio	on & Liability System	NRCS	Natural Resources Conservation Services
CP Canadian Pa	cific Railway	OHW	Ordinary High Water Mark
<b>CROW</b> Crow River C	Organization of Water	OPS	Office of Pipeline Safety
CRP Conservation	Reserve Program	PCB	Polychlorinated Biphenyl
DNR MN Departm	ent of Natural Resources	PCSI	Potential Contaminant Source Inventory
<b>DWSMA</b> Drinking Wat	er Supply Management Area	RDN	Mississippi River Defense Network
EQIP Environment	al Quality Incentive Program	SWCD	Soil & Water Conservation District
ISTS Individual Se	wage Treatment Systems	SPRWS	St. Paul Regional Water Services
IBI Index of Biolo	ogical Integrity	SRWD	Sauk River Watershed District
LGU Local Units o	f Government	SWP	Source Water Protection
LUST Leaking Und	erground Storage Tanks	SWPA	Source Water Protection Area
LWMP Local Water	Management Plan	SWPP	Source Water Protection Plan
MDA MN Departm	ent of Agriculture	SWUDS	State Water Use Data System
MDH MN Departm	ent of Health	TMDL	Total Maximum Daily Load
MDPS MN Departm	ent of Public Safety	UMRSWPP	Upper Mississippi River SWP Project
MGD Million Gallor	ns per Day	USFWS	United States Fish and Wildlife Service
mg/L Milligrams pe	er Liter	USGS	United States Geologic Survey
MGS MN Geologic	Survey	WD	Watershed District
MN Minnesota		WCA	Wetland Conservation Act
MNDOT MN Departm	ent of Transportation	WHP	Wellhead Protection

## **EXECUTIVE SUMMARY**

The Minnesota Department of Health (MDH) was required to complete source water assessments for public water systems. This Source Water Protection Plan (SWPP) is not mandatory by the 1996 Amendments to the Safe Drinking Water Act or Minnesota State Law. The St. Cloud Public Utilities has proactively developed this Plan to protect the drinking water supply for the City of St. Cloud.

Part One of this Plan included the delineation of the Source Water Protection Area (SWPA), and the Drinking Water Supply Management Area (DWSMA). The Surface Water Intake Susceptibility and Groundwater Susceptibility are complete; the area boundaries as shown in **Figure One** were utilized to complete this document. The Scoping Document prepared by MDH (**Appendix I**), lists the required data elements that are addressed in Part Two of this Plan. Available data was utilized and where data was inadequate, strategies to verify or supplement existing information are addressed.

Part Two of this Plan addresses data elements and their assessments; impacts of changes on the public water supply; issues, problems and opportunities; sourcewater protection goals, objectives and action plans; program evaluation; and alternative water supply/contingency strategy.

The susceptibility of any surface water source is high because preventing potential contaminant releases is not possible. The Federal Safe Drinking Water Act recognizes the susceptibility of surface waters and requires filtration to remove pathogens and particulate contaminants. St. Cloud Public Utilities effectively treats the source water to meet safe drinking water standards.

The overall intent of this SWPP is to establish a basis for:

- Focusing limited resources within the community to protect the drinking water source.
- Informed decision making regarding land use within the community.
- Informed source water planning efforts for the "Source Water Protection Area".

The Source Water Protection (SWP) Team intends to proactively establish, through a USEPA Section 319 and a State of Minnesota Clean Water Partnership Grant from the Minnesota Pollution Control Agency (MPCA), protective Best Management Practices (BMP), and education and outreach within the SWPA. This Plan is intended to provide prioritization of needs to better utilize the limited dollars available to protect and improve the drinking water resource.

The Upper Mississippi River Source Water Protection Project (UMRSWPP), consisting of the Cities of St. Cloud and Minneapolis, St. Paul Regional Water Services, MDH, Minnesota Rural Water Association (MRWA), the Metropolitan Council and the MPCA has played a major role and has expended considerable resources to protect and facilitate the effective use of the region's water supplies.

The success of this Project has assisted the City of St. Cloud to reach the goal of completing

this Source Water Protection Plan.

#### **Figure One**



## St. Cloud Source Water Protection Area

## **CHAPTER ONE**

### DATA ELEMENTS AND ASSESSMENT

### I. DATA ELEMENTS

Data elements are important to understanding how environmental factors influence quality and the protection of source water. Data elements must be evaluated relative to one another and regarding contaminant source locations and land use factors.

Data elements are considered within a "time of travel" context. Time of travel and the presence of potential contaminant sources are the central delineation components for **Priority Area A**. An eight-hour time of travel was used to delineate the boundaries of **Priority Area A**. If a contaminant is released, eight hours is used to provide sufficient lead-time to maximize finished water storage and shut down water intakes. Since a contaminant spill within the **Priority Area A** will likely reach the intake in less than eight hours, an early notification system must be established.

**Priority Area B** has the capacity to cause contamination to the source water by both point and non-point sources. Preventative management will be used to address potential contaminant sources. **Figure One** 

#### A. PHYSICAL ENVIRONMENT DATA ELEMENTS

#### 1. Precipitation

A heavy rain event or snowmelt may affect the time of travel of a contaminant. The larger the magnitude of a flood event (aerial coverage and intensity), the more magnified the potential hydrologic impact and catastrophic impacts to infrastructure.

**Figure Two** shows the normal statewide annual precipitation according to the Minnesota Department of Natural Resources (DNR) Climatology office. Rainfall data



**Figure Two** 

from all counties within the SWPA are located at http://climate.umn.edu. Average annual precipitation varies within the SWPA with gradual increases from northwest to southeast.

Large amounts of precipitation over a short period of time can lead to flood events. As water accumulates in the higher elevations of the SWPA, it increases in velocity and volume. What reaches the River system is dependent on many factors including vegetative cover. Studies from agricultural settings suggest that a 15-foot wide grass buffer can achieve a 50% removal rate of nitrogen, phosphorous and sediment, and that a 100-foot buffer can reach close to 70% removal of these constituents (Desbonette et al., 1994).

Precipitation averages described in **Figure Three** can be linked to stream flow. Stream flow data for the Sauk and Mississippi Rivers are based on historic low, median and high flow data. Stream flow velocity at the time of a contaminant release can be compared to these historically derived data to calculate time of travel of a contaminant.

5t. CI	St. Cloud Monthly Precipitation Totals 2001 - 2005 (Inches) Figure Three							Inree					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2001	0.76	1.44	0.81	8.27	4.14	3.19	2.11	1.30	1.77	1.28	2.83	0.27	28.17
2002	0.28	0.91	1.51	3.37	2.06	4.92	5.12	3.59	6.67	3.56	0.11	0.22	32.32
2003	0.17	0.59	1.48	4.73	3.81	3.25	3.43	0.69	3.94	1.06	1.16	0.28	24.59
2004	0.36	0.67	1.35	1.29	6.72	3.67	3.52	1.34	5.16	3.43	0.64	0.46	28.61
2005	1.77	0.97	0.65	2.06	3.32	4.36	2.11	3.64	5.54	4.70	2.55	1.01	32.68

## Of Olaved Marthly Dreamistation Totals 2001 2005 (inchas)

#### 2. Geology

The corridor along the Mississippi River between the Cities of St. Cloud and Little Falls, which includes the areas of concern for SWP, lacks comprehensive geologic studies. This corridor is characterized by unconfined drift aquifers which are often shallow aguifers in sandy soils. Ground water in such a geologic environment has the potential to be directly connected to surface water, such as the Mississippi River and its tributaries. There is a particular need for detailed geologic information because of the rapid population growth and land use changes. It is important to note that aquifer boundaries do not match the boundaries of overlying surface watersheds.

Information from well logs is available for the entire area, but the scope and volume of the available data make it difficult to manage. Sensitivity to contamination based on soils and depth to bedrock is available statewide at http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm.

The DNR and Minnesota Geologic Survey (MGS) have combined efforts in the completion of County Geologic Atlases and Regional Hydrogeologic Assessments in Minnesota. One of these has been completed for approximately half of the SWPA and most of the Mississippi corridor. Completed assessments are available at http://www.dnr.state.mn.us/waters/groundwater section/mapping/index.html.

#### 3. Soils

Important soil characteristics include adsorption/absorption capacity, infiltration and permeability rates, and distribution patterns. Soils vary over a region due to different parent material, topography, vegetation, climate and time. County soil surveys reflect these differences. There are "detailed" soil surveys for all counties in the SWPA.

Figure Four shows the soil sequences present in the Priority Area A. The yellowcolored soils are predominantly composed of sand from top to bottom or peaty organic deposits overlying the sandy substrata. Typically, rapid infiltration rates exist in the sandy material with drainage ranging from poor to well-drained. These soils are typically found on outwash plains or river terraces.

The gray-colored soils are a mix of coarse-textured soils formed mostly in reddish till that doesn't contain a lot of clay, likely from the Lake Superior basin. Infiltration rates vary from rapid to slow, depending on landscape position and overall soil development. Some peaty units are contained in this designation. It is not as completely sandy as the yellow unit, but does not have as much clay as the green unit.

On a broad scale, the yellow area needs the most attention regarding nitrogen management or other contaminants of concern due to the reduced ability of the soils to attenuate spills, etc. This soil characteristic dominates the **Priority Area A**.

## Soil Properties within Priority Area A St. Cloud Source Water Protection Area



#### 4. Water Resources

Extensive natural surface waters are located within the SWPA. **Figure Five** lists the **Priority Area A and B** protected waters as designated by the DNR. The official DNR Protected Waters Inventory, authorized by Minnesota Statutes, section 103G, is available at http://www.dnr.state.mn.us/waters/watermgmt\_section/pwi/maps.html.

SWP Area Protected WatersFigure Five							
	<b>A</b> Lakes	Public Water Wetlands	<b>B</b> Lakes	Public Water Wetlands	Undesignated Protected Waters		
St. Cloud	11	34	332	551	76		

Public water wetlands listed are all types 3, 4 and 5 wetlands, as defined in United States Fish and Wildlife Service (USFWS) Circular No. 39 (1971 edition), that are ten or more acres in size in unincorporated areas or 2.5 or more acres in incorporated areas.

Filling of wetlands for farming or development depletes the capacity for groundwater recharge and flood and sediment control. These areas provide natural regulation of surface water runoff during times of heavy rains. They also provide habitat for waterfowl, frogs, turtles and other wetland animals.

While these wetlands are protected, numerous smaller wetlands exist and should be considered important to stormwater management in both quality and quantity of runoff during a storm event. Holding water back to allow sediment to precipitate and water to filter through the soil provides natural filtration of potential contaminants and reduces water volume reaching the water courses. The statewide National Wetlands Inventory is found on the DNR Data Deli website.

The DNR has "Lakefinder" to find the designation of an individual lake. This website contains a composite of all available data on an individual lake, such as fishery reports, water quality information, lake level data and lake designation. While it is not readily available in a useable format for this extensive area, this information can be found in local zoning departments or at http://www.dnr.state.mn.us/lakefind/index.html.

Public waters and drainage points from minor watersheds to the Mississippi River, as shown in **Figure Six**, shows overland travel of water from high to low landforms. Public drainage ditches facilitate drainage of agriculture land and/or prevent channelized erosion. The benefits verses the detriments of these drainage systems must be assessed in priority areas of the SWPA. The quality of water leaving each watershed area will prioritize mitigation by greatest potential impact.

Floodplains are areas that are likely to flood with water during a large rain event. If soils in this area are not stabilized, sediment will also be carried downstream. This area should not contain contaminated soils or any land use that would potentially have products or byproducts that are harmful to the drinking water resource.

## Surficial Hydrology within Priority Area A St. Cloud Source Water Protection Area

**Figure Six** 



#### **B. LAND USE DATA ELEMENTS**

#### 1. Land Use

The extent and accuracy of parcel mapping varies greatly by community and is not available for use in this Plan. Land use impacts on source water are evaluated based on the surrounding environment. Regarding land use, it is not necessarily the particular land use, but the specific activities associated with the land use that can result in significant impacts on source water.

Feedlots can influence source water to varying degrees depending on management practices. Manure management practices vary among feedlots; manure stockpiled on or applied to frozen ground can runoff quickly during a rapid snowmelt or heavy spring rain. Runoff can contribute nutrient, sediment and pathogen loading to area surface waters. Many pathogens including Cryptosporidium and giardia, protozoa, and other microorganisms are difficult to remove/sterilize by conventional treatment.

Nutrients, primarily in the form of nitrates, are not removed at surface water treatment facilities. Elevated levels of ammonia nitrogen in the source water can cause problems with disinfection. Accidental spills or leaks, transportation accidents or leaks, temporary stockpile leaks and improperly abandoned sites are all cause for concern for surface water suppliers.

