STATEMENT OF BASIS

Permit Number: SDG860000

Permit Type: General permit to discharge under the South Dakota Surface Water Discharge System for Water Treatment and Distribution Activities

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This document is intended to explain the basis for the requirements contained in the draft Surface Water Discharge General Permit. This document provides guidance to aid in complying with the draft general permit requirements. This guidance is not a substitute for reading the draft general permit and understanding its requirements.

APPLICABILITY

This general permit is proposed for any drinking water treatment system or drinking water distribution system activities that may result in a discharge of raw source water, partially treated water, or fully treated drinking water.

GENERAL PERMIT DESCRIPTION

The operation of water treatment plants and water distribution systems often results in a release of source water, process wastewater, or fully treated drinking water to surface waters of the state. These discharges contain pollutants which, if not properly managed, can result in impacts to water quality and possible exceedances of water quality standards. In accordance with the South Dakota Water Pollution Control Act and the Administrative Rules of South Dakota (ARSD), the discharge of pollutants into waters of the state requires a Surface Water Discharge permit. This draft general permit is intended to outline the requirements for water treatment plants and water distribution systems to release water or process wastewater into surface waters of the state.

The draft general permit contains discharge requirements and limits that are based on technology and water quality considerations, permit writer's judgment, Best Management Practices (BMPs), and other conditions applicable to the types of discharges generated by water treatment plant and water distribution activities.

BACKGROUND

As stated above, water treatment plants and water distribution systems periodically need to release source water, process wastewater, or fully treated drinking water, generally due to operational considerations or emergency circumstances. Obtaining an individual surface water discharge permit for each discharge may significantly impact the timing of a project due to administrative delays. The intent of a general permit for water treatment plants and water distribution systems is to:

1. Facilitate the scheduling of activities by reducing the administrative delays in permit authorization;

2. Establish uniform criteria for management practices and effluent limits for discharges from these activities; and

3. Promote a consistent permitting and enforcement posture with respect to these discharges.

The general permit regulations of the ARSD Section 74:52:02:46 provide for the issuance of general permits where covered facilities:

1. Involve the same or substantially similar types of operations;

2. Discharge the same types of wastes;

3. Require the same effluent limitations, operating conditions, or standards;

4. Require the same or similar monitoring; and

5. Are more appropriately controlled under a general permit.

The dischargers from South Dakota's water treatment plants and water distribution systems meet the requirements of ARSD Section 47:52:02:46. Therefore, the South Dakota Department of Agriculture and Natural Resources (SDDANR) will be renewing the general surface water discharge permit for water treatment and distribution activities.

DISCHARGE DESCRIPTION

There are a wide variety of discharges that may potentially occur from a drinking water system. These discharges can generally be classified as discharges from components of the water treatment process (referred to as Outfall DW1) and discharges from the distribution system (referred to as Outfall DW2). These sources of discharges are explained below.

Filter Backwash and Settling Basins – Outfall DW1

Typical water treatment plant filtration processes include pre-sedimentation, oxidation, coagulation, flocculation, sedimentation, and filtration. Although any one facility may not use all these processes, the process waste stream produced by any combination of these processes is relatively similar. When the source water has significant levels of total suspended solids (TSS), such as sand, an initial settling tank may be employed to remove these solids. The settling tank can be designed to allow for continuous removal of the solids or, periodically, the tank may be drained, and the solids removed. These solids are typically disposed of separately as solid waste or stored in holding ponds.

Coagulants and polymers are often added to the source water to improve settling and filtration. The most common coagulant in use is aluminum sulfate (alum), but facilities may also use ferric chloride and other coagulants. Drinking water systems also use additives to adjust pH (e.g., soda ash) and oxidants (e.g., chlorine, potassium permanganate, and ozone) for disinfection or precipitation of dissolved minerals.

Additives are generally applied with great care and in precise amounts. Dosage is based on the amount of TSS to be removed or the total dissolved solids (TDS) to be precipitated. This not only makes economic sense but many of these chemicals are more efficient at the proper dosage. Too much can produce as poor a result as too little.

A sedimentation basin may also be incorporated before the filtration process to settle solids after the addition of coagulants and flocculants. Like a pre-sedimentation basin, the sedimentation basin may be equipped for continuous or periodic cleaning, with the solids disposed of separately.

Filters are used to remove solids from source water and are periodically backwashed to remove accumulated solids. Filter backwash water is typically stored in a settling basin to reduce TSS and total residual chlorine (TRC).

The pollutants expected to be present in these discharges include fluoride, aluminum, calcium, iron, magnesium, manganese, nitrogen, phosphates, sulfate, TRC, or chloramines from the treatment, other various metals, as well as TDS and TSS from the source water. Of these pollutants, TSS, TDS, fluoride, and TRC are expected to be present at levels that may exceed the South Dakota Surface Water Quality Standards (SDSWQS) from discharges of this nature.

Discharges from these sources will be subject to the requirements of Outfall DW1 in the draft general permit.

Treatment System Overflows – Outfall DW1

Specific water treatment plant system components are often designed with overflow structures to prevent damage to the system.

Specific treatment units, such as sedimentation tanks or filters, are occasionally designed to prevent overfilling. Water treatment plants are expected to have alarm systems to provide a warning before such a discharge occurs. However, it is possible discharges could occur during treatment system overflows.

The principal pollutants of concern from the overflow of water treatment equipment are TSS, TRC, ammonia-nitrogen, and fluoride.

Discharges from these sources will be subject to the requirements of Outfall DW1 in the draft general permit.

Storage System Overflows – Outfall DW2

Specific water distribution system components are often designed with overflow structures to prevent damage to the system. For example, water storage towers typically have an overflow structure to prevent overfilling the storage unit.

The principal pollutants of concern from distribution system overflows are TRC and TSS.

