

STATEMENT OF BASIS

APPLICANT: City of Sioux Falls and South Dakota Department of Transportation
PERMIT NUMBER: SDS-000001

Contact Persons	Address	Phone Number
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PERMIT TYPE: Municipal Separate Storm Sewer System (MS4) - New

DESCRIPTION

This is a municipal storm water discharge permit which authorizes the discharge of storm water from the municipal separate storm sewer system (MS4) owned and operated by the city of Sioux Falls, South Dakota and the South Dakota Department of Transportation (SDDOT). This permit is intended to authorize discharges of storm water even as jurisdictional boundaries change through the life of the permit. The permittees submitted application Part 1 on December 14, 1994, and application Part 2 on December 14, 1995. The final monitoring data was submitted August 15, 1996. The final application approval was granted with conditions on August 4, 1999.

The city of Sioux Falls is required to maintain and implement storm water management programs to control pollutants from entering storm water runoff through out the city of Sioux Falls.

South Dakota Department of Transportation is required to maintain and implement a storm water management program to control storm water runoff and erosion control associated with the South Dakota interstate road system around the city of Sioux Falls.

The permittees are required to implement comprehensive pollution prevention and management programs. As required by the federal Clean Water Act (CWA) Section 402(p)(3)(B), the storm water management program must include controls necessary to reduce the discharge of pollutants from the Municipal Separate Storm Sewer System (MS4) to the maximum extent practicable. Controls implemented under the storm water management program consist of a combination of best management practices, control techniques, system design and engineering methods, and such other provisions as the permittees or the state determines appropriate. The various components of the storm water management program, taken as a whole (rather than individually), are expected to be sufficient to meet this standard. The permittees are required to update the storm water management program periodically to ensure conformance with this statutory requirement, Administrative Rules of South Dakota (ARSD 74:52:01:03(4)).

DISCHARGES AUTHORIZED BY THIS PERMIT

This permit authorizes all existing or new storm water point source discharges to waters of the state from the portions of the MS4 owned or operated by the applicants. This permit allows the discharge of storm water commingled with flows contributed by process wastewater, non-process wastewater, or storm water associated with industrial activity provided these discharges are authorized under separate Surface Water Discharge (SWD) or National Pollutant Discharge Elimination System (NPDES) permits.

Section 402(p)(3)(B)(iii) of the CWA requires an effective prohibition on non-storm water discharges to the MS4. In addition, Section 402(p)(3)(A) places a different standard of performance, compliance with treatment technology (BAT/BCT) and water quality requirements at CWA Section 301, on discharges of storm water associated with industrial activity and from MS4s. Therefore, this MS4 permit cannot legally authorize process wastewater and industrial storm water discharges. The municipal applicant, however, will be responsible for the quality of the combined discharge; therefore, they have a vested interest in locating uncontrolled (i.e. unpermitted) illicit and industrial storm water discharges.

Allowable Non-Storm Water Discharges

Several sources of water that may be discharged through the MS4 are not subject to the controls in this permit. The following group of non-storm water discharges or flows are not considered to be "illicit" or "illegal" unless the discharges are identified by the secretary or the municipality as sources of pollutants to the state waters: landscape irrigation, diverted stream flows, rising ground water, uncontaminated ground water infiltration to separate storm sewers, fire hydrant testing, foundation drains, air conditioning condensation, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, and flows from riparian habitats and wetlands.

RECEIVING STREAMS

Any municipal storm water runoff from the city of Sioux Falls and SDDOT discharges into wetlands, unnamed tributaries of Big Sioux River, unnamed tributaries of Skunk Creek, and unnamed tributaries of Covell Lake. Storm water runoff also discharges into the Big Sioux River, Skunk Creek, Spring Creek, and Covell Lake.

The Big Sioux River from its confluence with the Missouri River to the point where the Sioux Falls Diversion Ditch empties into it is classified by the South Dakota Surface Water Quality Standards (SDSWQS), Administrative Rules of South Dakota (ARSD), Chapters 74:51:01 and 74:51:03, for the following beneficial uses:

- (5) Warmwater semipermanent fish life propagation waters;
- (7) Immersion recreation waters;
- (8) Limited-contact recreation waters;
- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

The Big Sioux River at the point where the Sioux Falls Diversion Ditch empties into the Big Sioux River (Section 2, Township 104 North, Range 49 West of the fifth principal meridian) is classified by the SDSWQS, ARSD, Chapters 74:51:01 and 74:51:03, for the following beneficial uses:

- (1) Domestic water supply water;
- (5) Warmwater semipermanent fish life propagation waters;
- (7) Immersion recreation waters;

- (8) Limited-contact recreation waters;
- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

Skunk Creek is classified by the SDSWQS, ARSD, Chapters 74:51:01 and 74:51:03 for the following beneficial uses:

- (6) Warmwater marginal fish life propagation waters;
- (8) Limited-contact recreation waters;
- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

Covell Lake is classified by the SDSWQS, ARSD, Chapters 74:51:01 and 74:51:02, for the following beneficial uses:

- (6) Warmwater marginal fish life propagation waters;
- (7) Immersion recreation waters;
- (8) Limited-contact recreation waters; and
- (9) Fish and wildlife propagation, recreation, and stock watering waters.

Spring Creek and unnamed tributaries within the city of Sioux Falls also receive MS4 discharges prior to entering the Big Sioux River, Skunk Creek, or Covell Lake. These receiving waters are classified by the SDSWQS, ARSD, Chapters 74:51:01 and 74:51:03, for the following beneficial uses:

- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

There are wetlands within the city of Sioux Falls that also receive MS4 discharges prior to entering the Big Sioux River, Skunk Creek, and Covell Lake. These wetlands are classified by the SDSWQS, ARSD, Chapters 74:51:01 and 74:51:02, for the following beneficial use:

- (9) Fish and wildlife propagation, recreation, and stock watering waters.

DESCRIPTION OF MUNICIPAL STORM WATER DISCHARGE SYSTEM

Sioux Falls discharges municipal storm water from the residential, commercial, industrial, agricultural, parks, and undeveloped areas within the municipal boundary of Sioux Falls. This municipal boundary encompasses 48.5 square miles. The delineated drainage area groups enclose 67.2 square miles within and near the municipal boundary.

Table 1 contains data of the land use within the municipal boundary and drainage areas delineated within and near the city of Sioux Falls.

Table 1
Land Use Within the City Boundary and Drainage Areas Delineated
Within and Near the City of Sioux Falls

<i>Land Use</i>	<i>Area within the city boundary (sq. mi.)</i>	<i>Area within the city boundary (acres)</i>	<i>% of Total Area</i>	<i>Drainage Area Delineated within and near the city (sq. mi.)</i>	<i>Drainage Area Delineated within and near the city (acres)</i>	<i>% of Total Delineated Area</i>	<i>Runoff Coeff. Per Land Use</i>	<i>Percent Imperviousness</i>
<i>Agricultural and nonclassified</i>	8.02	5133	16.5	25.19	16123	37.5	0.18	15
<i>Commercial</i>	7.53	4821	15.6	7.5	4803	11.2	0.72	75
<i>Industrial</i>	5.98	3825	12.3	6.42	4105	9.6	0.54	55
<i>Planned Residential or Industrial</i>	0.43	275	0.9	0.43	275	0.6	0.18	15
<i>Parks and Recreation</i>	5.38	3444	11.1	5.11	3271	7.6	0.18	15
<i>Residential</i>	21.15	13539	43.6	22.52	14410	33.5	0.27	24
<i>Total</i>	48.49	31037	100	67.17	42987	100	---	

Table 2 contains the drainage acres broken down by receiving waters and land use. Only the ultimate receiving waters are identified in the following table.