Land use compiled from the 2001 Landsat imagery has been utilized to determine potential non-point sources of contamination. Land uses within the **Priority Area A**, **Figure Seven**, will be targeted for BMPs.

Land use in **Priority Area B** must be considered for potential non-point sources of contamination. The available data within this area, as shown in Part One of this Plan, are outdated, requiring confirmation. This land use information is based on data from http://deli.dnr.state.mn.us/data\_catalog.html. This web site also contains public land survey information. The production of a map including this information becomes illegible. Zoning and present land use information is available from LGUs and will provide the most current data. Political boundaries can be found at http://www.gis.leg.mn/.

Forms of pollution in the Mississippi River and many of its tributaries include suspended solids, nutrients, oxygen-consuming materials, metals, pathogenic microorganisms and several organic and inorganic chemical constituents. Maps and tables of the individual potential contaminant sources for each **Priority Area** are available in electronic format in **Appendix III**. Printed maps must be in a larger scale than is practical to include in this Plan.

Stormwater drainage and agricultural tiling systems are examples of how land use changes can dramatically influence contaminant transport and time of travel. Both can increase velocity from a contaminant release point to the source water. As development increases, the boundaries of **Priority Area A** will likely expand.

## Land Use within Priority Area A St. Cloud Source Water Protection Area



#### 2. Public Utility Services

Public utility maps are available in City and County offices throughout the SWPA. Water and wastewater transmission lines have negligible impact on source water quality. Storm drain outfalls to the Mississippi River and tributaries will potentially impact the quality and quantity of the drinking water source. Inventory, mapping and sampling of these outfalls is the first step toward identifying potential sources of contamination coming from the watershed.

Public drainage systems have been created throughout the State to provide movement of water from poorly drained or eroding soils to tributaries and directly to the River. It is important to identify these systems within the SWPA as they contribute to the nutrient load. Management practices such as buffers and/or sedimentation basins will mitigate the impact.

Ground transportation corridors provide a potential source of contamination due to accidental spills and discharges. Interstate 94 and Highway 10 parallel the Mississippi River for much of its length in the SWPA. Both the Burlington Northern (BN) and the Canadian Pacific (CP) Railways are within the areas of protection as well as underground pipelines. The Minnesota Department of Transportation (MNDOT), BN, CP, the Office of Pipeline Safety (OPS) and the Cities located within the SWP area have plans for mitigation of possible spills.

The Mississippi River Defense Network (RDN) included an inventory of potential oil and chemical spill sources within one-half mile of the Mississippi and near the lower reaches of certain tributaries between the Mississippi River headwaters and St. Anthony Falls. Within this corridor more than 3,300 potential spill sources were identified including pipeline, highway, railroad/river crossings and parallels, aboveand below-ground petroleum and chemical storage tanks, agricultural chemical storage facilities and hazardous waste storage facilities.

#### **C. WATER QUANTITY DATA ELEMENTS**

#### 1. Surface Water Quantity

The time of travel information supplied below is an excerpt from Part One of the SWP Plan and has been completed by the USGS and/or the Army Corps of Engineers (ACOE). USGS gauging stations have been mapped in Part One of the Plan. Complete information is included in the Appendix of Part One and gauging station information is available at http://waterdata.usgs.gov/mn/nwis/rt.

Water Appropriation Permits are required for use of surface water in excess of 10,000 gallons per day or one million gallons per year. The DNR is the permitting authority. A listing of uses, sources and permitted amounts are on the DNR website at http://files.dnr.state.mn.us/waters/watermgmt\_section/appropriations/idxloc.pdf. They are also listed by County in **Appendix IV**. There are no known water use conflicts.

Time of travel considerations are related to a single contaminant release and the duration it will take the contaminant to reach the source water intake. River miles

noted refer to the point upstream of an intake where a contaminant release would require eight hours to reach the water intake under low, medium or high-flow conditions. For example, a contaminant release 7.6 miles upstream of the St. Cloud intake would take eight hours to reach the intake station during high-flow conditions.

Eight-hour time of travel locations upstream of the St. Cloud intake:

<u>High flows</u> :	River Mile 936.00
Medium flows:	River Mile 933.35
Low flows:	River Mile 932.67

Time of travel from the Sauk River confluence with the Mississippi River to the St. Cloud intake:

High flows:	55 minutes
Medium flows:	2 hours 29 minutes
Low flows:	4 hours 50 minutes

The USGS estimated time of travel to the Mississippi River confluence from selected locations on the Sauk River. A list of these locations, by tributary and the estimated time of travel for the leading edge of a contaminant plume from each location are:

Sauk River	<u>High flows</u>	<u>Medium flows</u>	Low flows
County Road 1	0.03 hr	0.04 hr	0.1 hr
Veterans Drive	2.01 hrs	2.51 hrs	6.79 hrs
County Road 121	5.10 hrs	6.33 hrs	16.84 hrs
Interstate 94 Bridge	5.69 hrs	7.07 hrs	18.75 hrs
County Road 139 (Rockville)	8.56 hrs	10.62 hrs	27.89 hrs

#### 2. Groundwater Quantity

Due to the limited data on hydraulic connections between surface water and ground water, it is difficult to estimate the effect of groundwater use on availability of surface water.

The number of high capacity wells located within the SWPA is too large to include in this Plan. The highest use of groundwater is agricultural irrigation. Permits are required for use of groundwater in excess of 10,000 gallons per day or one million gallons per year. The permitting authority is the DNR and a listing of uses, sources and permitted amounts can be found in Appendix IV and at

http://files.dnr.state.mn.us/waters/watermgmt\_section/appropriations/idxloc.pdf.

#### **D. WATER QUALITY DATA ELEMENTS**

### **1. Surface Water Quality**

Surface water quality data can indicate areas that show a persistent impairment or where human activity has increased contaminant loading. If these areas fall within or near a SWPA, they can indicate that future problems could arise as activity increases. The MPCA evaluates surface water quality using the Clean Water Act goals of "fishable and swimmable"; drinking water use is not addressed.

The MPCA prepares a list of waters (lakes and river reaches) that are impaired by one or more constituents. These constituents relate to the Clean Water Act goals of "fishable" or "swimmable"; they do not relate to drinking water standards. However, certain constituents such as fecal coliform or turbidity are a concern from a drinking water perspective. Figure Eight is derived from the 2006 draft Total Maximum Daily Load (TMDL) list found on the MPCA website at

http://www.pca.state.mn.us/water/tmdl.index.html. Investigations of possible sources of contamination associated with the impairment may fall outside the delineated SWPA.



#### 2. Groundwater Quality

Geology is important in terms of interaction between groundwater and surface water. It is important to note that aquifer boundaries do not match the boundaries of overlying surface watersheds. Generally, ground water discharges to surface water.

The corridor along the Mississippi River between the Cities of St. Cloud and Little Falls lacks comprehensive geologic studies. In addition, this corridor is characterized by unconfined drift aquifers, which are often shallow aquifers in sandy soils. Ground water in such an environment has the potential to be more directly connected to surface water. Limited data is available within the SWPA regarding specific locations where surface waters are recharged by or discharge to groundwater. There is a particular need for such detailed geologic information because of the rapid population growth and land use changes taking place within this corridor.

Groundwater quality can vary dramatically both horizontally and vertically. If groundwater in alluvial, shallow aquifers adjacent to a SWPA is contaminated, it suggests that the aquifer is sensitive to pollution. Many alluvial aquifers exist within several miles of the Mississippi River. If the aquifer contributes or could contribute significant amounts of water to the surface water body, then indirectly, the surface water body would be sensitive to pollution via subsurface pathways.

\*\*Due to the limited data on hydraulic connections between surface and groundwater, all streams and waterways should be considered as gaining from ground water under normal climatic conditions until proven otherwise. This lack of detailed data on interaction between surface water and ground water represents an informational need that should be addressed. The acquisition of this additional information is an important future management strategy of this SWP Plan.

### **II. ASSESSMENT OF DATA ELEMENTS**

#### A. USE OF THE SURFACE INTAKE

The St. Cloud Water Utility draws an average of 7.25 million gallons per day (MGD) from the Mississippi River, serving a population of 68,000.

#### **B.** QUALITY/QUANTITY OF WATER SUPPLY AT THE SURFACE INTAKE

Typical Mississippi River flow is approximately 3.9 billion gallons per day. At present, **Priority Area A** has known fecal coliform and PCB impairments on several reaches of the Sauk River. While the quality of source water varies depending on rainfall, time of year and other factors such as land use, the City of St. Cloud meets or exceeds drinking water standards. The most recent Consumer Confidence Report for is available in **Appendix V**.

## C. THE LAND AND WATER USES IN THE DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA)

Management Strategies to improve the quality of runoff to the river, along with actions to prevent contamination from accidental spills, are a high priority in the **Priority Area A**. Proactive management of agricultural feedlots and stormwater runoff are included as part of the Management Strategies in Chapter Six.

## **CHAPTER TWO**

## POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) AND PRIORITIES

## I. DESCRIPTION OF HOW THE PCSI WAS CONDUCTED

A preliminary listing of the known potential contaminants was supplied to the SWP Team by the MDH and was based on Federal and State permit information. Location of contaminants could be accurate within several thousand feet. Gross maps and data base files of the contaminants are electronically available in Appendix III and must be evaluated for accuracy and refined in both the **Priority Areas A and B**.

### II. SUMMARY OF PCSI

The potential contaminants listed in **Priority Area A and B**, **Figure Nine**, must be evaluated according to their proximity to the source water, the ability of the soils to assimilate contaminants and known data about the impact. All contaminants within the SWPA must be assessed for potential contamination and prioritized for mitigation.

Potential Contaminant Source Inventory Totals		Figure Nine
	Source Water Protection Area	
Priority Areas	$\underline{\underline{B}}$	B
Above Ground Storage Tanks	118	355
Agricultural Chemicals	106	421
Animal Feedlot Permit	9	1055
Delisted Permanent List of Priorities	1	5
Dump	7	65
Hazardous Waste Generator Investigative Clean-up	2	5
Hazardous Waste Generator Permit	557	1079
Leaky Underground Storage Tanks	138	418
NPDES	7	60
Registered Storage Tank Permit	253	807
Solid Waste Permit Site	12	28
Underground Storage Tanks	693	1958
Vehicle Salvage Yards	8	25
CERCLIS Sites	0	0
Federal Superfund Sites	1	1
NFRAP Sites	8	15
State Superfund Sites	3	3
Transportation Crossings	29	465

Non-point land uses within the **Priority Area B** such as agriculture pasture and cropland, septic systems, development and stormwater must be assessed for potential contamination. The best available data for this determination are the land use maps and the PCSI.

### **III. IDENTIFICATION OF CONTAMINANTS OF CONCERN**

It is necessary to establish geographic and contaminant priorities to effectively manage the contaminants that pose the greatest risk to public water supplies.

The contaminants listed in the Environmental Protection Agency's "National Primary Drinking Water Standards" are a concern to all public water suppliers. St. Cloud has identified contaminant priorities on the basis of:

- 1. High levels of the contaminant in the source water,
- 2. Limitations of water treatment technologies,
- 3. Contaminant concentrations that could contribute to the creation of disinfection byproducts,
- 4. Lack of monitoring data, and
- 5. Lack of knowledge regarding contaminants, sources or health effects.

The contaminants of greatest concern to the City of St. Cloud are listed below. <u>The listing is</u> not ranked by priority.

- Total suspended solids, sediment and suspended organics
- Cryptosporidium
- Biological and microbiological organisms, such as fecal coliform, giardia and viruses
- Nutrients, including phosphorus, nitrates and ammonia
- Pesticides
- Petroleum products
- Organic solvents
- Pharmaceuticals
- Endocrine-disrupting chemicals

## **IV. PRIORITIZATION OF SOURCES**

After identifying the contaminants of concern, the SWP Team investigated both point and non-point uses within the DWSMA, with focus on the **Priority Area A**. Potential sources of these contaminants were then determined. These potential sources were assessed by their ability to influence the surface water intakes and prioritized for implementation strategies as follows:

#### High Priority Sources: "Known Contaminants"

- Improper Manure Management/Storage Sights.
- Known Stormwater Discharge Sites.
- Cropland Sediment Runoff.
- Streambank Erosion.
- Transportation Corridors.
- Hazardous Waste Clean Up Sites.
- Failing Septic Systems.
- Leaking Underground Storage Tanks.

#### Medium Priority Sources: "Potential Contaminants"

- Gravel and Mining.
- Residential Lawn Management.
- Above Ground Storage Tanks.
- Agriculture Chemical and Pesticide Applicators.
- NPDES permits.
- Underground Storage Tanks.
- Vehicle Salvage Yards.