Discharges from these sources will be subject to the requirements of Outfall DW2 in the draft general permit.

Disinfection and Flushing of Potable Water Lines – Outfall DW2
Potable water lines may need to be flushed and/or disinfected as a part of routine maintenance and water line construction. These lines can vary in size from a small section of a neighborhood water main to a large section of a rural water distribution system.

The principal pollutant of concern from the disinfection of water lines is the disinfectant (usually chlorine or chloramines) used. These disinfectants are toxic to aquatic life at high concentrations. Therefore, the concentrations of these disinfectants must be non-detectable in the discharge by the time it reaches waters of the state. Flushing of potable water lines can also result in the release of TSS in the discharge.

Discharges from these sources will be subject to the requirements of Outfall DW2 in the draft general permit.

Storage System Disinfection – Outfall DW2
Storage systems may need to be disinfected as a part of routine maintenance and construction. These storage systems often contain a large amount of water.

The principal pollutant of concern from the disinfection of storage systems is the disinfectant (usually chlorine or chloramines) used. These disinfectants are toxic to aquatic life at high concentrations. Therefore, the concentrations of these disinfectants must be non-detectible in the discharge by the time it reaches waters of the state.

Discharges from these sources will be subject to the requirements of Outfall DW2 in the draft general permit.

Water Line Breaks and Leak Repairs – Emergency Discharge
Water lines may need to be pumped out as part of repairing a potable water line break or leak. Line breaks and leaks are usually limited to a small section of pipe but may involve a very large amount of water. The draft general permit does not include limits associated with emergency discharges of this nature. However, the draft general permit requires the permittee to take reasonable measures to minimize the impact from a discharge of this nature.

The principal pollutant of concern is soils surrounding the line break or leak, in the form of TSS. Filtration or sedimentation would lower the concentration of solids being discharged. The permittee is required to develop a BMP plan for responding to emergency discharges and minimizing the impact of those discharges. See **Section 5.2 – Effluent Violation and Emergency Discharge Reporting Requirements** of the draft general permit.

Other Discharges
There is a potential for many other activities that could result in the need for a discharge from water treatment plants or water distribution systems. These activities may be eligible for coverage under this general permit providing the following conditions are met:

1. The general permit limits, monitoring and reporting requirements, and management practices are appropriate;

2. The discharge is temporary in nature; and

3. The discharge consists of relatively uncontaminated water consistent with the discharges described above.

When a request for coverage is received, SDDANR shall determine if the discharge meets the above criteria. If there is a potential for the discharge to contain pollutants other than those listed in the draft general permit, SDDANR may require the discharger to demonstrate that pollutants in question are not present to receive coverage under this general permit. This can be accomplished by sampling the water to be discharged, analyzing it for the pollutants in question, and comparing the results with method detection levels for that parameter according to approved methods.

The permittee may be required to reaffirm the absence of potential pollutants during the period of coverage. If it is shown that significant pollutants other than those limited by the draft general permit are present, coverage under this draft general permit shall be terminated. The facility would be required to obtain an individual surface water discharge permit prior to any further discharges.

GENERAL PERMIT COVERAGE

Inclusion of the above-described activities under a single surface water discharge general permit appears to be a reasonable approach in regulating these related discharges. The characteristics of the discharged water from these activities are similar because they discharge the same types of wastes, involve similar operations, and are appropriately controlled by similar effluent limits. Therefore, SDDANR has determined that these activities will be more appropriately controlled under a general permit rather than individual permits.

The United States Environmental Protection Agency (EPA) conducted a study in 2006 to determine if federal technology-based effluent limits were necessary for water treatment plant discharges. This study was completed based on the EPA's 2004 Effluent Guidelines Program Plan, which identified water treatment plants for analysis. In 2011, EPA determined that technology-based effluent limits for water treatment plant discharges were not necessary. The U.S. EPA released a technical document in December 2011 summarizing their findings from the 2006 study. This technical document included information obtained during the 2006 study, an overview of common water treatment technologies, types of residuals produced, common pollutants found in those residuals, and estimations of possible pollutant discharges from water treatment plants. Based on this document, no technology-based effluent limits are included in the draft general permit.

Appendix A of the draft general permit contains a copy of the Notice of Intent (NOI) for coverage under the draft general permit. This represents the minimum information SDDANR needs to provide coverage under the draft general permit.

When SDDANR receives a NOI for coverage under the draft general permit or an application for an individual permit from a water system, department staff will conduct a thorough review of the NOI or application and other available information to determine if the facility is eligible for coverage under the draft general permit. Based on this review, the department will then decide to grant or deny coverage under the draft general permit, request any additional information, or issue an individual permit.

Facilities that meet the conditions for coverage under the draft general permit still have the option of obtaining an individual permit if requested. In addition, the Secretary may require an individual permit for a facility, pursuant to the provisions in ARSD Section 74:52:02:47.

Permittees that wish to terminate coverage under this general permit must submit a Notice of Termination (NOT) form that is signed in accordance with **Section 5.5 – Signatory Requirements**. Compliance with this general permit is required until a NOT, found in Appendix B of the draft general permit, is submitted. The permittee must submit the NOT within **30 calendar days** of terminating operations and services or obtaining coverage under an individual or alternative general permit that addresses the discharge from the facility.

Discharges Not Covered

Discharges of water needing to be treated for radioactive components will not be covered by the draft general permit. This includes discharges of source water, filter backwash, and any other water that has not received complete treatment for any radioactive component. Treated water that meets the requirements of the Safe Drinking Water Act (SDWA) for radionuclides, such as discharge from water towers, disinfection of distribution lines, or a distribution line breakage can be covered under the conditions for Outfall DW2 in the draft general permit.