TABLE 2
Sioux Falls Land Use (in acres) by Receiving Water

<i>Receiving Water</i>	<i>Commercial</i>	<i>Industrial</i>	<i>Residential</i>	<i>Planned Residential or Industrial</i>	<i>Parks and Recreational</i>	<i>Agricultural and Nonclassified</i>	<i>Total</i>
<i>Big Sioux River</i>	3646	3111	10338	0	2430	8303	27828
<i>Big Sioux River /Skunk Creek</i>	816	794	2455	275	550	4156	9046
<i>Skunk Creek</i>	26	0	567	0	116	1610	2319
<i>Big Sioux River / Covell Lake</i>	311	200	758	0	168	18	1455
<i>Spring Creek</i>	4	0	292	0	7	2036	2339
TOTAL ACRES	4803	4105	14410	275	3271	16123	42987

Outfalls

A major outfall is defined as "a municipal separate storm sewer outfall that discharges from a single pipe with an inside diameter of 36-inches, or more or its equivalent (discharge from a single conveyance other than a circular pipe which is associated with a drainage area of more than 50 acres); or for municipal separate storm sewers that receive storm water from lands zoned for industrial activity (based on comprehensive zoning plans or the equivalent), an outfall that discharges from a single pipe with an inside diameter of 12 inches or more or

from its equivalent (discharge from other than a circular pipe associated with a drainage area of 2 acres or more)." (See 40 CFR 122.26(b)(5) and ARSD 74:52:02:38).

Sioux Falls identified 271 outfalls, manholes, and structural controls for field screening. Of those, 166 are major outfalls/manholes of 36 inches or more, 87 are outfalls/manholes that are 12 to 35 inches, and 18 are structural controls where storm water leaves the municipal storm water system and enters their designated receiving waters. The distribution of major/minor outfalls and structural controls by receiving water is presented in Table 3.

Drainage systems are divided into two categories: major and minor. The minor system consists of swales, small ditches, gutters, small pipes, and the various types of inlets and catch basins that collect and convey runoff to a discharge area or impoundment. Components in the minor system are sized to carry runoff generated by the more frequent short-duration storm events. The major drainage system includes natural streams, channels, ponds, lakes, retention and detention facilities, large pipes, and culverts. Design criteria for the major system are typically based on significant amounts of rainfall produced by the less frequent long-duration storms.

Structural Controls

Structural controls such as retention and detention ponds, catch basins, drainage ways, and channels can provide water quality enhancement in addition to their primary function of moderating flood flows. Existing storm water controls were inventoried as Part 2 of the MS4 application process. There were 30 controls identified on Plate 6 in the application Part 2, 18 were used in the field screenings.

<i>Receiving Water</i>	<i>Major/Minor Outfalls and Manholes (number)</i>	<i>Structural Controls (number)</i>
<i>Big Sioux River</i>	<i>120/69</i>	<i>10</i>
<i>Big Sioux River /Skunk Creek</i>	<i>34/13</i>	<i>4</i>
<i>Skunk Creek</i>	<i>5/1</i>	<i>3</i>
<i>Big Sioux River / Covell Lake</i>	<i>7/14</i>	<i>1</i>
<i>TOTAL</i>	<i>166/87</i>	<i>18</i>

DESCRIPTION OF DISCHARGE

Discharge from the Sioux Falls MS4 and the South Dakota Department of Transportation storm sewer system occurs during both dry and wet weather. Dry-weather discharges occur as a result of allowable non-storm water discharges (such as rising ground waters and landscape irrigation), as well as the possibility of illicit connections or illegal disposal. Wet weather discharges primarily occur as the direct result of precipitation events. As part of the permit application process, Sioux Falls gathered information to identify and characterize flows during both times. Other allowable sources of dry weather flow include discharges of process wastewater, provided such discharges are authorized under separate Surface Water Discharge (SWD) or National Pollutant Discharge Elimination System (NPDES) permits.

Dry-Weather Discharge Field Screening

The dry-weather field screening is intended to provide a preliminary determination about the existence, extent, and location of illicit connections and illegal dumping (EPA, 1991). The results of the field screening are to provide a factual basis upon which Sioux Falls could develop an illicit connection program.

Field Screening Procedures

The field screening portion of the application requirements is designed to identify sources of non-storm water which discharge to the MS4 (EPA, 1990). During dry weather periods, outfalls were examined to see if flow was occurring. The dry weather discharges were sampled and analyzed.

The city began the process of selecting 250 field screening points by overlaying a map of the city storm sewer system with a grid system consisting of perpendicular north-south and east-west lines spaced ¼ mile apart. If any flow was observed, two grab samples were collected during a 24-hour period, with a minimum of four hours between samples. The field screening analysis did not identify any illicit connections or illegal dumping to the city storm sewer system. The flows appeared to be ground water. One outfall contained a higher chlorine residual than normal. This result pointed the city officials to a water line break that was then repaired. 271 screening points were inspected and 32 of those screening points had flow sampled and analyzed.

Wet-Weather Discharge Characterization

As required in the regulations, Sioux Falls' application included information characterizing the quality and quantity of the storm water (wet-weather) discharges. This information is contained in application Parts 1 and 2.

The first part of this characterization entailed analysis of historical rainfall and snow records. These were analyzed to describe the area's storm events. The second part involved actual storm water discharge sampling and analysis.

The National Weather Service collects precipitation data at the airport in Sioux Falls. This data was used to characterize precipitation and storm events for Sioux Falls. Table 4 is a summary of the precipitation records for the period of 1949-1988 for Sioux Falls.

<i>Month</i>	<i>Mean Monthly Precipitation (inches)</i>	<i>Mean Monthly Snowfall (inches)</i>	<i>Mean Number storms > 0.1 inches</i>
<i>January</i>	0.53	6.7	1.4
<i>February</i>	0.77	8.1	1.6
<i>March</i>	1.71	10.1	3.2
<i>April</i>	2.43	2.4	4.3
<i>May</i>	3.11	0	5.6
<i>June</i>	3.65	0	6.3
<i>July</i>	2.70	0	5.1

<i>Month</i>	<i>Mean Monthly Precipitation (inches)</i>	<i>Mean Monthly Snowfall (inches)</i>	<i>Mean Number storms > 0.1 inches</i>
<i>August</i>	3.00	0	5.2
<i>September</i>	2.94	0	4.5
<i>October</i>	1.62	0.5	2.6
<i>November</i>	1.04	4.8	1.8
<i>December</i>	0.72	7.8	1.8
<i>ANNUAL TOTAL</i>	24.22	40.4	43.4

According to the application, local studies have found that, in general, 0.1 inches of rainfall is the amount necessary to cause runoff. The computer program, SYNOP, developed by EPA and the Federal Highway Administration, was used to determine storm characteristics for the 1949-1988 period for the city of Sioux Falls. On an average, approximately 43.4 storm events occur each year that are equal to or greater than 0.1 inches in precipitation depth. For storms larger than 0.1 inches, and with a storm separation basis of 6 hours, the average storm event is 0.49 inches with an 11.1 hour duration. The average annual amount of runoff-producing rainfall is 24.22 inches. This data was submitted in application Part 1.