#### Low Priority Sources: "Permitted and Regulated"

- Wells.
- Permitted Feedlots.
- Permitted Hazardous Waste Generators.
- Permitted Registered Storage Tanks.
- Permitted Solid Waste Sites.

### V. DESCRIPTION OF POTENTIAL CONTAMINANT SOURCES THAT MAY NEED FURTHER INVESTIGATION FOR PLAN IMPLEMENTATION

Potential contaminant sources identified within the **Priority Area B** need to be assessed to determine their capacity to enter the River system and influence the quality of drinking water. Each minor watershed should be reviewed for the potential contaminant sources from land use practices and the feasibility of conveyance to the Mississippi River.

Within **Priority Area A**, feedlot assessments must be completed and reviewed for potential impact. Leaky Underground Storage Tanks (LUST) should be mapped over a soils layer to determine the potential for groundwater contamination and assessed for the potential to enter the River. Stormwater outfalls need to be tested to determine watershed areas of concern and potential contaminant transport.

## CHAPTER THREE

### IMPACT OF CHANGES ON PUBLIC WATER SUPPLY INTAKE

### I. CHANGES IDENTIFIED IN THE SOURCE WATER PROTECTION AREA

#### **A. PHYSICAL ENVIRONMENT**

#### 1. Precipitation

An increase in the percentage of water vapor content will shift the type of weather from dry to humid resulting in an increase of rainfall intensity and quantity. This may have significant impacts on wetlands and other physical features. Erosion of marginally vegetated soils and utilizing wetlands beyond the natural capacity will minimize the benefits of the storage and filtration capacity.

#### 2. Geology

The corridor between St. Cloud and Little Falls is developing into residential homes. Expected changes include the land grading and additional drinking water wells. Areas with little protection to the aquifer should be designated as sensitive to development pressures.

#### 3. Soils

The soils within the SWPA will not change, however land use is expected to change. As residential populations increase, so does the potential need for services such as underground storage tanks for gasoline and other amenities.

#### 4. Water Resources

As development increases, there will be a decrease in natural wetlands and an increase in retention basins. Individual lakes can show development impacts from increases in impervious surfaces and sedimentation from vegetation removal and alteration of natural shorelines. Installing buffers along water courses and tributaries would impact the River in a positive way.

#### **B. LAND USE**

#### 1. Land Use

Urban development is rapid in the DWSMA; development is occurring in rural areas. This will result in the establishment and/or expansion of water and wastewater systems.

A large feedlot within runoff proximity could present direct impacts to the drinking water resource. Management of size and/or location of feedlots within the SWPA will mitigate potential contamination issues and are important to the protection of the source water.

#### 2. Public Utility Services

The increase of public utilities is inevitable with the predicted rise in residential development. Water, wastewater and transportation corridors will need to

accommodate this growth. Stormwater must be managed so no further impact to the River will occur.

#### **C. SURFACE WATER**

#### 1. Quality

Surface water throughout the SWPA shows the results of human impacts to quality due to total suspended solids and other undesirable contaminants. Lakes have been showing gradual degradation regarding clarity and algae production.

#### 2. Quantity

The anticipated changes in quantity of the surface waters are somewhat unknown. If predictions of increased rainfall are true, it will increase the quantity in the river system and recharge to the aquifer.

#### **D. GROUNDWATER**

#### 1. Quality

Mitigation of potential sources of contamination will help maintain the good quality of this resource.

#### 2. Quantity

Changes in groundwater quantity are not anticipated. High-capacity wells located within the alluvial soils bordering the River will be inventoried and monitored for potential impact. Cooperation with the DNR regarding new applications within this area will be pursued and input offered.

#### **II. IMPACT OF CHANGES**

#### A. EXPECTED CHANGES IN WATER USE

The water production for the City of St. Cloud has increased an average of 3.4% in the past 10 years. This trend is expected to continue. The St. Cloud area has experienced an increase in population that is comparable to the water production increase. An expansion of the existing water treatment facility is expected by 2010.

## **B.** INFLUENCE OF EXISTING WATER AND LAND GOVERNMENT PROGRAMS AND REGULATION

The quality of source water is directly impacted by existing water, land and government programs and regulations. The Mississippi River and the tributaries draining to it are regulated locally based on floodplain and shoreland regulation standards outlined in Minnesota Rules, Chapter 6120. Cities and Counties enforce these protective rules through zoning. Soil and Water Conservation District (SWCD) and the Natural Resources Conservation Service (NRCS) work with landowners to implement the Conservation Reserve Program (CRP) and other set-aside programs that are important to provide a buffer between the waterways and the use of the land. The Conservation Reserve Enhancement Program (CREP) adds additional incentives for land preservation. Another important protective regulation is the Wetland Conservation Act (WCA). This program is responsible for minimizing and mitigating wetland destruction.

Watershed Districts (WDs) have programs to provide both financial and technical assistance to property owners regarding best management practices (BMPs). Monitoring programs provide data on the impacts of land use and their strategic plans have goals common to this Plan. Support for existing programs will help implementation of management strategies outlined in Chapter Six.

The St. Cloud Water Treatment Facility staff uses a group of industries, area Cities and other groups as a network for responses to intake threats. The cities that border the River to the north of St. Cloud are responsive to requests for early warning of any known threats that may be coming down river to the intake.

#### C. ADMINISTRATIVE, TECHNICAL AND FINANCIAL CONSIDERATIONS

The City of St. Cloud's intention is to implement this Plan. The resources available to continue this project are expected to continue. The City of St. Cloud intends to continue to work with the UMRSWPP and explore necessary means to find additional funding resources.

The Cities of St. Cloud, Minneapolis and the St. Paul Board of Water Commissioners have put forth a cooperative effort to support SWP. A SWP Team has been formed and is actively involved in the planning process. Commitments to continue efforts in implementation of this Plan have been made by the three communities.

The three public utilities involved, the Metropolitan Council, USGS, DNR, MRWA, MDH, MPCA, USGS and the ACOE provided technical assistance for this Plan. The Upper Mississippi River Source Water Protection Project Coordinator provided facilitation, grant writing and documentation.

## **CHAPTER FOUR**

## **ISSUES, PROBLEMS AND OPPORTUNITIES**

### I. LAND USE ISSUES, PROBLEMS AND OPPORTUNITIES

#### A. SOURCE WATER

Contamination of land within runoff proximity can lead to source water contamination. Contaminants contained in sediments can enter the river system during high rainfall events through erosion. The source water system is vulnerable to contamination from land use issues.

Opportunities resulting from this determination include establishment of educational programs on BMPs, outreach assistance to property owners in the form of set-aside programs, cost-share for BMPs, proper disposal assistance for hazardous waste and regulatory enforcement. These actions will be completed with cooperation of local government officials and programs.

#### **B. GROUND WATER**

The areas of concern for contamination from land use practices are located adjacent to the Mississippi River in the sandy, alluvial soils. This includes most of the priority areas. This presents the opportunity to further study the connectivity between the soils and the Mississippi River. Local Government Units (LGUs) are a resource for collaboration on the permitted land uses within this area and possible requirements for mitigation with the permits.

Geographic areas where aquifers serving as public water supplies are close to surface waters have the potential to be hydraulically connected with one another and provide a transport mechanism for cross-contamination in one or both directions. Understanding where such hydraulic connections and the potentials for cross-contamination would enhance source water protection and wellhead protection efforts, particularly in the event of a large contaminant release.

The areas where surface waters and aquifers are hydraulically connected should be identified and mapped. In such areas, contaminants can be transported from ground water to surface water or surface water to ground water. Depending on surficial flow conditions, transport can be in both directions, in the same area, at different times. Pumping from an aquifer can intensify this flow mechanism and contaminant transport. It is important to inventory and manage potential sources of point and non-point contaminants that could enter surface and ground water in areas where hydraulic connection could provide a mechanism of cross-contamination of a surface or ground water that is a source water supply. There has been one unsuccessful attempt to obtain this information; the City will proceed to gather this information if it can be obtained in a cost-effective manner.

#### C. THE DRINKING WATER SUPPLY MANAGEMENT AREA

The Drinking Water Supply Management Area / Source Water Protection Area is separated into **Priority Area A** and **Priority Area B**. The **Priority Area A** is within an eight-hour time-of-travel from the City of St. Cloud intake station. The **Priority Area B** provides a conduit to the source water intake but is further than eight hours away.

It is difficult to produce a PCSI map that is valuable because of the size of the DWSMA and the numerous potential contaminants. Data management opportunities include breaking the data into manageable areas, starting with the highest potential contamination areas.

Also related to the large area are the numerous governing agencies within the DWSMA. Establishing a working relationship with the watershed groups and other LGUs within the SWPA presents an opportunity to share expertise and funding for common priorities.

At present, the largest potential impact to the DWSMA is agriculture runoff. Stormwater runoff from developed, unvegetated land and/or from pavements is also a concern.

Studying sedimentation processes will help to establish effective controls. Controlling the volume of sediment that enters the River will positively impact the water quality. Requiring NPDES permits for future development and managing runoff without impacting the River will be a challenge.

#### **II. IDENTIFICATION OF:**

## A. PROBLEMS AND OPPORTUNITIES DISCLOSED AT PUBLIC MEETING AND IN WRITTEN COMMENT

The public has expressed no concerns at public meetings. Issues identified at the SWP Team meetings include education, agriculture impacts and sedimentation.

#### **B. DATA ELEMENTS**

The State's Source Water Protection Guidance Document requires that existing information be utilized in developing the initial Source Water Protection Plan. Most of the data collected and utilized to delineate the SWPA, DWSMA and determine vulnerability of the surface intake, comes from regional sources.

This Plan will be updated in ten-year intervals as recommended by MDH. Updated data will be utilized at that time.

#### C. STATUS AND ADEQUACY OF OFFICIAL CONTROLS, PLANS AND OTHER LOCAL, STATE AND FEDERAL PROGRAMS ON WATER USE AND LAND USE

The SWP Team feels adequate protection of the SWPA is available through existing land use ordinances in the cities, counties and other local control authorities. Programs available for landowners to control detrimental land use practices are available. Identification of problem sites and education of the landowner is the preferred method of mitigation.

Important to the implementation of the SWPP is the development of a collaborative partnership with local, state and federal entities so that source water protection can be promoted in their programs. The City will be vigilant to observe the activities that are occurring in the source water protection area. As opportunities arise, the City will review and comment on permits and environmental reviews from a source water protection perspective.

## **CHAPTER FIVE**

## SURFACE WATER INTAKE PROTECTION GOALS

### I. GOALS

#### THE OVERALL GOAL OF THE SOURCE WATER PROTECTION PLAN IS TO:

Promote public health, protect the environment, encourage economic development, manage community infrastructure and reduce current drinking water treatment costs by improving the quality of source waters and maintaining a potable drinking water supply at a reasonable cost for all residents of the community, now and in the future.

#### IN ADDITION THE CITY WILL:

Promote and support the communication and working relationships developed through this planning process between the Cities of Minneapolis and St. Paul.

#### IN ADDITION THE CITY WILL:

Promote and support communication and working relationships between the Cities of Minneapolis and St. Paul and other LGUs, public water suppliers, watershed districts, water management organizations, joint powers boards and Soil and Water Conservation Districts within the Mississippi River SWPA.

IN ADDITION THE CITY WILL:

Actively support public and consumer understanding of and involvement in managing land uses within the Mississippi River watersheds and protecting Mississippi River drinking water intakes.

### II. THE SOURCE WATER PROTECTION PLAN WILL ACHIEVE THESE GOALS THROUGH:

- Public education programs
- Dissemination of appropriate and timely information
- Coordination with other surface water protection efforts
- Emergency response procedures
- Implementation of BMPs for all identified categories of potential contaminant sources
- Enhancement, including financial support, of other local drinking water protection efforts
- Data collection and analysis

## **CHAPTER SIX**

### **OBJECTIVES AND PLANS OF ACTION**

### I. ESTABLISHING PRIORITIES

The core of this SWP Plan is the identification and implementation of effective contaminant source management strategies that will protect the public water supply intake from potential contamination. These management strategies range from non-regulatory activities, such as public education, to regulatory activities such as adoption of new ordinances. Both point and non-point source contamination management will be the focus in **Priority Area A**. The focus of **Priority Area B** will be primarily non-point sources with attention to pertinent point sources such as NPDES and known impact areas. This will be further explored and refined during the implementation process.