The draft general permit does not authorize a discharge or spill of chemicals used in the treatment process. Such releases must be reported to SDDANR in accordance with **Section 2.3 – Discharges Not Covered** of the draft general permit immediately and properly cleaned up.

The draft general permit does not cover a discharge from a swimming pool, hot tub, fountain, or anything similar that is fed by potable water and has increased chlorine levels. Such releases must follow the BMP plan provided by SDDANR and shall be properly monitored.

The draft general permit does not address a discharge to a sanitary sewer system or publicly owned treatment works. SDDANR requires a Pretreatment Industrial User for any non-domestic discharge into a publicly owned treatment works if the discharge is a significant contributor of pollutants. In most cases, a discharge from a water system will not result in a significant contribution of pollutants to the publicly owned treatment works. However, if SDDANR determines that a water system is impacting a publicly owned treatment works, SDDANR would require the system to obtain an individual pretreatment industrial user permit. This draft general permit will not address such a discharge.

REQUIRING AN INDIVIDUAL PERMIT

In accordance with ARSD Section 74:52:02:47, the Secretary may require any owner or operator covered under a general permit to apply for an individual surface water discharge permit for any of the following reasons:

1. The discharge is a significant contributor of pollution to waters of the state or it presents a health hazard;

2. The discharge is not in compliance with the conditions of the draft general permit;

3. A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source;

4. Effluent limitation guidelines are promulgated for point sources covered by the draft general permit; or

5. A water quality management plan containing requirements applicable to such point sources is approved.

The Secretary may also require any owner or operator covered under a general permit to apply for an individual surface water discharge permit for either of the following reasons:

1. The receiving waters are impaired for one or more of the pollutants being discharged, and the limits in the draft general permit will not prevent the facility from causing or contributing to the impairment; or

2. Conditions or standards have changed so the discharge no longer qualifies for coverage under the draft general permit.

In addition, a facility covered by this general permit may apply for an individual surface water discharge permit.

RECEIVING WATERS

Dischargers from the activities listed above have the potential to enter many water bodies. These water bodies are classified by the SDSWQS, ARSD, Chapters 74:51:02 and 74:51:03 for the following beneficial uses:

(1) Domestic water supply waters;
(2) Coldwater permanent fish life propagation waters;
(3) Coldwater marginal fish life propagation waters;
(4) Warmwater permanent fish life propagation waters;
(5) Warmwater semipermanent fish life propagation waters;
(6) Warmwater marginal fish life propagation waters;
(7) Immersion recreation waters;

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

Limit Sets
Limit sets have been created based on the facility's receiving waters beneficial use designations. The **most** stringent SDSWQS shall be used for limit development.

Outfall DW1
Outfall DW1 limit sets shall consist of DW1 A – DW1 F. Each limit set will have one or more of the following beneficial uses:

1. **DW1 A**: 6, 7, 8, 9, 10, and/or 11.
2. **DW1 B**: 1 and one or more of the following: 6, 7, 8, 9, 10, or 11.
3. **DW1 C**: 3, 4, 5, 7, 8, 9, 10, or 11.
4. **DW1 D**: 1 and one or more of the following: 3, 4, 5, 7, 8, 9, 10, or 11.
5. **DW1 E**: 2, 7, 8, 9, 10, or 11.
6. **DW1 F**: 1 and 2 and one or more of the following: 7, 8, 9, 10, or 11.

Outfall DW2
Outfall DW2 limit sets shall consist of DW2 A – DW2 C. Each limit set will have the following beneficial uses:

1. **DW2 A**: 6, 7, 8, 9, 10, and/or 11.
2. **DW2 B**: 3, 4, or 5 and one or more of the following: 7, 8, 9, 10, or 11.
3. **DW2 C**: 2 and one or more of the following: 7, 8, 9, 10, or 11.

TOTAL MAXIMUM DAILY LOAD

Section 303(d) of the federal Clean Water Act requires states to develop Total Maximum Daily Loads (TMDLs) for waters at levels necessary to achieve and maintain water quality standards. TMDLs are calculations of the amount of pollution a waterbody can receive and still maintain applicable water quality standards. According to the federal Clean Water Act, the state must develop TMDLs for all waters identified on their Section 303(d) list of impaired waters, according to their priority ranking on that list. Every two years, the state assesses its water quality and publishes the list of impaired water bodies as part of its Integrated Report.

TMDLs address specific waterbodies, segments of waterbodies, or even entire watersheds, and are pollutant specific. TMDLs must allow for seasonal variations and a margin of safety, which accounts for any lack of knowledge concerning the relationship between pollutant loads and water quality. A wasteload allocation is developed for any point sources that cause or contribute to the water quality impairment.

Prior to issuing coverage to a facility under this draft general permit, SDDANR will determine if the receiving water has an applicable TMDL for any of the expected pollutants in the discharge. If a wasteload allocation has been assigned to the facility, coverage will be granted or denied on a case-by-case basis. If the facility is not be granted coverage under the draft general permit, and the facility will be required to obtain an appropriate individual surface water discharge permit.

ANTIDEGRADATION

SDDANR has fulfilled the antidegradation review requirements for the draft general permit. In accordance with South Dakota's Antidegradation Implementation Procedure and the SDSWQS, no further review is required since the draft general permit allows discharges of partially or fully treated drinking water that are temporary in nature. The results of SDDANR's review are included in Attachment 1.

MONITORING DATA

All water treatment facilities and distribution systems covered by the draft general permit will be required to submit Discharge Monitoring Reports (DMRs) if a discharge occurs. Monitoring data for facilities previously covered under this general permit are available from SDDANR upon request or at the following website: https://echo.epa.gov/.

INSPECTIONS

Personnel from SDDANR regularly conduct sanitary surveys of drinking water systems and will continue to do so for those facilities covered by the draft general permit. Attachment 2 includes a list of facilities covered under the current general permit and the respective general permit numbers, for reference.