Outfalls and Contributing Watersheds

The city selected three outfalls for use in data collection for storm water discharge characterization. These outfalls were chosen to represent commercial, residential, and industrial land-use activities. Application Part 1 characterization plan describes these watersheds and outfalls. Table 5 presents a summary of this information.

<i>MONITORING SITES</i>	<i>Trib. Area¹ (ac)</i>	<i>Conveyance Type²</i>
<i>Industrial Site (Outfall 001)</i>		
<i>1. Big Sioux Diversion Channel and Benson Road, Big Sioux Diversion Channel</i>	695	<i>open channel</i>
<i>Commercial Site (Outfall 002)</i>		
<i>2. I-29, 41st St. and the Big Sioux River, Big Sioux River</i>	145	<i>open channel</i>
<i>Residential Site (Outfall 003)</i>		
<i>3. 26th and 33rd St., Skunk Creek</i>	328	<i>open channel</i>
<i>Notes: ¹ "Trib Area" = area that actually contributed runoff during monitored storms.</i>		

Wet-Weather Sampling Results

Monitoring was conducted during a 14-month period from May 1995 to July 1996. Four rainstorm events were sampled at each of the three stations. The city of Sioux Falls requested an extension to their sampling program

since two sampling sites had not had three samples taken by December 15, 1995. An extension on the sampling data was granted. The final samples were taken on July 3, 1996.

In general, storm events that were sampled ranged from 0.16 inches to 0.75 inches. The range of runoff from the storm events was estimated from the known drainage area and the measured volume passing the gauging station. Table 6 summarizes the storm event characteristics. This information was taken from application Part 2, Table 9.

<i>Monitoring Sites</i>	<i>Number of Storms Sampled</i>	<i>Range of Rainfall (in)</i>	<i>Range of Runoff (in)</i>
<i>Industrial Site (Outfall 001)</i>			
<i>1. Big Sioux Diversion Channel and Benson Road, Big Sioux Diversion Channel</i>	<i>4</i>	<i>0.23-0.63</i>	<i>0.22-0.55</i>
<i>Commercial Site (Outfall 002)</i>			
<i>2. I-29, 41st St. And the Big Sioux River, Big Sioux River</i>	<i>4</i>	<i>0.16-0.75</i>	<i>0.19-0.69</i>
<i>Residential Site (Outfall 003)</i>			
<i>3. 26th and 33rd St., Skunk Creek</i>	<i>4</i>	<i>0.18-0.70</i>	<i>0.19-0.65</i>

Water quality samples were collected using automatic-pumped samplers for most constituents, and manually using hand-held samplers for those requiring grab samples. The United States Geological Survey (USGS), Water Resource Division, South Dakota District Office, conducted the sampling under an agreement with the city of Sioux Falls. Samples were analyzed by Quanterra Environmental Services Laboratory in Arvada, CO and by USGS field personnel.

Constituents monitored in the program included the 139 parameters specified in 40 CFR 122.26 d.(2)(iii)(A)(3), a.b.r. in ARSD 74:52:02:38. The city of Sioux Falls also included the analyses of 10 additional parameters. The list of parameters can be found in Attachment A. Sample data results are presented in application Part 2, Table 23.

The department intends to use the monitoring information collected during the permit to evaluate reductions in pollutant loads to waters of the state. The pollutant loading trends will also be used in evaluating the effectiveness of the permittees' storm water management programs to ensure that such discharges shall not cause or contribute to violations of state water quality standards.

ESTIMATES OF CONCENTRATIONS AND LOADING

The permit application requirements include two types of water quality estimates to assess the short-term and long-term impacts of discharges from MS4s. The first is an estimate of the event-mean concentration of pollutants in the discharges to waters of the state from the municipal outfalls. The second is an estimate of the annual pollutant load of the cumulative discharges.

Estimated Event-Mean Concentrations

Table 7 summarizes the analytical results of the wet-weather discharge characterization for each land-use type. The range of analytical results is represented, as well as the land-use average event-mean concentration. Event-mean concentration is defined as the average concentration of a constituent in storm water runoff during a storm event. The land-use average event-mean concentration is the average concentration of a constituent in storm water runoff from an average storm event for a particular land-use type. According to the Preamble to the federal rules (Nov. 16, 1990), the intent of this estimate is to characterize delivery of pollutants that may occur during and shortly after a single storm event. The runoff from a single storm can have short-term effects on water quality. Examples of short-term impacts from such discharges include periodic dissolved oxygen depression due to the oxidation of contaminants, high bacteria levels, and acute effects of toxic pollutants.

The city of Sioux Falls' use of flow-weighted composite sampling resulted in an average concentration for each constituent detected in a storm event. The concentration of any one constituent reported by the laboratory analysis is referred to as the event-mean concentration for that constituent. These event-mean concentration data were combined to calculate a runoff-volume-weighted average event-mean concentration for Sioux Falls. The event-mean concentrations are contained in Table 7. This information was taken from application Part 2, Table 25 and Table 29.

Estimated Annual Pollutant Loads

Annual pollutant load is defined as the mass of a constituent (in pounds) contained in storm water that is transported to the receiving water during a year of average precipitation. This estimate is intended to characterize the delivery of pollutants that may be occurring over the course of an entire year. Long-term impacts from urban storm water discharges can include biological accumulation of toxics, destruction of stream bottom habitat, and depression of dissolved oxygen caused by the oxidation of organic compounds in bottom sediments.

The city of Sioux Falls calculated annual pollutant loads for each land use. The average annual pollutant load was calculated by using the national regression equations developed by the USGS and using the simple method in the Part 2 guidance manual developed by EPA.

The annual pollutant loads for the various land uses in Sioux Falls are located in the application Part 2, Table 28.