The management strategies listed in this chapter have been prioritized based on the following factors:

- 1. Knowledge of contamination of the public water supply intake;
- 2. Types and quantities of the potential contamination sources;
- 3. Location of the potential contaminant source in relation to the intake;
- 4. Capability of the source water to attenuate or dilute a contaminant;
- 5. Capability of the geologic material in the SWPA to absorb a contaminant;
- 6. Existence and effectiveness of existing official controls;
- 7. Time required to obtain cooperation; and
- 8. Administrative, legal, technical and financial resources needed.

Based upon these factors, the availability of resources and the priorities determined in Chapter Five of this Plan, the SWP Planning Team will concentrate management efforts on the following categories and subsequent strategies to create awareness of source water protection and help prevent future contamination of the drinking water resource.

- SWP Education & Awareness
- Urban Stormwater Management
- Agriculture Management
- Transportation Corridor & Spills
- Commercial & Industrial Management Practices
- Well and ISTS Management
- Data Collection and Analysis
- Administration

### II. MANAGEMENT STRATEGIES

#### A. SWP EDUCATION AND AWARENESS MANAGEMENT PRACTICES

OBJECTIVE A-1: CREATE A PUBLIC AWARENESS CAMPAIGN INVOLVING THE SWP AREA AND PROTECTION OF THE DRINKING WATER RESOURCE.

MEASURE A-1-1: Assist with development and maintenance of the UMRSWPP web site to provide updates of current activities and archive applicable documents and data.

Source of Action:	City of St. Cloud
Cooperators:	MRWA, UMRSWPP
Timeline:	2008 - 2010
Estimated Cost:	\$5,000 (In-kind)
Goal Achieved:	Disseminate information on general SWP and the UMRSWPP project and provide a venue for questions from LGUs and public.

## MEASURE A-1-2: Establish an electronic newsletter to send to local governments and public contacts of pertinent interests.

Source of Action:	City of St. Cloud
Cooperators:	MRWA, UMRSWPP, Stearns County SWCD
Time Frame:	2008 - 2010
Estimated Cost:	\$6,000 (Grant, Cash and In-kind)
Goal Achieved:	Disseminate information on general SWP and the UMRSWPP project and provide venue for guestions from LGUs and public.

MEASURE A-1-3: Conduct an annual or semiannual workshop to provide information on UMRSWPP content to discuss issues that are common to SWP and local governments and to update local officials on SWP accomplishments.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MRWA, MDH, LGU, WD, Stearns County SWCD
Timeline:	2008 - 2016
Estimated Cost:	\$6,000 (Grant, Cash and In-kind)
Goal Achieved:	Local government "buy-in" with UMRSWPP and local participation in workshop; potential technical and financial

assistance with meeting the project goals.

# MEASURE A-1-4: Establish educational fact sheets, poster displays, flyers, radio and television ads as appropriate to get the message to users of the watersheds in the SWPA.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MRWA, CMWEA, MDH, LGU, WD, Stearns County SWCD
Time Frame:	2008 - 2010
Estimated Cost:	\$25,000 (Grant, Cash and In-kind)
Goal Achieved:	Establish a better understanding of the SWPA and the need to protect it. Develop a cause / effect relationship between land use and the quality of the drinking water resource.

MEASURE A-1-5:	Participate as a sponsor of	or co-sponsor of	educational activities
	(water festivals, environm	ental fairs, count	ty fairs, etc.) in the
	protection area.		

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, CMWEA, LGUs, WDs, MRWA, MDH, Stearns County SWCD
Timeline:	2008 and on-going
Estimated Cost:	\$12,000 (In-kind)
Goal Achieved:	Public visibility of the project and establishes a better understanding of the SWP area and the need to protect it. Develop a cause / effect relationship between land use and the

quality of the drinking water resource.

#### **B. URBAN STORMWATER MANAGEMENT PRACTICES**

**OBJECTIVE B-1: DEVELOP WORKING RELATIONSHIPS WITH COMMUNITIES REGARDING** STORMWATER MANAGEMENT IN HIGH PRIORITY AREAS.

MEASURE B-1-1: Support stormwater management plans in SWP areas, providing education and recommendations for inclusion of SWP strategies.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, CMWEA, MPCA, MRWA, MDH, Stearns County SWCD
Timeline:	2008 - 2016
Estimated Cost:	\$10,000 (Grant, Cash and In-kind)
Goal Achieved:	Communities will consider the land use / drinking water resource connection during plan development, allowing the City of St. Cloud and UMRSWPP the opportunity to provide expertise and funding for management strategies.

MEASURE B-1-2: Determine which potential contaminants need detailed inventory within Priority Area A by assessing geographic boundaries and land use patterns.

Source of Action:	City of St. Cloud
Cooperators:	LGU, SWCD, MPCA, NRCS
Timeline:	2008 - 2009
Estimated Cost:	\$30,000 (Grant, Cash and In-kind)
Goal Achieved:	Inventory of potential contaminants will be limited to the highest impact to the drinking water resource.

MEASURE B-1-3: Develop a protocol to complete a detailed contaminant source inventory for the contaminants of concern.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, LGU, SWCD, MPCA, NRCS
Timeline:	2009
Estimated Cost:	\$10,000 (Grant, Cash and In-kind)
Goal Achieved:	Inventory of potential contaminants will be limited to the highest impact to the drinking water resource.

#### MEASURE B-1-4: Complete detailed contaminant source inventory as determined.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, LGU, SWCD, MPCA, NRCS
Timeline:	2009 - 20011
Estimated Cost:	\$30,000 (Grant, Cash and In-kind)
Goal Achieved:	Inventory of potential contaminants will be limited to the highest impact to the drinking water resource.

MEASURE B-1-5: Map existing NPDES permit sites and assess discharge parameters, proximity to intake and potential for influence.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, UMRSWPP
Timeline:	2008 - 2011
Estimated Cost:	\$4,000 (Grant, In-kind)
Goal Achieved:	Permitted NPDES sites will be either eliminated from the list of potential contaminant concerns or addressed as a new management strategy.

## MEASURE B-1-6: Map and GPS all storm water outfalls on the Mississippi River and major tributaries within Priority Area A.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MPCA, DNR, LGU
Timeline:	2009 - 2011
Estimated Cost:	\$20,000 (In-kind)
Goal Achieved:	Direct potential contributors to the River system will be identified.

MEASURE B-1-7: Map and GPS all private and public drainage ditch outfalls within Priority Area A.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MPCA, DNR, LGU
Timeline:	2009 - 2011
Estimated Cost:	\$20,000 (In-kind)
Goal Achieved:	Direct potential contributors to the River system will be identified.

MEASURE B-1-8: Gather information on storm-shed for storm outfalls and ditch outfalls within areas of concern.

Source of Action:	City of St. Cloud
Cooperators:	DNR, MPCA, LGU
Timeline:	2010 - 2011
Estimated Cost:	In-kind staff time
Goal Achieved:	Quantification of potential impact will be made possible by understanding the monitoring data gathered and the volume associated with it.

# MEASURE B-1-9: Develop a monitoring protocol to establish a characterization of contaminant contribution due to stormwater outfalls and drainage ditch outfalls.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, USGS, MDH, DNR
Timeline:	2011
Estimated Cost:	In-kind staff time
Goal Achieved:	Missing data will be collected to assist in decision-making strategies regarding prioritization.

#### **OBJECTIVE B-2: REDUCE SEDIMENT FROM STREAMBANK EROSION.**

MEASURE B-2-1: Develop an agreement with the SRWD to inventory and map areas that need buffers to reduce sediment loading.

Source of Action:	City of St. Cloud
Cooperators:	SWCD, SRWD, NRCS, BWSR, landowners
Timeline:	2009 - 2010
Estimated Cost:	In-kind staff time
Goal Achieved:	Areas of erosion will be analyzed for their capacity to produce sediment and the likelihood of that sediment entering the River.

## MEASURE B-2-2: Promote continuous CRP signup for buffers along priority streams, ditches and wetlands.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, CMWEA, SWCD, NRCS, LGU, WD
Time Frame:	2009 and on going
Estimated Cost:	In-kind staff time
Goal Achieved:	Highly erodible lands will maintain cover, reducing sediment run- off; decreasing turbidity and suspension of nutrients.

# MEASURE B-2-3: Establish a mechanism and provide supplemental funding to existing programs to establish grass buffer strips in areas identified as high priority in the watersheds.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, CMWEA, SWCD, SRWD, NRCS, BWSR, landowners
Timeline:	2009 - 2011
Estimated Cost:	\$100,000 per year for three years
Goal Achieved:	Sediment reduction from buffers will decrease the TSS within the River system.

OBJECTIVE B-3: LAND OWNERS WITHIN THE PRIORITY AREAS WILL UNDERSTAND THE POTENTIAL IMPACT OF TURF MANAGEMENT TO THE RIVER SYSTEM.

MEASURE B-3-1: Send turf management educational information to land owners located within the riparian areas of the SWP Area.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MRWA, MDH, landowners, Stearns County SWCD

Timeline:	Every two years, starting in 2008
Estimated Cost:	\$4,000
Goal Achieved:	Land owners within the SWP Area will have a better understanding of source water protection and the connection between land use and quality of drinking water.

**OBJECTIVE B-4: PROMOTE PROPER DISPOSAL OF HOUSEHOLD HAZARDOUS WASTE THROUGH** INCENTIVE AND EDUCATION.

## MEASURE B-4-1: Insert "Upper Mississippi River Source Water Protection Project" information in utility billings.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP
Time Frame:	Every other year, starting in 2008
Estimated Cost:	\$4,000 plus in-kind time
Goal Achieved:	Land owners within the SWP Area will gain an understanding of cause / effect of their disposal of household hazardous wastes.

## MEASURE B-4-2: Support Household Hazardous Waste collection days through notification of land owners of the dates.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, SWCD, LGUs, Stearns County SWCD, Tri-County Solid Waste
Timeline:	Annually
Estimated Cost:	\$2,000, In-kind time, printing costs
Goal Achieved:	Land owners will have the opportunity to properly dispose of contaminants that might otherwise reach the drinking water supply.

## MEASURE B-4-3: Work with Watershed Districts in designing elementary school programs on household hazardous waste.

Source of Action:	City of St. Cloud	
Cooperators:	UMRSWPP, CMWEA, LGUs, WD, Stearns County SWCD	
Timeline:	2008 - 2011	
Estimated Cost:	\$6,000 (Grant, Cash and In-kind)	
Goal Achieved:	Understanding of the need for proper use and disposal of household hazardous waste will become a lifestyle for school-age generation.	

## OBJECTIVE B-5: WORK TO ELIMINATE KNOWN IMPAIRMENTS ALONG THE RIVER SYSTEM AND WITHIN THE SWP AREAS.

## MEASURE B-5-1: Elevate the priority of addressing impaired waters within the SWP area.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MPCA, LGUs, WDs, Stearns County SWCD
Time Frame:	2008, on-going
Estimated Cost:	In-kind

Goal Achieved:	Implementation dollars to mitigate impaired waters can be used
	to address the same issues listed within this plan.

#### **C. AGRICULTURE MANAGEMENT PRACTICES**

OBJECTIVE C-1: INVENTORY THE PERTINENT NON-POINT CONTAMINANT SOURCES (FEEDLOTS AND MANURE MANAGEMENT) LOCATED WITHIN THE SWP AREA.

MEASURE C-1-1: Delineate a focus area that allows a conveyance of contaminants to the Mississippi River and its tributaries.

City of St. Cloud
UMRSWPP, LGU, SRWD, SWCD, NRCS, MPCA
2009
In-kind
Create a manageable area to focus limited resources.

MEASURE C-1-2: Develop a protocol to conduct an accurate contaminant source inventory and determine which potential contaminants are important to include – such as feedlots and slurry storage.

Source of Action:	City of St. Cloud
Cooperators:	County Feedlot Managers, MPCA, SWCD, NRCS, WD
Time Frame:	2008
Estimated Cost:	In-kind
Goal Achieved:	Prioritization of listed PCSI data to that are most likely to affect the drinking water resource.

## MEASURE C-1-3: Conduct contaminant source inventory of determined potential contaminants within the designated area.

Source of Action:	City of St. Cloud
Cooperators:	County Feedlot Managers, MPCA, SWCD, NRCS, WD
Timeline:	2009 - 2010
Estimated Cost:	\$30,000 (Grant, Cash and In-kind)
Goal Achieved:	Non-point contaminant sources will be inventoried and assessed for potential impact to the drinking water resource. Limited implementation funding will be utilized for maximum impact.

## MEASURE C-1-4: Promote the Conservation Reserve Enhancement Program (CREP) in identified areas of concern.

Source of Action:	City of St. Cloud	
Cooperators:	UMRSWPP, SRWD, CROW, SWCD, NRCS	
Timeline:	2008 - 2016	
Estimated Cost:	\$3,000 and In-kind	
Goal Achieved:	Allow land to be preserved with deeply rooted vegetation or buffers and/or large tract conservation.	