EFFLUENT LIMITS

SDDANR has developed effluent limits to ensure the protection of surface waters of the state. These limits are intended to be protective of any water body in South Dakota. Differences have been noted below for those receiving waters with more stringent water quality standards. The following limits are based on the SDSWQS, the current general permit limits, a reasonable potential analysis (Attachment 3), and permit writer's judgment.

Since source water, partially treated water, and fully treated drinking water may have different characteristics, SDDANR has divided these sources of discharge into two distinct "outfalls" for the purposes of reporting under the draft general permit:

Outfall DW1 Any discharge of source water or partially treated water from a water treatment plant that reaches waters of the state. This includes, but is not limited to, overflows or discharges from treatment units, line failures within the treatment plant, or discharges of untreated source water.

Outfall DW2 Any discharge of treated drinking water from water storage units, distribution lines, or associated appurtenances that reach waters of the state. This includes, but is not limited to, a discharge of fully treated drinking water from the water treatment plant, line flushing, and overflows or releases from storage units.

Effluent Limits – Outfall DW1

1. The TSS concentration shall not exceed 90 mg/L in any sample. This limit applies to discharges to all waters of the state **except** dischargers to waters classified as coldwater permanent fish life propagation waters according to the SDSWQS (ARSD Chapters 74:51:02 and 74:51:03). This limit applies to limit sets DW1 A, DW1 B, DW1 C, and DW1 D. This limit is based on the SDSWQS (ARSD Chapter 74:51:01), the current general permit limits, the reasonable potential analysis (Attachment 3), and the permit writer's judgment.

   For discharges to waters of the state classified as coldwater permanent fish life propagation waters, the effluent limit for TSS shall not exceed 30 mg/L in any sample. This limit applies to limit sets DW1 E and DW1 F. This limit is based on the SDSWQS (ARSD Section 74:51:01:45), the current general permit limits, the reasonable potential analysis (Attachment 3), and the permit writer's judgment.

   Alternative treatment technologies and BMPs are available to reduce the TSS in the discharge. However, the cost-effectiveness of using these various technologies and BMPs varies from site to site because of the differences in influent water and sediment characteristics, duration of the discharge, scope of the project, geography of the site, and other factors. Temporary settling ponds and/or portable treatment units (e.g., filters) have been the most common treatment schemes utilized for TSS control.

   As stated above, settling aids are commonly used for water treatment. Because of the variety of available chemical flocculants, SDDANR must be notified of the type of such settling aids in the NOI for coverage under the draft general permit. If SDDANR determines the chemicals could enter the discharge and impact the water quality of the receiving stream, the facility may be required to obtain an individual permit for the release of such chemicals.

2. The TDS concentration shall not exceed 1,000 mg/L in any one sample. This limit applies to discharges to waters classified as domestic water supply waters according to the SDSWQS (ARSD Chapters 74:51:02 and 74:51:03). This limit applies to limit sets DW1 B, DW1 D, and DW1 F. This limit is based on the SDSWQS (ARSD Section 74:51:01:44), the current general permit limits, the reasonable potential analysis (Attachment 3), and the permit writer's judgment.

   Discharges to waters of the state that **are not** classified as domestic water supply waters will not have a limit for TDS. However, monitoring for TDS will be required for these

discharges. This applies to limit sets DW1 A, DW1 C, and DW1 E. This is based on the reasonable potential analysis (Attachment 3) and the permit writer's judgment.

3. The pH shall not be less than 6.5 standard units or greater than 9.0 standard units in any single analysis and/or measurement. This limit is only applicable to discharges to waters of the state classified as domestic water supply waters, coldwater permanent fish life propagation waters, coldwater marginal fish life propagation waters, warmwater permanent fish life propagation waters, or warmwater semipermanent fish life propagation waters (ARSD Chapters 74:51:02 and 74:51:03). This limit applies to limit sets DW1 B, DW1 C, DW1 D, DW1 E, and DW1 F. This limit is based on the SDSWQS (ARSD Sections 74:51:01:44, :45, :46, :47, and :48), the current general permit limits, the reasonable potential analysis (Attachment 3), the permit writer's judgment, and the SDSWQS (ARSD Chapter 74:51:01).

   The pH shall not be less than 6.0 standard units or greater than 9.0 standard units in any single analysis and/or measurement. This limit is only applicable to all discharges to waters of the state **except** discharges to waters of the state classified as domestic water supply waters, coldwater permanent fish life propagation waters, coldwater marginal fish life propagation waters, warmwater permanent fish life propagation waters, or warmwater semipermanent fish life propagation waters (ARSD Chapters 74:51:02 and 74:51:03). This limit applies to limit set DW1 A. This limit is based on the SDSWQS (ARSD Sections 74:51:01:49, :52, and :54), the current general permit limits, the reasonable potential analysis (Attachment 3), the permit writer's judgment, and the SDSWQS (ARSD Section 74:51:01:49).

   Note: SDDANR specifies that pH analyses are to be conducted within 15 minutes of sample collection with a pH meter. Therefore, the permittee must have the ability to conduct onsite pH analyses. The pH meter used must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment. Readings shall be reported to the nearest 0.1 standard units.

4. The TRC concentration in any one sample shall not exceed 0.019 mg/L. This applies to discharges from all limit sets of Outfall DW1 to all waters of the state. This limit is based on the SDSWQS (ARSD Section 74:51:01:55 and Appendix B of the SDSWQS), the current general permit limits, the reasonable potential analysis (Attachment 3), and the permit writer's judgment and is being included because SDDANR has determined there is a reasonable potential for TRC to be present in the discharge at levels that may violate the SDSWQS. This limit is applicable only if the effluent is chlorinated.