TABLE 7
Summary of Wet-Weather Discharge Characterization
By Land Use Category

Constituent	Units	COMMERCIAL LAND USE		INDUSTRIAL LAND USE		RESIDENTIAL LAND USE		Estimated Annual Loads		Estimated EMC	
		Range		Range		Range		Mean (lb.)		mg/L	
Alkalinity	mg/L as CaCO ₃	11.8-95.1	40.5-80.7	26.5-87.5	-	-	-	-	-	-	-
Arsenic, Total	mg/L	0.0055-0.0088	0.01	<0.005	<0.005	<0.01	-	-	-	-	-
Biochemical Oxygen Demand, 5 day (BOD)	mg/L	8-51.2	4.5-51.7	7-17.7	982,625	18.5	-	-	-	-	18.5
Cadmium, total recoverable (TCd)	mg/L as Cd	<0.005	<0.005	<0.005	266	0.005	-	-	-	-	0.005
Chemical Oxygen Demand (COD)	mg/L	22-126	25.1-47.8	24.3-115	2,865,270	53.8	-	-	-	-	53.8
Chromium, Total	mg/L	0.025	0.029	0.014	-	-	-	-	-	-	-
conductivity	µs/cm	63-495	83-333	59-427	-	-	-	-	-	-	-
Copper, total recoverable (TCu)	mg/L as Cu	<0.02-0.022	<0.02-0.04	<0.02-0.023	1144	0.021	-	-	-	-	0.021
Diazinon	µg/L	<0.24-<0.25	<0.25	<0.25-0.57	-	-	-	-	-	-	-
Dissolved Calcium	mg/L	4.4-58.1	12.3-22.9	9.7-49.1	-	-	-	-	-	-	-
Dissolved Chloride	mg/L	1.8-31.5	6.0-47.3	2.9-8.4	-	-	-	-	-	-	-
Dissolved Magnesium	mg/L	0.42-18.4	1.2-2.3	1.5-20.9	-	-	-	-	-	-	-
Dissolved Potassium	mg/L	<5-9.0	<5-15.7	<5	-	-	-	-	-	-	-
Dissolved Sodium	mg/L	<5-21.5	5.9-39.8	<5-9.3	-	-	-	-	-	-	-
Dissolved Sulfate	mg/L	2.4-116	7.4-17.3	10.1-119	-	-	-	-	-	-	-
fecal coliform	per 100 mL	250-6100	2300-4800	1800-24000	-	-	-	-	-	-	-
fecal streptococcus	per 100 mL	4000-43000	20000-93000	9200-68000	-	-	-	-	-	-	-
Gamma-BHC	µg/L	<0.049-<0.05	<0.05-0.057	<0.05	-	-	-	-	-	-	-

TABLE 7
Summary of Wet-Weather Discharge Characterization
By Land Use Category

Constituent	Units	COMMERCIAL LAND USE		INDUSTRIAL LAND USE		RESIDENTIAL LAND USE		Estimated Annual Loads		Estimated EMC	
		Range		Range		Range		Mean (lb.)		mg/L	
Lead, total recoverable (TPb)	mg/L as Pb	<0.05		<0.05-0.059		<0.05		2685		0.05	
Methylene Chloride	µg/L	<5-5.2		<5		<5		-		-	
Nitrate plus Nitrite	mg/L	0.26-1.10		0.54-0.83		0.19-0.95		-		-	
Oil and Grease	mg/L	<5		<5-<5.2		<5-10.7		-		-	
pH, field	s.u.	5.6-7.2		5.9-7.6		6.0-8.1		-		-	
Phosphorus, dissolved (DP)	mg/L as P	0.06-0.18		0.12-0.83		0.097-0.12		9,010		0.169	
Phosphorus, total (TP)	mg/L as P	0.12-0.30		0.38-0.91		0.29-0.47		19,123		.36	
Total Coliform	per 100 mL	3400-34000		>4000-87330		14000-89333		-		-	
Total Dissolved Solids (TDS)	mg/L	37-396		116-280		119-287		9,364,634		176	
Total Kjeldahl Nitrogen (TKN)	mg/L as N	0.95-2.9		<0.50-3.6		2.2-4.9		145,986		2.74	
Total Nitrogen (TN)	mg/L	1.22-4		<1.04-4.43		2.74-5.85		177,354		3.33	
Total Organic Carbon	mg/L	7.6-35.3		7.1-20		8.6-19.8		-		-	
Total Petroleum Hydrocarbons	mg/L	<1.0-2.0		1.7-7.3		<1.0-8.4		-		-	
Total phenols	mg/L	0.0077-0.016		0.0077-0.009		0.0077		-		-	
Total Residual Chlorine	mg/L	0-0.2		<0.2-0.3		0-<0.2		-		-	
Total Suspended Solids (TSS)	mg/L	45-347		85-350		50-514		10,123,188		190	
Zinc, total recoverable (TZn)	mg/L as Zn	0.045-0.17		0.082-0.29		0.037-0.19		6083		0.114	
number of samples		4		4		4		-		-	

LEGAL AUTHORITY TO CONTROL DISCHARGE OF POLLUTANTS

The city of Sioux Falls and South Dakota Department of Transportation, as a permittees, are responsible for compliance with this permit and must have the authority to implement the conditions contained in the permit. The permit application regulations require that the applicant demonstrate that they have adequate legal authority to control the contributions of pollutants in storm water discharges to its MS4. Sioux Falls has indicated in application Part 2 that the city has adequate legal authority in the following required areas:

Control the contributions of pollutants to the storm sewer system from industrial activities.

Sioux Falls states in its application that the existing city ordinance prohibits non-storm sewer discharges to the city storm sewer system. Violations of the ordinance can result in fines and civil action. Erosion control plans are required as part of the new development plans for proposed construction sites.

As stated in the letter dated November 17, 1995, from the city attorney, "Section 41-111 of the Revised Ordinances of the city of Sioux Falls, South Dakota makes it unlawful to discharge to any natural outlet within the city any sewage or other polluted water".

Section 15A.11.010 requires an erosion control plan for construction activity.

Prohibit illicit discharges and control spills and dumping.

Sioux Falls states that the city possesses adequate legal authority to prohibit illicit discharges and illegal dumping. This law allows for non-contact cooling waters to be discharged. These types of discharges require a SWD permit. Therefore, the city shall modify this law or adopt a standard operating procedure (SOP) by January 1, 2000. This modification or SOP would inform and require any known discharger of unpolluted industrial cooling water or process water to the city's MS4 to apply and maintain valid Surface Water Discharge permit from the SDDENR.

As stated in the city attorney's letter, "Section 41-111 of the Revised Ordinances of the city of Sioux Falls, South Dakota makes it unlawful to discharge to any natural outlet within the city any sewage or other polluted water".

"Section 18-2 prohibits the dumping of junk, refuse, garbage, and waste matter into a stream, river, pond, or body of water."

"Section 19-49 gives the city the authority to abate a nuisance."

Control contributions of coapplicants.

South Dakota Department of Transportation must control the storm water discharges into the interstate right of way.

Require compliance with all regulations and statutes.

As stated in the city attorney's letter, "It is the city attorney's legal opinion that the ordinances and statutes provide the city with legal authority to control discharges to the storm sewer system".

Carry out inspection, surveillance, and monitoring procedures.

As stated in the city attorney's letter, "Section 41-12 of the Revised Ordinances of the city of Sioux Falls, South Dakota authorizes any authorized inspector to inspect storm drainage systems, receive complaints, investigate complaints, and enter upon private or public property for inspection and investigation of possible pollution of any waters in violations of municipal ordinances. South Dakota Codified Law authorizes the issuance of Inspection Warrants."

STORM WATER MANAGEMENT PROGRAMS (SWMP)

The permittees are required to implement comprehensive pollution prevention and management programs. As required by Clean Water Act Section 402(p)(3)(B), the Storm Water Management Program (SWMP) must include controls necessary to reduce the discharge of pollutants from the Municipal Separate Storm Sewer System (MS4) to the Maximum Extent Practicable (MEP). Controls implemented under the SWMP consist of a combination of best management practices, control techniques, system design and engineering methods, and such other provisions as the permittees or the State determines appropriate. The various components of the SWMP, taken as a whole (rather than individually), are expected to be sufficient to meet this standard. The permittees may be required to update the SWMP periodically to ensure conformance with this statutory requirement of Clean Water Act Section 402(p)(3)(B).