MEASURE C-1-5: Supplement existing programs to provide further incentives to land owners for set aside programs or buffer strip installations in designated priority areas.

Source of Action:	City of St. Cloud	
Cooperators:	County Feedlot Managers, MPCA, SWCD, NRCS, WD	
Time Frame:	2008 - 2012	
Estimated Cost:	\$200,000 (Grant, Cash, and In-kind)	
Goal Achieved:	Education, incentives and assistance will mitigate potential problems from improper manure management.	

OBJECTIVE C-2: REDUCE AGRICULTURAL CHEMICAL USAGE IN AREAS WHERE RUNOFF AND/OR INFILTRATION TO THE AQUIFER ARE A CONCERN THROUGH EDUCATION AND INCENTIVE PROGRAMS.

## MEASURE C-2-1: Work with University Extension educators and NRCS to develop and perform workshops.

Source of Action:	City of St. Cloud
Cooperators:	Extension, NRCS, SWCD, LGU, WD
Timeline:	2008 and on-going as needed
Estimated Cost:	In-kind
Goal Achieved:	A balance will be met between the need for chemicals in row crop farming and the need to protect the drinking water resource.

#### **D. TRANSPORTATION CORRIDOR AND SPILLS MANAGEMENT PRACTICES**

OBJECTIVE D-1: DEVELOP AN EARLY WARNING SYSTEM WITHIN THE EIGHT-HOUR TIME OF TRAVEL AREA.

MEASURE D-1-1: Identify potential spill sites of concern to the intake station.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, RDN, DNR, USGS
Time Frame:	2008 - 2011
Estimated Cost:	\$40,000 (Grant, Cash and in-kind)
Goal Achieved:	Identify the contaminant sources of greatest concern to the City of St. Cloud intake station.

MEASURE D-1-2: Prepare a public water supplier spills notification protocol for use by the State Duty Officer, MPCA and other governmental entities.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, RDN, LGU
Time Frame:	2008 - 2011
Estimated Cost:	In-kind
Goal Achieved:	Improve the effectiveness and timeliness of notification of public water suppliers in the event of an upstream contaminant release.

OBJECTIVE D-2: UPDATE TRAINING OF FIRST RESPONDERS ON THE MISSISSIPPI RIVER TO MAINTAIN SPILL RESPONSE PREPAREDNESS.

MEASURE D-2-1: Work with MPCA to identify priorities regarding the first responder update training.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, RDN, MPCA, First Responders

Time Frame:	2008 - 2011
Estimated Cost:	\$2,000 plus In-kind staff time
Goal Achieved:	First responder training will be updated to incorporate new priorities, including the eight-hour time-of-travel for the St. Cloud SWPA.

## MEASURE D-2-2: Cooperate with MPCA in the first responder update training, emphasizing special needs in protecting the intake station.

Source of Action:	City of St. Cloud
Cooperators:	RDN, MPCA, First Responders
Time Frame:	2009 - 2012
Estimated Cost:	In-kind staff time
Goal Achieved:	First responders will develop an understanding of the need to protect the surface water intake and the urgency of protecting the eight-hour time-of-travel.

OBJECTIVE D-3: UPDATE MISSISSIPPI RIVER DEFENSE NETWORK DATABASES WITHIN THE HIGHEST PRIORITY SWP AREA.

#### MEASURE D-3-1: Advise UMRSWPP staff of RDN data resources.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, RDN
Time Frame:	2008 - 2011
Estimated Cost:	\$6,000 (Grant, Cash and In-kind)
Goal Achieved:	Improve the quality of RDN data within the high-priority source water protection area.

#### OBJECTIVE D-4: EVALUATE THE PLACEMENT, CONDITION AND NEED FOR REPLACEMENT OF MISSISSIPPI RIVER DEFENSE NETWORK SPILL RESPONSE EQUIPMENT.

MEASURE D-4-1: Review with first responders the condition of spill response equipment.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MPCA, RDN
Time Frame:	2008 - 2009
Estimated Cost:	In-kind
Goal Achieved:	Determine the status of existing RDN spill response

MEASURE D-4-2: Review with water suppliers the location of spill response equipment relative to intake protection needs.

Source of Action:City of St. CloudCooperators:UMRSWPP, RDN, LGUTime Frame:2008Estimated Cost:In-kind staff timeGoal Achieved:Determine the adequacy of existing spill response equipment<br/>locations to protect the St. Cloud intake station.

## MEASURE D-4-3: Assist MPCA as necessary in obtaining replacement and new spill response equipment.

equipment.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, RDN
Time Frame:	2008 - 2011
Estimated Cost:	In-kind
Goal Achieved:	Maximize the capacity to protect Mississippi River surface water intakes in the event of an upstream contaminant release.

#### **E. COMMERCIAL AND INDUSTRIAL MANAGEMENT PRACTICES**

**O**BJECTIVE **E-1**: TRAINING, EDUCATION AND REGULATION OF ABOVE AND BELOW GROUND TANK OWNERS.

#### **MEASURE E-1-1:** Work with the MPCA to sponsor a training session for tank owners.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MPCA, tank owners
Timeline:	2008 and on-going as necessary
Estimated Cost:	\$1,000 plus In-kind
Goal Achieved:	Education of owners in SWP Area, potential for contamination of drinking water resource and proper tank maintenance and practices.

## MEASURE E-1-2: Assist regulated tank owners with leak detection and record keeping.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, tank owners
Timeline:	2008, and on-going
Estimated Cost:	In-kind
Goal Achieved:	Education of owners in SWP Area, potential for contamination of drinking water resource and proper tank maintenance and practices.

## MEASURE E-1-3: For all above ground storage tanks, encourage proper monitoring of secondary contaminant to ensure that proper repair and cleanup occurs.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, LGU, watershed groups, owners
Time Frame:	2008 - 2012
Estimated Cost:	In-kind by MPCA
Goal Achieved:	Assure structural integrity of secondary confinement systems.

MEASURE E-1-4: Work to enact and enforce requirements for underground and above ground storage tanks not regulated by local, county or state agencies.

Source of Action:	City of St. Cloud
Cooperators:	LGUs, MPCA, owners
Time Frame:	2009 - 2016
Estimated Cost:	In-kind
Goal Achieved:	Assure structural integrity of unregulated tanks.

## MEASURE E-1-5: Make grant and/or loan funds available for above ground storage tanks without secondary containment.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, LGU, MPCA, owners
Time Frame:	2009 - 2016
Estimated Cost:	\$15,000 per year
Goal Achieved:	Provide incentives for secondary confinement, protecting the drinking water resource from spill runoff.

MEASURE E-1-6: Work with the appropriate authorities to monitor and mitigate LUST sites to prevent contamination from entering the River system.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, LGU, MPCA, owners
Time Frame:	2008 - 2011
Estimated Cost:	In-kind
Goal Achieved:	Track impacts of LUST and assure clean-up of contaminants.

OBJECTIVE E-2: PROMOTE EDUCATION AND PROPER DISPOSAL OF COMMERCIAL HAZARDOUS WASTE IN THE SWP AREA.

MEASURE E-2-1: Locate and identify each Hazardous Waste Generator in the River corridor area and the remainder of Priority Area A.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, tank owners
Timeline:	2008 - 2010
Estimated Cost:	In-kind
Goal Achieved:	Reduce or eliminate hazardous waste in the Mississippi River to protect public health and to reduce the cost of water treatment.

MEASURE E-2-2: Distribute hazardous waste pollution prevention information to Hazardous Waste Generators.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, owners
Time Frame:	Every other year, starting in 2009
Estimated Cost:	In-kind by MPCA, utilities
Goal Achieved:	Education of owners in SWP Area regarding the potential for contamination of drinking water resource from their management practices.

MEASURE E-2-3: Work with local municipalities to provide pollution prevention programs for Hazardous Waste Generators.

Source of Action:	City of St. Cloud
Cooperators:	LGUs, owners
Time Frame:	2009, and on-going
Estimated Cost:	In-kind
Goal Achieved:	Empowerment, collaboration and incentive for LGUs to make management of Hazardous Waste Generators a priority.

#### **OBJECTIVE E-3: MANAGE DUMP SITES THROUGH PERMITTING, EDUCATION AND ENFORCEMENT.**

MEASURE E-3-1: Educate, encourage and assist LGUs in the establishment of comprehensive solid waste management programs.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, LGUs
Time Frame:	2008 - 2016
Estimated Cost:	In-kind
Goal Achieved:	Assure proper solid waste disposal

**OBJECTIVE E-4: INVENTORY, ASSESS AND REGULATE EXISTING SALVAGE YARDS TO PROMOTE CLEAN-UP AND PREVENT FURTHER USE IN PRIORITY AREAS.** 

MEASURE E-4-1: Work with owners, LGUs and MPCA as liaison on regulation and enforcement of existing salvage yards that are known polluters.

Source of Action:	City of St. Cloud
Cooperators:	LGUs, MPCA, salvage yard owners
Timeline:	2007 - 2016
Estimated Cost:	In-kind
Goal Achieved:	Presentation of solutions and reaching a consensus toward a plan to clean up existing contaminant sites.

MEASURE E-4-2: Work with LGUs and MPCA to explore funding to assist salvage yard owners in clean up of contaminants.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, LGUs
Time Frame:	2008 - 2011
Estimated Cost:	Grant, In-kind
Goal Achieved:	Cost assistance to salvage yard owners to provide clean-up.

**OBJECTIVE E-5: INVENTORY AND ASSESS FOR POTENTIAL IMPACT TO THE DRINKING WATER SUPPLY ALL PERMITTED SOLID WASTE SITES IN PRIORITY AREAS.** 

MEASURE E-5-1: Work as a liaison on regulation and enforcement of existing solid waste sites that are known polluters.

Source of Action:	City of St. Cloud
Cooperators:	LGUs, MPCA, salvage yard owners
Timeline:	2007 - 2016
Estimated Cost:	In-kind
Goal Achieved:	Presentation of solutions and reaching consensus toward a plan to clean up existing contaminant sites.

MEASURE E-5-2: Work with LGUs and MPCA to establish funding to assist owners.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, LGUs
Time Frame:	2008 - 2011
Estimated Cost:	In-kind
Goal Achieved:	Cost assistance to solid waste owners to provide clean-up.

## F. Well and Individual Sewage Treatment System (ISTS) MANAGEMENT PRACTICES

OBJECTIVE F-1: DETERMINE IMPACT OF ISTS ON THE SURFICIAL DRINKING WATER SUPPLY IN THE MISSISSIPPI RIVER.

MEASURE F-1-1: Inventory ISTS that may have potential to run into the Mississippi River or its tributaries. Work with LGUs to educate and enforce existing regulations regarding non-compliant ISTS.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, LGU, MPCA, Local water suppliers
Time Frame:	2008 - 2011
Estimated Cost:	In-kind
Goal Achieved:	Potential sources of contamination will be identified for upgrade.

MEASURE F-1-2: Mail "Septic System Owner's Guide" to property owners with ISTS residing within the determined priority areas.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, LGU, MPCA, WD
Time Frame:	2008
Estimated Cost:	\$12,000 plus In-kind
Goal Achieved:	ISTS owners will gain an understanding of how their system works, needed maintenance to keep it working properly, and how to tell if it isn't working.

#### **G. DATA COLLECTION AND ANALYSIS MANAGEMENT PRACTICES**

OBJECTIVE G-1: PERFORM AN INVENTORY OF POTENTIAL CONTAMINANTS OF CONCERN WITHIN THE SWP AREA.

MEASURE G-1-1: Review the PCSI within SWP areas and assess available data to establish needs for additional information.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MDH, MPCA
Time Frame:	2007 - 2009
Estimated Cost:	\$15,000 (Grant, Cash and In-kind)
Goal Achieved:	Existing data will be evaluated for usefulness and completeness.

MEASURE G-1-2: Delineate boundaries of highest priority areas of concern within the SWP areas through review of existing data.

Source of Action:	City of St. Cloud
Cooperators:	MPCA, LGU, MDH
Time Frame:	2008 - 2011
Estimated Cost:	\$30,000 (Grant, Cash and In-kind)
Goal Achieved:	Prioritize areas within the SWP areas for concentration of efforts in areas of greatest potential to affect the drinking water resource.

#### MEASURE G-1-3: Describe needs for additional and refined data within SWP areas.

Source of Action:	City of St. Cloud
Cooperators:	MDH
Time Frame:	2008 - 2011
Estimated Cost:	In-kind
Goal Achieved:	Identification of data needed to adequately assess the potential for contamination within the designated priority areas.