   Note: SDDANR considers the analytical detection limit for TRC to be 0.05 mg/L. If the effluent value is less than the analytical detection limit, "Below Detection Level" shall be used for reporting purposes.

Alternative treatment technologies and BMPs are available to reduce the TRC in the discharge. However, the cost-effectiveness of using these various technologies and BMPs varies from site to site because of the differences in initial concentration, duration of the discharge, scope of the project, geography of the site, and other factors. BMPs used for erosion or TSS may also work to lower TRC; as they allow time, exposure to light and air, and space for the chlorine to dissipate. If these BMPs are not effective, several temporary dechlorination technologies are available.

5. There shall be no discharge of sanitary wastewater. This limit is based on the permit writer's judgment.

6. There shall be no discharge of floating solids or visible foam in other than trace amounts. This limit is based on the SDSWQS (ARSD Section 74:51:01:06).

7. There shall be no direct discharge of any solids and/or sludges generated by the treatment of the effluent. This limit is based on the SDSWQS (ARSD Section 74:51:01:06).

8. No chemicals shall be used without prior written permission. Chemicals listed in the NOI are approved if coverage under the general permit is granted. This limit is based on the permit writer's judgment

A reasonable potential analysis was completed using monitoring data from permittees for Outfall DW1. Based on this analysis, limits for TSS and TRC will be included in the draft general permit. Additionally, from the reasonable potential analysis, a limit for TDS will be included for discharges to waters of the state classified as (1) domestic water supply waters. The following parameters will have monitoring requirements: conductivity, TDS (for discharges to waters of the state not classified as domestic water supplies), ammonia-nitrogen, total sulfate, fluoride, flow rate, total flow, duration of discharge, and water temperature. An explanation of this analysis and the results are included in Attachment 3. The limit for TRC only apply if the facility uses a form of chlorine in the disinfection process.

Effluent Limits – Outfall DW2

1. The TSS concentration shall not exceed 90 mg/L in any sample. This limit applies to discharges to all waters of the state **except** dischargers to waters classified as coldwater permanent fish life propagation waters according to the SDSWQS (ARSD Chapters 74:51:02 and 74:51:03). This limit applies to limit sets DW2 A and DW2 B. This limit is based on the SDSWQS (ARSD Chapter 74:51:01), the current general permit limits and the permit writer's judgment.

   For discharges to waters of the state classified as coldwater permanent fish life propagation waters, the effluent limit for TSS shall not exceed 30 mg/L in any sample. This limit applies to limit set DW2 C. This limit is based on the SDSWQS (ARSD Section 74:51:01:45), the current general permit limits and the permit writer's judgment.

Alternative treatment technologies and BMPs are available to reduce the TSS in the discharge. However, the cost-effectiveness of using these various technologies and BMPs varies from site to site because of the differences in influent water and sediment characteristics, duration of the discharge, scope of the project, geography of the site, and other factors. Temporary settling ponds and/or portable treatment units (e.g., filters) have been the most common treatment schemes utilized for TSS control.

As stated above, settling aids are commonly used for water treatment. Because of the variety of available chemical flocculants, SDDANR must be notified of the type of such settling aids in the NOI for coverage under the draft general permit. If SDDANR determines the chemicals could enter the discharge and impact the water quality of the receiving stream, the facility may be required to obtain an individual permit for the release of such chemicals.

2. The pH shall not be less than 6.5 standard units or greater than 9.0 standard units in any single analysis and/or measurement. This limit is only applicable to discharges to waters of the state classified as domestic water supply waters, coldwater permanent fish life propagation waters, coldwater marginal fish life propagation waters, warmwater permanent fish life propagation waters, or warmwater semipermanent fish life propagation waters (ARSD Chapters 74:51:02 and 74:51:03). This limit applies to limit sets DW2 B and DW2 C. This limit is based on the current general permit limits, the reasonable potential analysis (Attachment 3), the permit writer's judgment, and the SDSWQS (ARSD Chapter 74:51:01).

   The pH shall not be less than 6.0 standard units or greater than 9.0 standard units in any single analysis and/or measurement. This limit applies to all discharges to waters of the state **except** discharges to waters of the state classified as domestic water supply waters, coldwater permanent fish life propagation waters, coldwater marginal fish life propagation waters, warmwater permanent fish life propagation waters, or warmwater semipermanent fish life propagation waters (ARSD Chapters 74:51:02 and 74:51:03). This limit applies to limit set DW2 A. This limit is based on the current general permit limits, the reasonable potential analysis (Attachment 3), the permit writer's judgment, and the SDSWQS (ARSD Section 74:51:01:49).

   Note: SDDANR specifies that pH analyses are to be conducted within 15 minutes of sample collection with a pH meter. Therefore, the permittee must have the ability to conduct onsite pH analyses. The pH meter used must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment. Readings shall be reported to the nearest 0.1 standard units.

3. The TRC concentration in any one sample shall not exceed 0.019 mg/L. This applies to discharges from all limit sets of Outfall DW2 to all waters of the state. This limit is based on the SDSWQS (ARSD Section 74:51:01:55 and Appendix B of the SDSWQS), the current general permit limits, the reasonable potential analysis (Attachment 3), and the

permit writer's judgment and is being included because SDDANR has determined there is a reasonable potential for TRC to be present in the discharge at levels that may violate the SDSWQS. This limit is applicable only if the effluent is chlorinated.

Note: SDDANR considers the analytical detection limit for total residual chlorine to be 0.05 mg/L. If the effluent value is less than the analytical detection limit, "Below Detection Level" shall be used for reporting purposes.

Alternative treatment technologies and BMPs are available to reduce the total residual chlorine in the discharge. However, the cost-effectiveness of using these various technologies and BMPs varies from site to site because of the differences in initial concentration, duration of the discharge, scope of the project, geography of the site, and other factors. BMPs used for erosion or TSS may also work to lower TRC; as they allow time, exposure to light and air, and space for the chlorine to dissipate. If these BMPs are not effective, several temporary dechlorination technologies are available.