Implementation of the pollution prevention measures and the storm water management plan is expected to result in protection of water quality standards. The permit does, however, contain a reopener clause if new information indicates that the discharges from the MS4 are causing, or significantly contributing to, a violation of the state's water quality standards.

As part of the application process in 40 CFR 122.26(d)(2)(iv), a.b.r. ARSD 74:52:02:38, the applicant was required to propose a comprehensive storm water management program, which is being incorporated into the permit by reference. The storm water management plan addresses runoff from residential and commercial areas, industrial sites, construction sites, and includes a program to eliminate illicit discharges and improper disposal of wastes into the MS4.

The storm water management plan must contain program elements for each of the items in Table 8. 40 CFR 122.26(d)(2)(iv) a.b.r. ARSD 74:52:02:38 authorizes the contents of the program elements to differ for each permittee, and different controls for different areas of the MS4 on a watershed, jurisdiction, or individual outfall basis. Due to differences in climate, age, topography, historical development patterns, legal authority, sensitivity of receiving waters, and many other factors, DENR believes some flexibility in prioritizing the scope and timing of individual program elements must be afforded the permittees. The standard of reducing the pollutants to the maximum extent practicable is therefore applied to the storm water management program as a whole, rather than to each individual program element.

TABLE 8	
Storm Water Management Program Elements	
Required Program Element	Regulatory References
Operation and maintenance of structural controls.	40 CFR 122.26(d)(2)(iv)(A)(1)
Control of discharges from areas of new development and significant redevelopment.	40 CFR 122.26(d)(2)(iv)(A)(2)
Operation and maintenance of public streets, roads, and highways.	40 CFR 122.26(d)(2)(iv)(A)(3)
Ensuring flood control projects consider water quality impacts.	40 CFR 122.26(d)(2)(iv)(A)(4)

TABLE 8
Storm Water Management Program Elements

Required Program Element	Regulatory References
Identification, monitoring, and control of discharges from municipal waste treatment, storage, or disposal facilities.	40 CFR 122.26(d)(2)(iv)(A)(5)
Control of pollutants related to application of pesticides, herbicides, and fertilizers.	40 CFR 122.26(d)(2)(iv)(A)(6)
Implementation of an inspection program to enforce ordinances that prohibit illicit connections and illegal dumping into the MS4.	40 CFR 122.26(d)(2)(iv)(B)(1)
Field screening the MS4 for illicit connections and illegal dumping.	40 CFR 122.26(d)(2)(iv)(B)(2)
Implementation of standard investigative procedures to identify and terminate sources of illicit connections or discharges.	40 CFR 122.26(d)(2)(iv)(B)(3)
Prevention, containment, and response to spills that may discharge into the MS4.	40 CFR 122.26(d)(2)(iv)(B)(4)
Limit the infiltration of sanitary seepage into the MS4.	40 CFR 122.26(d)(2)(iv)(B)(7)
Identification, monitoring, and control of discharges from municipal landfills; hazardous waste treatment, storage, disposal, and recovery facilities; facilities that are subject to EPCRA Title III, Section 313; and any other industrial or commercial discharge the permittees determines are contributing a substantial pollutant loading to the MS4.	40 CFR 122.26(d)(2)(iv)(C)(1)
Control of pollutants in construction site runoff.	40 CFR 122.26(d)(2)(iv)(D)(1)
Public education.	40 CFR 122.26(d)(2)(iv)(A)(6) 40 CFR 122.26(d)(2)(iv)(B)(5) 40 CFR 122.26(d)(2)(iv)(B)(6)

Structural Controls: Each permittee must operate and maintain any storm water structural controls for which they are the owner or operator, in a manner so as to reduce the discharge of pollutants (including floatables).

Areas of New Development and Significant Redevelopment: Each permittee must utilize a comprehensive master planning process to develop, implement, and enforce controls to minimize the discharge of pollutants from areas of new development and significant re-development after construction is completed.

Roadways: Each permittee must operate and maintain public streets, roads, highways, and interstates under its jurisdiction in a manner so as to minimize discharge of pollutants.

Flood Control Projects: Each permittee must ensure any flood management project it undertakes has assessed impacts on water quality of receiving waters. Each permittee must also evaluate the feasibility of retrofitting existing structural flood control devices to provide additional pollutant removal from storm water.

Identification, monitoring, and control of discharges from municipal waste treatment, storage, or disposal facilities: Each permittee identified in the permit must implement a program to reduce pollutants in storm water discharges from municipally-operated solid waste transfer stations, maintenance and storage yards for waste transportation fleets, and POTWs and sludge application sites not covered by SWD storm water permits. The initial phase of the program shall contain procedures to evaluate, inspect, and monitor these sites. Based upon the evaluations, inspections, and monitoring performed, priorities and procedures for implementing control

measures for pollutant reduction at these sites shall be developed. Monitoring methodology used during the initial investigative period may be relaxed from standard protocol and may be based on experience gained during actual field activities. The goal of the investigative portion is to actively identify areas within these sites with poorer quality discharges during storm events, so that those areas will be given priority when implementing control measures.

Pesticide, Herbicide, and Fertilizer Application: Each permittee must implement controls to reduce the discharge of pollutants related to application of pesticides, herbicides, and fertilizers applied by the permittee's employees or contractors to public right of ways, parks, and other municipal facilities. Permittees with jurisdiction over lands not directly owned by that entity (e.g. incorporated city) must implement controls to reduce discharge of pollutants related to application and distribution of pesticides, herbicides, and fertilizers by commercial and wholesale distributors and applicators. The public education element of the SWMP must include a component aimed at private use of fertilizers, herbicides, and pesticides.

Illicit Discharges and Improper Disposal: The permittees must implement an ongoing program to detect and remove illicit discharges and improper disposal into the storm sewer. The permittees must effectively prohibit non-storm water discharges to the MS4, other than those authorized under a separate SWD permit.

The permittees must enforce ordinances that prohibit illicit connections and illegal dumping into the MS4. A random inspection program to detect and eliminate illicit connections shall be implemented. Section 41-116 of the Sioux Falls' ordinance must be modified or adopt a standard operating procedure (SOP) by January 1, 2000. This modification or SOP would inform and require any known discharger of unpolluted industrial cooling water or process water to the city's MS4 to apply and maintain valid Surface Water Discharge permit from the SDDENR.

Each permittee shall conduct dry weather field screening of the MS4 for illicit discharges and improper disposal. The dry weather screening program is a continuation of the efforts started under application Part 1 to locate and eliminate illicit connections to the MS4. This program is intended to support the permit requirement to effectively prohibit non-storm water discharges to the MS4. The permittees will implement an effective screening program that is best suited to their individual systems.

Each permittee must implement a program to prevent, contain, and respond to spills that may discharge into the MS4. The spill response program may include a combination of spill response actions by the permittees (and/or another public or private entity), and legal requirements for private entities within the permittee's jurisdiction.