MEASURE G-1-4: Identify LGUs that have local data within the SWP areas and work with them to establish list of existing data available and incorporate it into the Plan.

Source of Action:	City of St. Cloud
Cooperators:	MDH, LGUs
Time Frame:	2008 - 2011
Estimated Cost:	In-kind
Goal Achieved:	Establish working relationship with LGUs by sharing existing data and incorporating their data into the Plan.

MEASURE G-1-5: Hire a Consultant and evaluate anticipated land and water use changes in the SWP areas.

Source of Action:	City of St. Cloud
Cooperators:	MDH, LGUs
Time Frame:	2008 - 2010
Estimated Cost:	\$150,000 (Grant, Cash and In-kind)
Goal Achieved:	Provide UMRSWPP with information needed for future planning and potential areas for education and/or incentives.

OBJECTIVE G-2: DETERMINE METHODOLOGY ON PILOT SECTION OF THE MISSISSIPPI RIVER FOR MEASUREMENT OF GROUND WATER GAINS AND LOSSES.

MEASURE G-2-1: Perform an inventory of the potential contaminant sources based on the results of the groundwater gains and losses study.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MDH, USGS
Timeline:	2011
Estimated Cost:	\$5,000 (In-kind)
Goal Achieved:	Identification of contaminant sites.

MEASURE G-2-2: Implement appropriate educational efforts and BMPs as described earlier for the inventory of potential contaminant sources based on the groundwater gains and losses study.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MDH, USGS, Stearns County SWCD
Timeline:	2010 - 2011
Estimated Cost:	\$5,000 (Grant, Cash, and In-kind)
Goal Achieved:	Education is needed to assist with preventing future events and forming collaborative relationships.

#### **H. ADMINISTRATION**

OBJECTIVE H-1: MRWA WILL WORK WITH LGUS AND THE CITY OF ST. CLOUD TO PROVIDE TECHNICAL ASSISTANCE IN PUBLIC INFORMATION AND DOCUMENTATION.

MEASURE H-1-1: SWP coordinator will provide fiscal management and overall coordination of contract with MRWA.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MRWA, MDH
Timeline:	2007 - 2011
Estimated Cost:	\$8,000 (Grant, Cash and In-kind)
Goal Achieved:	Fiscal responsibility for grant dollars and assurance that required elements are completed.

OBJECTIVE H-2: IMPLEMENTATION OF SWPP WILL OCCUR WITH PRIORITIZATIONS FOLLOWED, REGULAR MEETINGS OF THE TEAM AND REPORTING AND ACCOUNTING FOR GRANT FUNDS.

## MEASURE H-2-1: Prepare project progress reports, work plan amendments and final report to MPCA.

Source of Action:	City of St. Cloud
Cooperators:	Consultant, MDH, MPCA
Timeline:	2007 - 2011
Estimated Cost:	\$12,000 (Grant, Cash and In-kind)
Goal Achieved:	The Implementation Plan will be followed, the terms of the grant will be adhered to and fiscal accountability will occur.

## MEASURE H-2-2: Produce technical documents and reports on project activities for reporting purposes.

	- · ·
Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, MPCA, MDH
Time Frame:	2007 - 2011
Estimated Cost:	\$6,000 (Grant, Cash and In-kind)
Goal Achieved:	Preparation of project documents as needed in the course of the project for use by project sponsors and partners in decision making and prioritization.

## MEASURE H-2-3: Prepare project documents for broad distribution at different formats.

Source of Action:	City of St. Cloud
Cooperators:	Consultant, UMRSWPP, MRWA, MDH, MPCA
Timeline:	2007 - 2011
Estimated Cost:	\$6,000 (Grant, Cash and In-kind)
Goal Achieved:	Material will be collated in one central area and utilized on web page, in newsletters, summary documents and status reports.

#### **MEASURE H-2-4:** Prepare papers for presentation at conferences and other forums.

Source of Action:	City of St. Cloud
Cooperators:	Consultant, UMRSWPP, MRWA, MDH, MPCA
Timeline:	2007 - 2011

Estimated Cost:	\$6,000 (Grant, Cash and In-kind)
Goal Achieved:	Consistent material will be available for presentations.
OBJECTIVE H-3: ESTABLISH	A POSITION OF SWP COORDINATOR WHO WILL CONDUCT
INITIATION OF	ALL MANAGEMENT STRATEGIES FOUND IN THE PLAN, PROVIDE
FISCAL ACCO	UNTABILITY AND PROVIDE PROGRESS REPORTS AS REQUIRED.
MEASURE H-3-1: Plan ar	nd facilitate monthly project management meetings.
Source of Action:	City of St. Cloud
Cooperators:	Consultant, UMRSWPP, MPCA, MDH, MRWA
Time Frame:	2007 - 2011
Estimated Cost:	\$25,000 (Grant, Cash and In-kind)
Goal Achieved:	Project continuity and accountability will occur with minutes and scheduled meetings.
MEASURE H-3-2: Coordi	nate the work of project staff and contractors on all project
activiti	es.
Source of Action:	City of St. Cloud
Cooperators:	Consultant, UMRSWPP, MDH, MPCA, MRWA
Timeline:	2007 - 2011
Estimated Cost:	\$15,000 (Grant, Cash and In-kind)
Goal Achieved:	Project continuity and accountability will occur.
MEASURE H-3-3: Serve a	as a liaison to agencies, LGUs and other groups.
Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, LGU, MRWA, MDH, MPCA
Timeline:	2007 - 2011
Estimated Cost:	\$15,000 (Grant, Cash and In-kind)
Goal Achieved:	One central source of information to eliminate multiple answers to the same questions.
MEASURE H-3-4: Project	Coordinator will oversee all project administration.
Source of Action:	City of St. Cloud
Cooperators:	MPCA, MDH
Timeline:	2007 - 2011
Estimated Cost:	\$30,000 (Grant, Cash and In-kind)
Goal Achieved:	All aspects of the existing grant will be coordinated by one person, with progress tracking, scheduling, budget and payment requests.
OBJECTIVE H-4: IDENTIFY PO	TENTIAL CONTAMINANTS AND THEIR SOURCES AND WORK WITH
LGUS TO IMF	PLEMENT STRATEGIES IDENTIFIED IN THIS PLAN.
MEASURE H-4-1: Invento Protect	bry and notify affected governmental units of Source Water tion adoption.
Source of Action:	City of St. Cloud
Cooperators:	MDH, LGU, WD, Stearns County SWCD
Time Frame:	2007 - 2011
Estimated Cost:	\$13,000 (Grant, Cash and In-kind)

**Goal Achieved:** Local government agencies will develop an understanding of SWP and their opportunities for collaboration in the implementation of this Plan.

MEASURE H-4-2: Identify priority areas to implement SWP strategies through review of geographic areas and contaminants and evaluation of data provided by LGUs.

Source of Action:	City of St. Cloud
Cooperators:	MDH, LGU, WD
Timeline:	2008 - 2011
Estimated Cost:	\$20,000 (Grant, Cash and In-kind)
Goal Achieved:	Local data and expertise will be utilized to determine actual areas of potential contamination.

MEASURE H-4-3: Identify local government partners to assist in the implementation of SWP strategies. Develop a relationship with them in the SWPA by jointly signing a memorandum of cooperation.

Source of Action:	City of St. Cloud
Cooperators:	LGU, WD, MRWA, MDH, MPCA
Timeline:	2008 - 2011
Estimated Cost:	\$16,000 (Grant, Cash and In-kind)
Goal Achieved:	Development of relationships locally to assist in working with local landowners and within the parameters of local regulations to assist in implementation of this Plan.

MEASURE H-4-4: Identify and develop BMPs appropriate for SWP, providing financial and in-kind assistance to LGUs for implementation of these practices.

Source of Action:	City of St. Cloud
Cooperators:	UMRSWPP, LGU, MPCA, MDH, Stearns County SWCD
Timeline:	2008 - 2011
Estimated Cost:	\$130,000 (Grant, Cash and In-kind)
Goal Achieved:	Money and expertise for on-the-ground practices will be put in place to mitigate designated pollutants identified by LGUs and the UMRSWPP.

## MEASURE H-4-5: Seek to establish a regular funding source for implementation of the SWPP.

Source of Action:	City of St. Cloud and UMRSWPP
Cooperators:	MRWA, LGU
Time Frame:	2008 – 2011 and on-going
Estimated Cost:	\$13,000 (Grant, Cash and In-kind)
Goal Achieved:	Money for continued implementation and study of the SWP Plan will be established on a long-term basis

MEASURE H-4-6: Establish broad endorsement of SWPP in adopted plans from Minnesota State Agencies, LGUs and Federal Agencies with prioritization of programs toward drinking water protection where appropriate.

Source of Action: City of St. Cloud

Cooperators:	LGU, MPCA, DNR, MDH, MDA, SWCD
Timeline:	2008 - 2011
Estimated Cost:	\$2,000 (Grant, Cash and In-kind)
Goal Achieved:	By working locally and building outward to establish this area as high priority, protective measures and financial assistance will be more readily available.

#### MEASURE H-4-7: Work in cooperation with Urban Conservationist to implement SWP.

Source of Action:	City of St. Cloud
Cooperators:	Stearns County SWCD, LGUs
Timeline:	2008 - 2011
Estimated Cost:	\$8,000 (Grant, Cash and In-kind)
Goal Achieved:	Cooperative efforts will combine funding and activities.

## **CHAPTER SEVEN**

## **EVALUATION PROGRAM**

### I. IDENTIFYING A STRATEGY TO EVALUATE THE EFFECTIVENESS OF MANAGEMENT STRATEGIES

The success of the SWP management strategies must be evaluated to determine whether the SWP Plan is effective. This evaluation will be conducted annually or when a Plan is amended. It will need to encompass the DWSMA, be based on the health risk the contaminant presents to the intake and specify the approach used. The following activities will be implemented to:

- 1. Track the implementation of the objectives identified in the previous section of this SWP Plan,
- 2. Determine the effectiveness of specific management strategies regarding the protection of the drinking water supply, and
- 3. Identify possible changes to these strategies, which may improve their effectiveness.

This evaluation will be used to focus the selection of management strategies in subsequent amendments of the SWP Plan.

## **CHAPTER EIGHT**

### ALTERNATIVE WATER SUPPLY / CONTINGENCY STRATEGY

## I. PREPARING THE CONTINGENCY STRATEGY FOR AN ALTERNATIVE WATER SUPPLY

Public water suppliers have developed an approved "Water Conservation Plan" with the DNR. A current copy of the DNR approval letter can be found in **Appendix VII** of this Plan.

#### SCOPING 2 – <u>City of St. Cloud</u> July 14, 2005

#### LIST OF DATA ELEMENTS/APPLICABILITY:

- X = data elements from Part 1 SWP that need to be considered for Part 2 SWP
- # = data elements determined by MDH as required for **Part 2 SWP**
- T = data elements to be determined on completion of the USGS gains and losses study

#### **Physical Environment**

#### Precipitation

- X Existing map or list of local precipitation gauging stations; and
- ${\bf X}$  Existing table showing the average monthly and annual precipitation in inches for the preceding five years.

#### Geology

- X Existing geologic map and a description of the geology, including aquifers, confining layers, recharge areas, discharge areas, sensitive areas as defined in Minnesota Statutes, section 103H.005, subdivision 13, and groundwater flow characteristics;
- T- Existing records of the geologic materials penetrated by wells, borings, exploration test holes, or excavations, including those submitted to the department;
- T- Existing borehole geophysical records from wells, borings, and exploration test holes; and
- **X** Existing surface geophysical studies.

#### Soil

- X Existing maps of the soils and a description of soil infiltration characteristics; and
- **X** Existing description or an existing map of known eroding lands that are causing sedimentation problems.

#### Water Resources

- **X** Existing map of the boundaries and flow directions of major watershed units and minor watershed units;
- **X** Existing map and a list of public waters as defined in Minnesota Statutes, section 103G.005, subdivision 15, and public drainage ditches;
- **X** Existing shoreland classifications of the public waters listed under subitem (2), pursuant to part 6120.3000 and Minnesota Statutes, sections 103F.201 to 103F.221;
- **X** Existing map of wetlands regulated under Chapter 8420 and Minnesota Statutes, sections 103G.221 to 103G.2373; and
- **X** Existing map showing those areas delineated as floodplain by existing local ordinances.

#### Land Use

#### Land Use

- **X** Existing map of parcel boundaries;
- **X** Existing map of political boundaries;
- **X** Existing map of public land surveys including township, range, and section;
- # Map and an inventory of the current and historical agricultural, residential, commercial, industrial, recreational, and institutional land uses and potential contaminant sources (see attached PCSI worksheet for more detail);
- # Existing comprehensive land-use map; and
- # Existing zoning map.