4. The Ammonia-Nitrogen (as N) concentration in any one sample shall not exceed 1.0 mg/L. This limit is based on the current general permit limits, a reasonable potential analysis (Attachment 3), and the permit writer's judgment. This limit only applies if the facility is adding ammonia or any ammonia byproducts as part of its disinfection process.

5. There shall be no discharge of sanitary wastewater. This limit is based on the permit writer's judgment.

6. There shall be no discharge of floating solids or visible foam in other than trace amounts. This limit is based on the SDSWQS (ARSD Section 74:51:01:06).

7. There shall be no direct discharge of any solids and/or sludges generated by the treatment of the effluent. This limit is based on the SDSWQS (ARSD Section 74:51:01:06).

8. No chemicals shall be used without prior written permission. Chemicals listed in the NOI are approved if coverage under the general permit is granted. This limit is based on the permit writer's judgment.

A reasonable potential analysis was completed using monitoring data from permittees for Outfall DW2. Based on the analysis, limits for TRC and ammonia-nitrogen (as N) will be included in the draft general permit. The following parameters will have monitoring requirements: total flow, duration of discharge, and flow rate. An explanation of this analysis and the results are included in Attachment 3. Limits for ammonia-nitrogen (as N) and TRC only apply if the facility adds either of them in the disinfection process.

The permittee shall take all reasonable measures to prevent or minimize the possibility of stream channel scouring or erosion caused by the discharge with the implementation of recognized BMPs. Some examples of BMPs are included in Attachment 4.

SELF MONITORING, RECORD KEEPING, AND REPORTING REQUIREMENTS

Self-Monitoring Requirements – Outfall DW1

Monitoring is required for each activity that will result in a discharge to waters of the state. The draft general permit requires the permittee to monitor all discharges for TSS (mg/L), pH (s.u.), TDS (mg/L) for discharges to waters classified as domestic water supply waters, TRC (mg/L), and floating solids (presence or absence). These monitoring requirements are based on the limits in the draft general permit for these parameters. Ammonia-nitrogen (as N, mg/L), conductivity (µmhos/cm), total fluoride (mg/L), effluent water temperature (°C), total flow (gallons), flow rate (gpd), TDS (mg/L) for discharges to waters of the state **not** classified as domestic water supplies, total sulfate (as SO_4, mg/L), and duration of discharge (days) shall be monitored, but will not have an effluent limit. These monitoring requirements are based on the SDSWQS, the current general permit, a reasonable potential analysis (Attachment 3), the permit writer's judgment, and the need to fully characterize the discharge.

Monitoring for TRC, ammonia-nitrogen (as N), and fluoride is only required if the facility adds one, or any combination of the three of these parameters as part of the water treatment and disinfection process. Monitoring is not required for the parameter(s) not added during the water treatment or disinfection process.

Monitoring shall consist of **monthly** inspections of the water treatment facility and storage units to verify that proper operation and maintenance procedures are being practiced and whether or not there is a discharge occurring from this facility. **Daily** inspections are required during a discharge. Documentation of each of these visits shall be kept in a notebook to be reviewed by SDDANR or EPA personnel when an inspection occurs.

Self-Monitoring Requirements – Outfall DW2

Monitoring is required for each activity that will result in a discharge to waters of the state. The draft general permit requires the permittee to monitor all discharges for TSS (mg/L), pH (s.u.), TRC (mg/L), ammonia-nitrogen (as N, mg/L), and floating solids (presence or absence). These monitoring requirements are based on the limits in the draft general permit for these parameters. Effluent water temperature (°C), total flow (gallons), flow rate (gpd), and duration of discharge (days) shall be monitored, but will not have an effluent limit. These monitoring requirements are based on the SDSWQS, the current general permit limits, a reasonable potential analysis, the permit writer's judgment, and the need to fully characterize the discharge.

Monitoring for TRC or ammonia-nitrogen (as N) are only applicable if the facility adds one, or both of these parameters as part of the water treatment and disinfection process. Monitoring is not required for the parameter(s) not added during the water treatment or disinfection process.

Monitoring shall consist of **monthly** inspections of the distribution system and storage units to verify that proper operation and maintenance procedures are being practiced and whether or not there is a discharge occurring from the distribution system. **Daily** inspections are required during a discharge. Lines being flushed and all overflow pipes shall be inspected on a **daily** basis.

Documentation of each of these visits shall be kept in a notebook to be reviewed by SDDANR or EPA personnel when an inspection occurs.

Representative Outfalls
A permittee may have more than one outfall at a particular site or have several sites in the same geographical area. To avoid excessive sampling and monitoring requirements, the permittee may request that representative outfalls cover activities at similar sites. In this way, sampling would only have to be performed at selected outfalls, and other outfalls would be considered similar in quality and nature without sampling. In requesting this allowance, the permittee must have documentation showing the discharge activities are similar or identical, and that discharges from these activities will be similar in quality and nature. The representative outfalls documentation must be included in the BMP Plan. The justification for including this allowance is based on the permit writer's judgment.

Emergency Discharges
Emergency discharges can include main breaks, line repairs, and any other emergency that results in the release of raw source water, partially treated water, or fully treated drinking water. These discharges can occur from Outfall DW1 or DW2.

The priority during an emergency discharge is repairing the problem and eliminating the discharge. The BMP Plan must address procedures for reducing pollution from these types of discharges. The requirements for the BMP Plan are included in **Section 4.0 – Best Management Practices Plan** in the draft general permit.