Each permittee must prevent (or require the operator of the sanitary sewer to eliminate) unpermitted discharges of dry and wet weather overflows from sanitary sewers into the MS4. Each permittee must limit the infiltration of seepage from sanitary sewers into the MS4.

Each permittee must prohibit the discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaves, and animal wastes (as identified in the management program) into the MS4.

Each permittee must require the elimination of illicit connections as expeditiously as possible and the immediate cessation of improper disposal practices upon identification of responsible parties. Where an expeditious elimination of an illicit connection or the submittal of a SWD permit application to SDDENR is not possible, the responsible party must submit to the permittee with jurisdiction for approval, a written compliance schedule for the removal of the discharge. In the interim, the permittees must require the operator of the illicit connection to take all reasonable and prudent measures to minimize the discharge of pollutants to the MS4.

Construction Site Runoff: Each permittee must implement a program to reduce the discharge of pollutants from construction sites. This program must include requirements for the use and maintenance of appropriate structural and nonstructural best management practices to reduce pollutants discharged to the MS4 during construction. The program must also include procedures for site planning which minimizes potential short and long-term water quality impacts. The inspection of construction sites and enforcement of control measures shall be prioritized. Appropriate education and training measures for construction site operators shall be conducted. The city should take measures to identify and inform the state of building permit applicants that meet the state general construction permit requirements.

Public Education: Each permittee must implement a public education program including a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges of non-storm water or improper disposal of materials. Those materials may include industrial and commercial wastes, household hazardous wastes, leaf litter, grass clippings, and animal wastes into the MS4. The program shall identify what types of animal wastes that will be addressed. The program shall promote, publicizes, and facilitate the proper management and disposal of used oil and household hazardous wastes. A program to promote, publicize, and facilitate the proper use, application, and disposal of pesticides, herbicides, and fertilizers by the public and commercial and private applicators and distributors. Where applicable and feasible, the permittees should publicize those best management practices (including but not limited to the use of reformulated or redesigned products, substitution of less toxic materials, and improvements in housekeeping) used by the permittees that facilitates better use, application, and/or disposal of materials identified above. The department believes that educating the public on the impacts of their everyday activities is a crucial component of preventing storm water pollution.

The programs listed above have been described in the application Part 2, Proposed Management Program section.

TERMS AND CONDITIONS

Every permit issued as part of the South Dakota Surface Water Discharge System is required to contain terms and conditions necessary to ensure compliance with applicable control regulations, and the state and federal laws. The applicable regulatory criteria for this permit are in the federal Clean Water Act, Section 402(p)(3)(B). This permit shall require controls to reduce the discharge of pollutants from the MS4 to the maximum extent practicable based on Best Professional Judgment.

There are no numeric effluent limits included in this permit. Pollution prevention and storm water management requirements are the controls that are used in place of numeric limits to achieve reduction of pollution in the storm water discharges from the city of Sioux Falls MS4 and South Dakota Department of Transportation. The department has determined that the terms and conditions discussed below are necessary to ensure the required compliance.

COMPLIANCE SCHEDULE

Except as provided below, compliance with the terms and conditions of this permit, including the storm water management programs, shall be required by the effective date of the permit. Where dates in the compliance schedule and in the text of the permit conflict, the dates in the compliance schedule are deemed correct.

The compliance schedule detailed in Table 2 of the permit includes submittals of plans and implementation of permit conditions.

In the case of required plans, the permittees shall submit the plan to the secretary by the specified date. A schedule of dates to accomplish various tasks related to the plan, including implementation, should also be included. The secretary shall review the plans and determine if the plan contents address all the requirements as outlined in the permit in accordance with Part I.C.1. Upon approval of the implementation plan by the secretary, all terms and conditions of the implementation plan, including but not limited to the compliance schedule, shall automatically become conditions of this permit.

In the case of required implementation or actions, no later than 30 calendar days following each date identified in the schedule of compliance (excluding those requiring notification within the annual report only), the permittees shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

MONITORING AND REPORTING REQUIREMENTS

The department has included several monitoring and reporting requirements as provisions in this permit. Continued screening of Sioux Falls' outfalls to identify dry-weather discharges will help to eliminate illicit discharges and illegal connections. Wet weather monitoring will continue to characterize the quality of storm water leaving the Sioux Falls MS4. Annual reporting will track the progress of individual components of the storm water management programs.

The department intends to use all of the information gathered during the permit term (results of dry-weather screening, information in the annual reports, and results of wet-weather sampling) to evaluate trends in the reduction of pollutant discharges to waters of the state. The information will also be used to prioritize areas of the program and to assess the effectiveness of program components. Over the long term (several permit terms), monitoring and reporting data may indicate trends in receiving water quality impacts from storm water and will be used in developing future permits, if necessary.

A. Dry-Weather Monitoring Requirements

Illicit Discharges Management Program - Ongoing Field Screening:

The permittees shall continue the ongoing efforts to detect the presence of illicit connections and improper discharges to the MS4. The program shall include for example, monthly screenings over a one-year period for 25% of the city each year.

B. Wet-Weather Monitoring Requirements

The federal regulations that direct the national discharge permitting program, require monitoring in permits to assure compliance with permit limits [40 CFR 122.44 (i) a.b.r. 74:52:03:12]. While the regulations specifically list factors that relate to numerical effluent limits, the regulations allow for other measurements to be used as appropriate [40 CFR 122.44 (i) (1) (iii) a.b.r. 74:52:03:12]. The department has included wet-weather monitoring as a permit requirement in order to gauge the quality and impacts of storm water discharges leaving the Sioux Falls MS4 and the DOT MS4.

1. Applicant's Monitoring Proposal

The storm water permit application regulations [40 CFR 122 Section 6.5.3 (3)(b)(iii)(D) a.b.r. ARSD 74:52:01:38] include a requirement that the applicants propose a comprehensive monitoring program for the storm water discharges from the MS4.

The application process (40 CFR 122.26(d)(2)(iii)(C) and (D) a.b.r. ARSD 74:52:01:38) required each applicant to propose the following:

- (1) A schedule to provide estimates for each major outfall identified for any constituent detected in any sample required in the application Part 2 sampling
 - a) the seasonal pollutant load; and
 - b) the event mean concentration of a representative storm
- (2) A monitoring program for representative data collection for the term of the permit that describes the location of outfalls or field screening points to be sampled (or the location of instream stations), why the location is representative, the frequency of sampling, parameters to be sampled, and a description of sampling equipment.

As in paragraph (1) above, the permittees are to include a schedule to provide estimates, for each major outfall, of the seasonal pollutant load and the event-mean concentration of a representative storm for any constituent detected in any sample required in the application Part 2 sampling. The department reviewed the application Part 2 sampling data to determine which pollutants this requirement would include. The storm water regulation required monitoring for the 110 organic pollutants (Attachment A), 15 other toxic pollutants (including metals, cyanide and total phenols) (Attachment A), and for the following pollutants: total suspended solids (TSS), total dissolved solids (TDS), Chemical Oxygen Demand (COD), 5-Day Biochemical Oxygen Demand (BOD₅), oil & grease, fecal coliform, fecal streptococcus, pH, total Kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, and total phosphorus.