#### Scoping 2 - City of St. Cloud Page 2

Public Utility Services

- **X** Existing map of transportation routes or corridors;
- X Existing map of storm sewers, sanitary sewers, and public water supply systems;
- ${\bf X}$  Existing map of the gas and oil pipelines used by gas and oil suppliers;
- **X** Existing map or list of public drainage systems.

#### Water Quantity

#### Surface Water

- X Description of high, mean, and low flows on streams;
- **X** List of lakes where the state has established ordinary high water marks;
- **X** List of permitted withdrawals from lakes and streams, including source, use, and amounts withdrawn;
- ${f X}$  List of lakes and streams for which state protected levels or flows have been established; and
- # Description of known water-use conflicts, including those caused by groundwater pumping.

#### Groundwater

- T- List of wells covered by state appropriation permits, including amounts of water appropriated, type of use, and aquifer source;
- T- Description of known well interference problems and water-use conflicts; and
- T- List of state environmental bore holes, including unique well number, aquifer measured, years of record, and average monthly levels.

### Water Quality

#### Surface Water

 ${\bf X}$  - Map or list of the state water quality management classification for each stream and lake; and

- **X** Summary of lake and stream water quality monitoring data, including:
  - bacteriological contamination indicators;
  - inorganic chemicals;
  - organic chemicals;
  - sedimentation;
  - dissolved oxygen; and
  - excessive growth or deficiency of aquatic plants.

#### Groundwater

- T- Summary of water quality data, including:
  - bacteriological contamination indicators;
  - inorganic chemicals; and
  - organic chemicals;
- T- List of water chemistry and isotopic data from wells, springs, or other groundwater sampling points;
- T- Report of groundwater tracer studies;
- T- Site study and well water analysis of known areas of groundwater contamination;
- T- Property audit identifying contamination; and
- T- Report to the Minnesota Department of Agriculture and the Minnesota Pollution Control Agency of contaminant spills and releases.

## SOURCE WATER PROTECTION SCOPING 2 WORKSHEET Minneapolis – St. Paul – St. Cloud

## POTENTIAL SOURCES OF CONTAMINATION

#### **CONSIDERATIONS:**

**AREA A** – this area consists of both point and non-point sources of potential contamination. Because of the sheer volume of potential sources, it will be necessary to define what is the most important area upon which to focus the majority of the inventory and to determine which contaminants are important to the surface intake. For the land use inventory, it will be important to look at all available layers (city, county, state, federal) of land use mapping and assess all of them for the individual differences of information.

**AREA B** – this area will be reviewed primarily for non-point sources of potential contamination. The overriding principal in determining adequacy of the inventory will be that the data needs to be adequate for planning purposes. In some cases it may be determined important to focus management on a specific source, and the inventory will be refined with more detail during the implementation of the plan.

It will be likely that some point sources will be inventoried in Area B because of the potential impact on the intake. These might include NPDES permits, storm water outfalls, pipelines and large storage tanks. The land use assessment described above should help determine which areas to focus on for non-point sources.

Due to the detail required for mapping, the Area B inventory may only consist of the data points provided from State and Federal data sources, if it is deemed adequate for planning purposes.

**DEFINITIONS** – for the purpose of this document, the following definitions apply:

<u>Terraced and Alluvial Soils</u>. The area defined as consisting of terraces and alluvial soils in the main stem river corridor and tributaries, where available, and used in Part 1 SWP reports.

#### Key for Area A and Area B Columns:

- # = PCSI element required
- **O** = PCSI element required only in the terraced and alluvial soils area
- T = PCSI element to be determined upon completion of USGS Gains and Losses Study
- -- = PCSI element is of no concern

PCSI Code	Activity	AREA A	AREA B
Agricult	ural		
AA_	Aqua Farming	#	
AC_	Continuous Crop	#	#
AF_	Feedlot	#	#
AI_	Irrigated Crop	#	#
AL_	Livestock	#	
ALO	Logging	#	0
AM_	Manure Storage	#	#
AP_	Pasture	#	#
AS_	Seasonal Stockpiling of Fertilizer	#	
AX_	Chemical Mixing		
AHS	Historical Use		
Bulk St	orage/Material Stockpiling		
BCG	Compressed Gasses		
BCL	Coal	#	
BFR	Fertilizer	#	0
BPS	Pesticide	#	0
BPT	Petroleum Products	#	0
BSE	Seasonal Storage	#	0
BSS	Salt Storage	#	0
BSY	Salvage Yard (Hardware - Lumber)	#	0
BTI	Tires		
BTW	Treated Wood	#	0
BUD	Unidentified Drum	0	0
BVC	Volatile Organic Chemicals	#	0
BWA	Hazardous Waste	#	0

PCSI Code	Activity	AREA A	AREA B	
Comme	Commercial			
CAI	Airport	#		
CAR	Agricultural Chemical Retail	#	0	
CAW	Agricultural Chemical Warehouse	#	0	
СВО	Boatyard/Boat Works			
CCE	Cemetery			
CCP	Cement Products			
CDC	Dry Cleaning	#	0	
CEX	Exterminator	#	0	
CFP	Food Processing	#	0	
CFR	Furniture Refinishing	#	0	
СНА	Hardware	#	0	
СНМ	Hotel/Motel			
CIS	Implement Sales			
CLD	Laundromat			
CLO	Logging Contractor			
CLS	Lawn Services/Snow Plowing	#	0	
CLU	Lumberyard	#	0	
СМО	Mortuary	#	0	
CMP	Medical/Dental/Chiropractic/Veterinary Practice (Health Services)	#	0	
CMS	Metal Scrap and Salvage	#	0	
CMW	Metal Working/Machine Shop	#	0	
COF	Office			
СРА	Painting/Renovating	#	0	
CPD	Petroleum Product Distributor	#	0	
CPH	Photographic Services	#	0	
CPR	Printing	#	0	
CRF	Restaurant/Food Service			
CSL	Slaughtering	#	0	
CSS	Service Station	#	0	

PCSI Code	Activity	AREA A	AREA B	
Comme	Commercial - Continued			
СТХ	Taxidermy #		0	
СТҮ	Train Yard	#	0	
CVP	Vehicle Storage/Parking			
CVS	Vehicle Sales			
CVJ	Vehicle Junk Yard	#	0	
CWA	Warehouse	#	0	
General				
GC_	Cesspool	0	0	
GDI	Diesel Fuel Storage	#	0	
GDR	Drainage Well	0	0	
GDS	Storm Water	#	0	
GDT	Agricultural Drain	#	0	
GDW	Dry Well	0	0	
GE_	Equipment/Vehicle Washing	#	0	
GF_	Fuel Oil Storage	#	0	
GFP	Fuel Pumps	#	0	
GG_	Gasoline Storage	#	0	
GH_	Community Water Supply Connection			
GKG	Kerosene/Jet Fuel	#	0	
GL_	Lawn >1 Acre	0		
GP_	Propane Fuel			
GR_	Equipment/Vehicle Repair	#	0	
GS_	Sewer Connection	#	0	
GT_	Septic Tank			
GW_	Water Well(s)	0	0	
GWO	Waste Oil	#	0	

PCSI Code	Activity	AREA A	AREA B	
Industri	Industrial			
IAS	Asphalt Production	#	0	
ICG	Coal Gasification Plant	#	0	
ICM	Chemical Manufacturing	#	0	
ICS	Cleaning Supply Manufacturing	#	0	
IEG	Electrical Power Generation	#	0	
IEM	Electrical Products Manufacturing	#	0	
IET	Electrical Power Transmission			
IFM	Furniture Manufacturing	#	0	
IFW	Foundry/Metal Working	#	0	
ILU	Lumber Mill	#	0	
IMP	Metal Plating	#	0	
IMQ	Mining/Quarrying	#	0	
ING	Natural Gas Storage, Distribution			
IPA	Paint Manufacturing	#	0	
IPM	Paper Mill	#	0	
IPP	Petroleum Pipeline	#	0	
IPR	Petroleum Refining/Processing	#	0	
IWT	Wood Treating	#	0	
Miscellaneous				
MAB	Animal Burial			
MCF	Catastrophic Fire			
MHD	Homestead Dump			
MSE	Soil Erosion	#	#	
MSH	Sinkhole			

PCSI Code	Activity	AREA A	AREA B
Institutio	nal		
NCH	Church		
NFS	Fire Station		
NGO	Government/Court Offices		
NHC	Hospital/Clinic	#	0
NLI	Library		
NMI	Military Installation	#	0
NMU	Museum/Gallery		
NPC	Prison/Correctional Facility		
NPL	State/Federal Land	#	#
NPO	Post Office		
NPS	Public Safety (Police, etc.)		
NSC	School		
Recreatio	onal		
RAP	Amusement Park		
RCG	Campground		
RFG	Fair Grounds	#	0
RGC	Golf Course	#	0
RPA	Park/Playground	#	#
RRC	Racing Track/Casino		
RRE	Resort	#	0
RSF	Sports Facility	#	0
RSR	Shooting Range/Game Farm	#	#
RZO	Zoo/Arboretum		

PCSI Code	Activity	AREA A	AREA B	
Waste N	Waste Management			
WAD	Ash Disposal	#	#	
WAF	Land Farm			
WAG	Lagoon	#	#	
WCF	Composting Facility	#	0	
WIN	Incinerator	#	0	
WLF	Landfill	#	0	
WLA	Permitted - Active	#	0	
WLD	Demolition Debris	#		
WLI	Permitted - Closed			
WLO	Open Dump			
WLP	Promiscuous Dump			
WRF	Recycling Facility	#		
WSD	Sludge Disposal	0	0	
WSP	Spill	#	0	
WST	Septage Storage/Disposal	0	0	
WSW	Storm Water Retention Pond	#	0	
WTP	Tailings Impoundment/Mine Tailings			
WTS	Transfer Station	#	0	
WU_	Superfund Site	#	#	
WUC	CERCLIS Site	#	#	
WUF	Federal (NPL)	?	?	
WUS	State (PLP)	?	?	
WWP	Waste Processing/Treatment Facility	#	0	
WWS	Waste Water Seepage Pond	#	0	

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#### WATER APPROPRIATION PERMIT AMENDMENT, TRANSFER, OR TERMINATION

Permittee/Authorized Agent	Phone Number
City of St. Cloud Public Utilities	612/255-7225
Address 400 2nd St S., St. Cloud, MN 56301	 1 1 121017 - 7 - 10

Dear Permittee: One or more of the following changes are hereby made to your appropriation permit. Contact the "Reviewer" listed below if you have questions or concerns about these changes. Please attach this document to the original permit, as it hereby becomes a part of that permit.

Fee Status: [x] Yes, paid \$ 75.00 [] No, exempted because:

**[x] AMENDMENT:** The following Amendment is hereby made to the permit:

Appropriate water from the Mississippi River at an average rate of 11,110 gpm, not exceeding 5,900

mgy. Municipal water supply for a population of 50,000. Point of taking - SW1/4NW1/4NE1/4. Section 11. <u>[124N, R28W]</u>

[] TRANSFER/ASSIGNMENT: This permit is hereby Assigned to:

Former Permittee:

[] TERMINATION: This permit is hereby Terminated in all respects. Future appropriation from this source will require a new application. Well abandonment may be required by State Law.