Emergency discharges that enter waters of the state must be reported to SDDANR within 24 hours of becoming aware of the discharge. In addition to verbal notification, the permittee shall submit a written report of the circumstances regarding the emergency discharge to SDDANR. The requirements for emergency discharge reporting are included in **Section 5.2 – Effluent Violation and Emergency Discharge Reporting Requirements** in the draft general permit.

Reporting Requirements
Effluent monitoring results from Outfall DW1 shall be summarized and recorded on a Discharge Monitoring Summary Form, located in Appendix C of the draft general permit, to be submitted to SDDANR by **the 28th day of the month** following the discharge. If an emergency discharge occurs from Outfall DW1, it shall be reported on the Discharge Monitoring Summary Form for Outfall DW1. **If no discharge occurs during the previous month no report shall be submitted.**

Effluent monitoring results from Outfall DW2 shall be summarized and recorded on a Discharge Monitoring Summary Form, located in Appendix C of the draft general permit, to be submitted to SDDANR by **the 28th day of the month** following the discharge. If an emergency discharge occurs from Outfall DW2, it shall be reported on the Discharge Monitoring Summary Form for Outfall DW2. **If no discharge occurs during the previous month no report shall be submitted.**

On October 22, 2015, the EPA published in the federal register a rule that makes electronic reporting of permit reporting requirements mandatory for all SWD permits. Phase 1 of the rule requires that all DMRs must be submitted electronically as of December 21, 2016. SDDANR is

approved to accept DMRs electronically via NetDMR. Discharge Monitoring Summary Forms associated with the proposed general permit will be required to be submitted electronically as of December 21, 2025 EPA's rule will require all permit reporting requirements (such as permit applications and violation reports) to be submitted electronically. SDDANR is working on programs to meet this requirement and will notify facilities as they become available.

Records Retention

The permittee shall maintain documentation of site inspections, sample results, DMRs, a current version of the BMP plan, and all other information required by the draft general permit for at least three years. A copy of the general permit and the approval letter granting coverage under the general permit shall be kept onsite through the life of the general permit. The permittee shall make this information available for review by SDDANR or EPA upon request.

BEST MANAGEMENT PRACTICES PLAN

A BMP plan must be developed and readily available for inspection by SDDANR or EPA upon request. The BMP plan must describe what will be done to reduce pollution from temporary discharges such as overflows and line flushing. **The plan must be developed within 30 days of general permit coverage being issued, approved by SDDANR, and implemented prior to the start of any discharge.** Attachment 4 includes some examples of BMPs applicable to temporary discharge activities. A BMP plan template is available upon request from SDDANR. However, this template is a guideline and is not required to be followed. A BMP shall be approved by the department **prior** to the start of any discharge.

BMPs can be used in lieu of sampling for TSS or TRC at Outfall DW2. The BMP plan must show that the BMPs will reduce these pollutants below the draft general permit limits and how the BMPs will be properly implemented and maintained. If the permittee wishes to reduce sampling requirements for TSS and/or TRC, the permittee must submit a written request to the department. The request must include what BMPs will be implemented to reduce pollutant concentrations during discharges, how the BMPs will be maintained, and any additional information. The permittee shall not reduce monitoring until written approval is granted by the department.

BMPs must also be developed in case of emergency discharges. As these are unplanned discharges, the most effective BMP will often be minimizing the length of the discharge. Temporary portable devices that may be used to reduce TSS or TRC should be readily available to personnel during an emergency discharge. BMPs could include preventative maintenance to avoid failures which can lead to emergencies, carefully monitoring levels to prevent overflows, and preparedness when performing activities, such as digging near a pipeline.

The permittee may wish to reduce sampling requirements by sampling at representative outfalls. Sampling at representative outfalls allows the permittee to sample at one outfall, rather than all locations where a discharge may be occurring. If the permittee will be using representative outfalls for reduced monitoring and sampling, the BMP plan must include a representative outfall sampling plan. This plan must show that the activities at each outfall are similar in quality and nature. If the permittee will be utilizing representative outfalls to reduce sampling requirements, a written request must be submitted to the department. The written request must include the representative

sampling plan. The permittee shall not sample using representative outfalls until written approval is granted by the department.

DRAINAGE ISSUES

The county the permittee is located in has the authority to regulate drainage. The permittee is responsible for getting any necessary drainage permits from the county **prior** to discharging.

ENDANGERED SPECIES

This is a renewal of an existing permit. No listed endangered species are expected to be impacted by activities related to this general permit. However, the US Fish and wildlife Service has a list of all endangered species, listed by county at the website referenced below.

GROUP	SPECIES
BIRD	CRANE, WHOOPING
	TERN, LEAST
FISH	SHINER, TOPEKA [1]
	STURGEON, PALLID [2]
MAMMAL	FERRET, BLACK-FOOTED [3]
MUSSEL	MUSSEL, SCALESHELL [4]
	MUSSEL, HIGGINS EYE [4, 5]
INVERTEBRATE	POWESHIEK, SKIPPERLING
	RUSTY PATCHED BUMBLEBEE [6]

[1] Although Topeka Shiners have not been formally documented within Clark, Douglas, Jerauld, Kingsbury, McPherson, Spink, or Yankton Counties, the species may still occur in these areas because they contain portions of known occupied Topeka Shiner streams and/or potentially occupied streams that exist within one or more of the three known inhabited watersheds in South Dakota: the James, Vermillion, and Big Sioux.

[2] A pallid sturgeon was caught in Lincoln County from the Big Sioux River in May 2009.

[3] Black-footed ferrets have been reintroduced in the Badlands National Park, Buffalo Gap National Grasslands, Cheyenne River Sioux Reservation, Lower Brule Sioux Reservation, Rosebud Sioux Reservation and Wind Cave National Park.

[4] Shells of these species have been found, but no populations have been located.