- * The overwhelming majority of 110 organic pollutants were never detected in the storm water sampling performed. Because of the low detection rate coupled with a very low concentration, the department concluded that the development of seasonal pollutant loadings and event-mean concentrations for each of these detected compounds would require an inordinate expense and effort to sample enough storm events to generate an event-mean concentration above the limit of detection. In lieu of this requirement, the department has placed in the permit a condition requiring that the permittees conduct investigations of the specific organic pollutants detected. The permittees are required to provide the result of these investigations in the Annual Report for Year Two of the permit.
- * The pollutants in the application Part 2 for which the permittees had to provide an estimate of the annual pollutant load and the event-mean concentration for the overall system are included in the permit. These pollutants are: BOD₅, COD, TSS, TDS, total Kjeldahl nitrogen, nitrate plus nitrite, total phosphorus, dissolved phosphorus, total recoverable cadmium, total recoverable copper, total recoverable lead, and total recoverable zinc. The permittees must develop seasonal pollutant loads and the event-mean concentrations for each of these pollutants for each major outfall.
- * The data for remaining pollutants in the application Part 2 was reviewed. If the pollutant had not been detected, it was not included under this requirement of the permit. If the pollutant had been detected in the application Part 2 sampling data, this pollutant was included under this requirement in the permit, and the permittees must develop seasonal pollutant loads and the event-mean concentrations for this pollutant for each major outfall.

Due to differences in the availability of existing water quality data, sensitivity of receiving waters, and other factors, the department believes some flexibility in the scope of the monitoring program elements

in paragraph (2) above must be afforded the permittees. One important goal of the monitoring program is to show a trend over the term of the permit in which pollutants are reduced to the maximum extent practicable from MS4 discharges and shall not cause or contribute to violations of state water quality standards to the receiving stream. Another goal of the monitoring program is to identify the sources and impacts of specific pollutants, so that these pollutants may be more effectively reduced or eliminated.

The applicants did not submit a monitoring program proposal to be reviewed. Therefore, the permittees shall develop and submit wet-weather monitoring program that contains the Monitoring Program Permit Requirements within 12 months of the effective date of this permit. This program shall assess wet-weather conditions particularly urban storm water effects on state waters. The program shall be implemented within six months of the date of program approval. If the permittees can submit a modification or variation for approval in place of the following monitoring program the compliance schedule still stands.

2. Monitoring Program Permit Requirements

The city of Sioux Falls shall continue to monitor the following parameters listed in Table 9 at the three outfalls under the monitoring program requirements (Table 5) twice a year. Time-composite or flow-composite samples can be used, but the type of sample selected shall be identified in the monitoring program. These parameters are to be monitored at the three approved instream-monitoring sites twice a year during the same rain event as the outfall sites are monitored.

<i>Alkalinity</i>	<i>Biochemical Oxygen Demand (5-day) (BOD₅)</i>	<i>Total Cadmium</i>	<i>Chemical Oxygen Demand (COD)</i>
<i>Chloride</i>	<i>Total Residual Chlorine</i>	<i>Total Chromium</i>	<i>Total Coliform</i>
<i>Conductivity</i>	<i>Total Copper</i>	<i>Total Dissolved Solids (TDS)</i>	<i>Fecal Coliform</i>
<i>Fecal Streptococcus</i>	<i>Hardness</i>	<i>Total Kjeldahl Nitrogen</i>	<i>Total Lead</i>
<i>Total Nitrogen</i>	<i>Nitrate plus Nitrite</i>	<i>Total Organic Carbon</i>	<i>Total Petroleum Hydrocarbons</i>
<i>pH (field)</i>	<i>Total Phenols</i>	<i>Dissolve Phosphate</i>	<i>Total phosphate</i>
<i>Sulfate</i>	<i>Total Suspended Solids (TSS)</i>	<i>Total Zinc</i>	

40 CFR 122.21(g)(7)(iii) and (iv) a.b.r. 74:52 requires that permittees must indicate whether they know or have reason to believe that any of the pollutants in Tables II, III, or IV of Appendix D (toxic pollutants, total phenols, and certain conventional and non-conventional pollutants) are being discharged from the outfalls at these sites. These tables are listed in Attachment A. This requirement is based on Best Professional Judgment. If the permittees become aware of new companies or the change of operations in a company, which may contribute additional pollutants in the storm water discharges, the city must notify the department within 48 hours.

C. Annual Reporting Requirement

Sioux Falls and SDDOT shall prepare and submit an annual system-wide report. The objective of the report is to summarize the progress Sioux Falls and SDDOT has made in implementing the conditions of the permit. Specific requirements for the annual report are discussed in Part I.F. of the permit. This report is to be submitted to this department by April 1 of each year upon issuance of this permit. This report will include January through December information.

The city of Sioux Falls and SDDOT shall annually review the programs in place and new programs implemented under this permit. The annual report shall address any improvements or goals to be attained. Only those portions of the Storm Water Management Program specifically required as permit conditions shall be subject to the modification requirements. Addition of the following components, controls, or requirements by permittees shall be considered minor changes to the plan and not modifications to the permit: replacement of an ineffective or infeasible BMP, implementing a requirement of the SWMP with an alternate BMP expected to achieve the goals of the original BMP, and changes required as a result of schedules contained in Part I of this permit.

Major modifications to the storm water programs shall not occur without prior approval by the state. The modifications are not enforceable until approved and modification requests must be signed according to the signatory requirements.

The annual report shall include:

1. The implementation status of each the components of the Storm Water Management Programs that are established as permit conditions (status of compliance with any schedules established under this permit shall be included in this section) and shall include specific quantitative measures where possible;
2. Proposed changes to the Storm Water Management Programs that are established as permit conditions, including an update on areas added to the MS4 due to annexation or other legal means;
3. Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application under 6.5.3(3)(b)(v) and (vi);
4. A summary of the data, including monitoring data, that is accumulated throughout the reporting year;
5. List of the facilities with runoff control plans as required under this permit at Part I.B.1.f., a summary of conformity with their plans, and a summary of any significant plan revisions;
6. Summary of educational activities (see Part I.B.1.a.);
7. Annual expenditures for the past reporting year, and budget for the next reporting year;
8. A summary of the number and nature of enforcement actions and inspections;
9. The wet-weather reporting requirements as listed in Part I.D; and
10. Identification of water quality improvements or degradation.

ANTIDEGRADATION

Due to the lack of monitoring data on storm water discharges, an accurate antidegradation review cannot be completed at this time. Monitoring data will be collected during the life of this permit. This is an existing discharge and the pollution prevention plans and best management practices the city is required to implement under this permit should improve the water quality of the discharge; therefore, the issuance of this permit should not degrade the water quality of the stream.

ENDANGERED SPECIES

The discharge, controlled by the terms of this permit, is the result of natural precipitation, and as such would continue to be discharged regardless of the federal action represented here. The terms of this permit requires that the permittees reduce, to the maximum extent practicable, pollutants in the storm water runoff discharged from the MS4. SDDENR believes reduction of pollutants in the natural runoff will not result in the disturbance of any site listed or eligible for listing in the National Historic Register, nor effect any endangered species. This permit specifically does not authorize any storm water discharges which would jeopardize a listed endangered or threatened species or adversely modify a designated critical habitat; or adversely effect properties listed or eligible for listing in the National Register of Historic Places.