Special Provisions: \_\_\_\_\_

Reviewer: \_Ioe Oschwald, Staff Hydrologist

Phone: <u>612/255-2984</u>

Authorized Signature:	Title	Date
Day of Lelle David L. Hills	Regional Hydrologist	4/10/92
cc: Area Hydrologist		
SWCD Stearns County	DNR Waters Data S	ystems
Conservation Officer Dave Rodahl	[] Other	•

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Permit #\_80-3102\_

County\_Stearns\_\_\_

MATED		AMENDED
NA-02539-02	32. Centennial Office Building	PERMIT 80-3102
Department of Line Sources	St. Paul, MN 55155	COUNTY Stearns
Division of aters		······································
THIS AMENDED PERMIT SUPERSEDES THE ORIGINA	L PERMIT AND ALL PREVIOUS A	MENDMENTS.
THE MATTER OF THE APPLICATION FOR APPROPRIATION OF WATE	RS OF THE STATE, PERMISSION IS HERI	EBY GRANTED TO:
ERMITTEE	Authorized Agent	
ddress	I Gerald L, Mahon, Direct	or
City Hall, St. Cloud, MN 5630	1	
Mississippi River at an averag	e rate of 3700 gpm.	
Point of Taking: Block 100 of Lowry' T124N, R28W	s Addition (in SW4NW4NE4) S	ection 11,
urpose: Municipal water supply for a populat	ion of 12 000 poorle av	
numerpai mater supply for a populat	ton of 43,000 people on a c	UNETHOUS DASIS.
brock too of Lowry's Addreton	(In the Swanwanea) Section	11, 1124N, K28W.
uthorized Signature	Titte	
Sarch P. I. J. And	Sarah P. Tufford Admministrator Water Use Management Sect	ion Unite
is permit is granted subject to the following CONDITIONS:		
1. QUANTITY:		an de la companya de La companya de la comp
The permittee is authorized to appropriate water at a rate not to exceed.	6,944 gallons per minute. The tota	I amount of water
appropriated shall not exceed <u>XXXXXX</u> acre feet or	<u>2,500</u> million gallons per year.	
2. LIMITATIONS: (a.) Any violation of the terms and provisions of this permit and any	annronriation of the waters of the state in ev	one of that authorized
hereon shall constitute a violation of Minnesota Statutes, Chapter 10:	5.	
(c.) This permit shall not be construed as establishing any priority (c.) This permit is permissive only. No liability shall be imposed upc	or appropriation of waters of the state. On or incurred by the State of Minnesota or a	ny of its employees, on
account of the granting hereof or on account of any damage to any per	son or property resulting from any act or om	ission of the permittee
person other than the state against the permittee, for any damage or in	estopping or limiting any legal claims or rig njury resulting from any such act or omissio	nt of action of any
limiting any legal claim or right of action of the state against the permit permit or applicable provisions of law.	tee, for violation of or failure to comply with t	he provisions of the
(d.) In all cases where the doing by the permittee of anything autho	rized by this permit shall involve the taking,	using, or damaging of
any property, rights or interests of any other person or persons, or o therein, the permittee, before proceeding therewith, shall obtain the wri	f any publicly owned lands or improvement tten consent of all persons, agencies, or auth	s thereon or interests orities concerned, and
shall acquire all property, rights and interests necessary therefore.	requirements or liability or obligation image	ed by Minneeota Statutes
Federal Law, or local ordinances relating thereto and shall remain in fo	rce subject to all conditions and limitations r	low or hereafter imposed

(f.) Unless explicitly specified, this permit does not authorize any alterations of the beds or banks of any public (protected) waters or wetlands. A separate permit must be obtained from the Department of Natural Resources prior to any such alteration.

### 3. PERMITTEE'S RESPONSIBILITIES:

(a.) MONITORING.

The permittee shall equip each installation for appropriating or using water with a device or employ a method to measure the quantity of water appropriated to within ten (10) percent of actual amount withdrawn unless otherwise specified by special provision. .

(b.) REPORTS.

Monthly records of the amount of water appropriated or used shall be recorded for each installation. Such readings and the total amount of water appropriated or used shall be reported annually to the Director of the Division of Waters, on or before February 15 of the following year, upon forms supplied by the Division. Any processing fee required by law or rule shall be submitted with the records whether. or not any water was appropriated during the year. Failure to report shall be sufficient cause for terminating the permiti30 days following written notice.

#### (c.) TRANSFER OR ASSIGNMENT.

Any transfer or assignment of rights, or sale of property involved hereunder shall be reported within 90 days thereafter to the Director of the Division of Waters. Such notice shall be made by the transferee (i.e. new owner) and shall state the intention to continue the appropriation as stated in the permit. This permit shall not be transferred or assigned except with the written consent of the Commissioner.

#### (d.) MODIFICATION.

The permittee must notify the Commissioner in writing of any proposed changes to the existing permit. This permit shall not be modified without first obtaining the written permission from the Commissioner.

#### 4. COMMISSIONER'S AUTHORITY:

(a.) The Commissioner may inspect any installation utilized for the appropriation or use of water. The permittee shall grant access to the site at all reasonable times and shall supply such information concerning such installation as the Commissioner may require.

(b.) The Commissioner may, as he deems necessary, require the permittee to install gages and/or observation wells to monitor the impact of the permittee's appropriation on the water resource and require the permittee to pay necessary costs of installation and mainienance.

(c.) The Commissioner may restrict, suspend, amend, or cancel this permit in accordance with applicable laws and rules for any cause for the protection of public Interests, or for violation of the provisions of this permit.

#### 5. PUBLIC RECORD:

All data, facts, plans, maps, applications, annual water use reports, and any additional information submitted as part of this permit, and this permit itself are part of the public record and are available for public inspection at the offices of the Division of Waters. The information contained therein may be used by the Division as it deems necessary. The submission of faise data, statements, reports, or any such additional information, at any time shall be deemed as just grounds for revocation of this permit.

Dave Hills, Regional Hydrologist Dale Homuth, Area Hydrologist Data Systems/Young Minnesota Department of Health



Public Utilities	Website:	www.ci.stcloud.mn.us
400 Second Street South	Email:	publicutilities@ci.stcloud.mn.us
St. Cloud, Minnesota 56301	Phone:	(320) 255-7225

#### **St. Cloud's Drinking Water Exceeds Water Quality Standards**

The 2006 Water Quality Report summarizes our drinking water monitoring results during the 2006 calendar year. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect our precious water resources.

No substances were detected at levels that exceeded federal standards. A few substances were detected in trace amounts well below Federal Safe Drinking Water Act goals that are set for public water systems throughout the country. The table on the back side of this report lists the detected substances. Their presence does not necessarily indicate that the water poses a health risk. If substances are sampled less frequently than once per year, the date sampled is included.

#### **Use Water Wisely!**

The City of St. Cloud continues to encourage residents to use water wisely. The City's website has information on how to use tap water in the most efficient and effective manner. Tips will be available on local cable access Channel 19 and included in Utility bills.

The City of St. Cloud recommends using water wisely by voluntarily watering on odd/even days. The recommended watering cycle is if you live in an odd numbered house, water on the odd days; even numbered houses, water on even days.

#### **Protect The Source**

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The quality of St. Cloud's source of drinking water is largely dependent on you. Protection of our drinking water source, the Mississippi River, is critical and we all make a difference. Did you know that many activities on land, seemingly far from the River, can have an impact on water quality? Things like keeping grass clippings and leaves out of storm drains, picking up after your pet and changing your car washing habits can all add up to cleaner water. Please visit our website at mnwaterconnection.com for some easy ways we all can make a difference.

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#### **Drinking Water Source**

The City of St. Cloud uses the Mississippi River as the source for drinking water. The drinking water provided to our customers continues to meet or exceed drinking water quality standards. The Minnesota Department of Health (MDH) has determined that our source water is potentially susceptible to contamination. The City of St. Cloud has developed a Source Water Protection Plan to help prevent contamination of the Mississippi River. To obtain the MDH source water assessment, please call 651-201-4700 or 1-800-818-9318 (press 5) during regular business hours. The source water assessment can be viewed online at www.health.state.mn.us/divs/eh/water/swp/ swa.

Please contact the Minnesota Department of Health or the Public Utilities if you have any questions regarding drinking water or if you would like information about opportunities for public participation in decisions that may affect the quality of the water.

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## **2006 Water Quality Table**

Substance Highest Level Level Found		Tound	Typical Source				
Substance	Allowed Reported Result Range		Range	<b>Of Substance</b>			
The following substances are regulated at the Water Treatment Facility:							
<b>Nitrate</b> as nitrogen (parts per million)	10.0 MCL Goal 10.0	0.82	N/A	Runoff from fertilizer use, leaching from septic tanks, sewage; erosion of natural deposits.			
<b>Fluoride</b> (parts per million)	4.0 MCL Goal 4.0	1.2	1.1 – 1.3	Fluoride is added to promote strong teeth as required by the State; erosion of natural deposits.			
<b>Chlorine</b> (parts per million)	4.0 MRDL Goal 4.0	1.2 / 2.1 Lowest/Highest Monthly Avg	1.92 Highest Quarterly Avg	Water additive used to control microbes.			
Combined Radium (PicoCuries per liter) (3/26/2002)	5.4 MCL Goal 0	0.99	N/A	Erosion of natural deposits.			
<b>Turbidity</b> * (NTU)	TT	Percent in High Quality Range 100%	Highest Single Measure 0.19	Soil runoff.			
<ul> <li>* Turbidity is a measure of the clarity of the water and is a good indicator of the effectiveness of the filtration system. Turbidity is measured in Turbidity Units called NTU's.</li> </ul>							
The following substances are regulated in the Distribution System:							
<b>TTHM</b> ** (parts per billion)	80.0	55.53	25.0 – 53.5	By-product of drinking water disinfection practices.			
Haloacetic Acids (parts per billion)	60.0	27.43	10.8 – 32.6	By-product of drinking water disinfection practices.			
# of Samples Action Level (AL) 90% Level over Action Level							
<b>Lead</b> (parts per billion) (8/19/2004)	15.0	2.0	0 out of 30	Corrosion of household plumbing systems; erosion of natural deposits.			
<b>Copper</b> (parts per million) (8/19/2004)	1.3	0.05	0 out of 30	Corrosion of household plumbing systems; erosion of natural deposits.			
** Total Trihalomethanes are formed when free chlorine (used for disinfection) combines with specific naturally-occurring substances.							
The following are Unregulated Substances:							
<b>Sodium</b> (parts per million)	Not Regulated	8.3	N/A	Erosion of natural deposits.			
<b>Sulfate</b> (parts per million)	Not Regulated	37.8	N/A	Erosion of natural deposits.			
DEFINITIONS: Parts per million = ppm = 1 pound in 500 tons. Parts per billion = ppb = 1 pound in 500,000 tons. MCL Goal: Maximum Contaminant Level Goal (concentrations less than this have no known or expected risk to health). MRDL Goal: Maximum Residual Disinfection Level Goal.							

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TT: Treatment Technique (a required process intended to reduce the level of a substance in drinking water).

AL: Action Level (concentration of a contaminant that if exceeded, triggers additional requirements a water system must follow).

**90<sup>th</sup> Percentile Level:** This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels.

More about water . . .

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The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Substances that may be present in source water (prior to treatment) include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
 Increase contaminants, such as calls, and metals, which can be networked on accurate such as a sets.

• Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

*Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
 *Organic chemical contaminants*, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

*Radioactive contaminants*, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. More information about contaminants and potential health effects, including EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, are available at the Environmental Protection Agency's Safe Drinking Water Hotline 800-426-4791.

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AIRPORT 1550 - 45th Avenue S.E. St. Cloud, MN 56304

PARK DEPARTMENT 400 - 2nd Street South St. Cloud, MN 56301 PUBLIC WORKS DEPARTMENT Engineering 400 · 2nd Street South St. Cloud, MN 56301

*Operation and Maintenance* 1200 - 15th Avenue S.E. St. Cloud, MN 56304 PUBLIC UTILITIES Water Utility 1000 - 5th Avenue North St. Cloud, MN 56303

*Waste Water Utility* 525 - 60th Street South St. Cloud, MIN 56301

Hydroelectric Utility 8 - 11th Street South St. Cloud, MN 56301



DEPARTMENT OF PUBLIC SERVICES

September 19, 2006

DNR Waters Water Permit Programs Supervisor 500 Lafayette Road St. Paul, MN 55155-4032

To Whom It May Concern:

Enclosed is the updated Water Emergency and Conservation Plan for the City of St. Cloud, required by Minnesota Statutes 103G.291.

If you have any questions regarding this plan, please contact Tracy Hodel at (320) 255-7225 or thodel@ci.stcloud.mn.us.

Sincerely,

Patrick Shea Assistant Public Utilities Director

Enclosure



The City of St. Cloud, Minnesota will not discriminate on the basis of race, color, creed, religion, national origin, sex, disability age, marital status, status with reguard to public assistance. familial status or sexual orientation. Upon request accommodation will be provided to allow individuals with disabilities to participate in all city services programs and activities.

#### CERTIFICATION OF ADOPTION WATER EMERGENCY AND CONSERVATION PLAN

City or Water System Name: City of St. Cloud

Name of Person Authorized to Sign Certification on Behalf of the System: **Patrick Shea** 

**Title: Assistant Public Utilities Director** 

Address: 400 Second Street South

Telephone: 320.255.7225

Fax: 320.650.2830

E-mail: PATRICK.SHEA@ci.stcloud.mn.us

I certify that the Water Emergency and Conservation Plan approved by the Department. •of Natural Resources has been adopted by the city council or utility board that has authority over water supply services.

Signed:

Date:July 27, 2006

Fax (651/296-0445) or mail this certification to: DNR Waters

Water Permit Programs Supervisor 500 Lafayette Road St. Paul, MN 55155-4032

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