INFORMATION SOURCES

In developing the permit, the following sources of information were used:

- (1) South Dakota Surface Water Quality Standards, 1994, South Dakota
- (2) US EPA, Region 8, 1995. City and County of Denver, CO, MS4 Permit Factsheet.
- (3) US EPA, Water Planning Division, 1983. Results of the Nationwide Urban Runoff Program, Volume 1 - Final Report. NTIS Accession No. PB84-15552
- (4) US EPA, Preamble to the federal storm water permit application regulations, Nov. 16, 1990, FR Vol. 55, No. 222.
- (5) US EPA, Region 4, 1994. City of North Port, Sarasota, Venice, Town of Longboat Key, Sarasota County and Florida Department of Transportation MS4 Permit Factsheet.
- (6) US EPA, Office of Water, 1991. Guidance Manual for the Preparation of Part 1 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA-505/8-91-003A.
- (7) US EPA, Office of Water, 1992. Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA-833-B-92-002.

CONTACT

Any questions pertaining to this statement of basis shall be referred to Norma C. Job, Natural Resources Engineer at (605) 773-3351.

August 3, 1999

ATTACHMENT A

TABLE II - Organic Toxic Pollutants in Each of Four Fractions in Analysis by Gas Chromatography/
Mass Spectroscopy (GS/MS)

Volatiles		Base/Neutral	
1V	acrolein	1B	acenaphthene
2V	acrylonitrile	2B	acenaphthylene
3V	benzene	3B	anthracene
5V	bromoform	4B	benzidine
6V	carbon tetrachloride	5B	benzo(a)anthracene
7V	chlorobenzene	6B	benzo(a)pyrene
8V	chlorodibromomethane	7B	3,4-benzofluoranthene
9V	chloroethane	8B	benzo(ghi)perylene
10V	2-chloroethylvinyl ether	9B	benzo(k)fluoranthene
11V	chloroform	10B	bis(2-chloroethoxy)methane
12V	dichlorobromomethane	11B	bis(2-chloroethyl)ether
14V	1,1 -dichloroethane	12B	bis (2-chloroisopropyl) ether
15V	1,2-dichloroethane	13B	bis (2-ethylhexyl)phthalate
16V	1,1 -dichloroethylene	14B	4-bromophenyl phenyl ether
17V	1,2-dichloropropane	15B	butylbenzyl phthalate
18V	1,3-dichloropropylene	16B	2-chloronaphthalene
19V	ethylbenzene	17B	4-chlorophenyl phenyl ether
20V	methyl bromide	18B	chrysene
21V	methyl chloride	19B	dibenzo(a,h)anthracene
22V	methylene chloride	20B	1,2-dichlorobenzene
23V	1,1,2,2-tetrachloroethane	21B	1,3-dichlorobenzene
24V	tetrachloroethylene	22B	1,4-dichlorobenzene
25V	toluene	23B	3,3'-dichlorobenzidine
26V	1,2-trans-dichloroethylene	24B	diethyl phthalate
27V	1,1,1-trichloroethane	25B	dimethyl phthalate
28V	1,1,2-trichloroethane	26B	di-n-butyl phthalate
29V	trichloroethylene	27B	2,4-dinitrotoluene
31V	vinyl chloride	28B	2,6-dinitrotoluene
	Acid Compounds	29B	di-n-octyl phthalate
1A	2-chlorophenol	30B	1,2-diphenylhydrazine (as azobenzene)
2A	2,4-dichlorophenol	31B	fluoranthene
3A	2,4-dimethylphenol	32B	fluorene
4A	4,6-dinitro-o-cresol	33B	hexachlorobenzene
5A	2,4-dinitrophenol	34B	hexachlorobutadiene
6A	2-nitrophenol	35B	hexachlorocyclopentadiene
7A	4-nitrophenol	36B	hexachloroethane
8A	p-chloro-m-cresol	37B	indeno(1,2,3-cd)pyrene
9A	pentachlorophenol	38B	isophorone
10A	phenol	39B	naphthalene
11A	2,4,6-trichlorophenol	40B	nitrobenzene
		41B	N-nitrosodimethylamine
		42B	N-nitrosodi-n-propylamine
		43B	N-nitrosodiphenylamine
		44B	phenanthrene
		45B	pyrene
		46B	1,2,4-trichlorobenzene

ATTACHMENT A (continued)

Table II- Organic Toxic Pollutants in Each of Four Fractions in Analysis by Gas Chromatography/
Mass Spectroscopy (GS/MS)(continued)

Pesticides

1P	aldrin	10P	dieldrin	19P	PCB-1254
2P	alpha-BHC	11P	alpha-endosulfan	20P	PCB-1221
3P	beta-BHC	12P	beta-endosulfan	21P	PCB-1232
4P	gamma-BHC	13P	endosulfan sulfate	22P	PCB-1248
5P	delta-BHC	14P	endrin	23P	PCB-1260
6P	chlordane	15P	endrin aldehyde	24P	PCB-1016
7P	4,4'-DDT	16P	heptachlor	25P	toxaphene
8P	4,4'-DDE	17P	heptachlor epoxide		
9P	4,4'-DDD	18P	PCB-1242		

Table III-Other Toxic Pollutants (Metals and Cyanide) and Total Phenols

Antimony, Total	Copper, Total	Silver, Total
Arsenic, Total	Lead, Total	Thallium, Total
Beryllium, Total	Mercury, Total	Zinc, Total
Cadmium, Total	Nickel, Total	Cyanide, Total
Chromium, Total	Selenium, Total	Phenols, Total

Conventional Pollutants

Additional Pollutants

Total Suspended Solids (TSS)
Total Dissolved Solids (TDS)
COD
BOD₅
Oil and Grease
Fecal Coliform
Fecal Streptococcus
pH
Total Kjeldahl nitrogen (TKN)

Nitrate plus nitrite
Dissolved phosphorus
Total ammonia plus organic
nitrogen
Total phosphorus

Alkalinity
Dissolved Calcium
Dissolved Chloride
Dissolved Magnesium
Dissolved Potassium
Dissolved Sodium
Dissolved Sulfate
Total Organic Carbon
Specific Conductance
Diazinon

ATTACHMENT A (continued)

Table IV- Conventional and Non-conventional pollutants required to be tested by existing dischargers if expected to be present.

Bromide	Sulfate	Manganese, Total
Chlorine, Total Residual	Sulfide	Tin, Total
Color	Sulfite	Titanium, Total
Fecal Coliform	Surfactants	
Fluoride	Aluminum, Total	
Nitrate-Nitrite	Barium, Total	
Nitrogen, Total Organic	Boron, Total	
Oil and Grease	Cobalt, Total	
Phosphorus, Total	Iron, Total	
Radioactivity	Magnesium, Total	

Minor Modification to SDS-000001
city of Sioux Falls and South Dakota Department of Transportation

On page 15 of the permit, in line 2, it states that "The first report is due on April 1, 2000". This typographical error is being corrected to reflect at least a full year of data in the first annual report. The first report is due April 1, 2001.

CONTACT

Any questions pertaining to this statement of basis shall be referred to Norma C. Job, Natural Resources Engineer at (605) 773-3351.

February 9, 2000