[5] A fresh dead shell of a Higgins Eye Mussel was found in the Missouri River below Gavins Point Dam on October 27, 2004.

[6] The Rusty Patched Bumble Bee was added to the Endangered Species List on January 11, 2017. South Dakota is not included in the current range. Two counties (Roberts and Day) have historic occurrence records. Under Section 7 consultation, surveys are not required and the species is not anticipated to be present in South Dakota.

This information was accessible at the following US Fish and Wildlife Service website as of February 22, 2022, and was last updated by the US Fish and Wildlife Service February 12, 2021: https://www.fws.gov/mountain-prairie/es/southdakota/SpeciesByCounty_Feb2021.pdf.

GENERAL PERMIT EXPIRATION

A five-year general permit is recommended. If the permittee wishes to continue an activity regulated by this draft general permit, a new application must be submitted to SDDANR at least 45 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Secretary. Prior to the expiration of the draft general permit, all permittees covered under the general permit will receive a new application for coverage.

If this general permit should expire before a new general permit is reissued, the terms and conditions of the expired general permit will remain effective and enforceable until the effective date of the reissued general permit. SDDANR will continue the general permit coverage for each facility covered under the draft general permit upon the expiration date, provided the facility submits an application to continue coverage.

GENERAL PERMIT CONTACT

This statement of basis and the draft general permit were developed by Tom Anderson, Environmental Engineer for the Surface Water Quality Program. Any questions pertaining to this statement of basis or the draft general permit can be directed to the Surface Water Quality Program, at (605) 773-3351.

May 25, 2022

ATTACHMENT 1

Antidegradation Review

Permit Type: **General WTP – Renewal**
Permit #: **SDG860000**
Receiving Stream: **Varies** Classification: **1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 (Varies)**
If the discharge affects a downstream waterbody with a higher use classification, list its name and uses: **Varies**

APPLICABILITY

1. Is the permit or the stream segment exempt from the antidegradation review process under ARSD 74:51:01? Yes ☒ No ☐ If no, go to question #2. If yes, check those reasons why the review is not required:

☐ Existing facility covered under a surface water discharge permit is operating at or below design flows and pollutant loadings;
☐ *Existing effluent quality from a surface water discharge permitted facility is in compliance with all discharge permit limits;

☐ *Existing surface water discharge permittee was discharging to the current stream segment prior to March 27, 1973, and the quality and quantity of the discharge has not degraded the water quality of that segment as it existed on March 27, 1973;
☐ *The existing surface water discharge permittee, with SDDANR approval, has upgraded or built new wastewater treatment facilities between March 27, 1973, and July 1, 1988;
☐ The existing surface water discharge permittee discharges to a receiving water assigned only the beneficial uses of (9) and (10); the discharge is not expected to contain toxic pollutants in concentrations that may cause an impact to the receiving stream; and SDDANR has documented that the stream cannot attain a higher use classification. This exemption does not apply to discharges that may cause impacts to downstream segments that are of higher quality;
☐ Receiving water meets Tier 1 waters criteria. Any permitted discharge must meet water quality standards;
☐ The permitted discharge will be authorized by a Section 404 Corps of Engineers Permit, will undergo a similar review process in the issuance of that permit, and will be issued a 401 certification by the department, indicating compliance with the state's antidegradation provisions; or
☒ Other: This permit does not authorize an increase in effluent limits.

*An antidegradation review is not required where the proposal is to maintain or improve the existing effluent levels and conditions. Proposals for increased effluent levels, in these categories of activities are subject to review.

No further review required.

ANTIDEGRADATION REVIEW SUMMARY

2. The outcome of the review is:

- ☒ A formal antidegradation review was not required for reasons stated in this worksheet. Any permitted discharge must ensure water quality standards will not be violated.
- ☐ The review has determined that degradation of water quality should not be allowed. Any permitted discharge would have to meet effluent limits or conditions that would not result in any degradation estimated through appropriate modeling techniques based on ambient water quality in the receiving stream, or pursue an alternative to discharging to the waterbody.
- ☐ The review has determined that the discharge will cause an insignificant change in water quality in the receiving stream. The appropriate agency may proceed with permit issuance with the appropriate conditions to ensure water quality standards are met.
- ☐ The review has determined, with public input, that the permitted discharge is allowed to discharge effluent at concentrations determined through a total maximum daily load (TMDL). The TMDL will determine the appropriate effluent limits based on the upstream ambient water quality and the water quality standard(s) of the receiving stream.
- ☐ The review has determined that the discharge is allowed. However, the full assimilative capacity of the receiving stream cannot be used in developing the permit effluent limits or conditions. In this case, a TMDL must be completed based on the upstream ambient water quality and the assimilative capacity allowed by the antidegradation review.
- ☐ Other: _____

3. Describe any other requirements to implement antidegradation or any special conditions That are required as a result of this antidegradation review: **All discharges permitted by the draft general permit will be temporary in nature and relatively uncontaminated.**

Tom Anderson — Reviewer — May 25, 2022 — Date

Tina McFarling, P.E. — Team Leader — May 25, 2022 — Date

ATTACHMENT 2

Facilities that Applied to Obtain Coverage Under the General Permit

Facilities Covered Under the Current General Permit that have Applied to Obtain Coverage Under the Proposed General Permit

Permit Number	Facility Name
SDG860001	Big Sioux Community Water System
SDG860002	Mini Wiconi RWS
SDG860003	WEB Water Development
SDG860004	Aberdeen WTP
SDG860007	Rapid Valley Sanitary District
SDG860008	Sturgis WTP
SDG860009	Whitewood WTP
SDG860010	White Water Distribution
SDG860011	Vermillion Water Distribution
SDG860012	Faulkton Water Distribution
SDG860013	Webster Water Distribution
SDG860014	Dakota Dunes WTP
SDG860015	Menno Water Distribution
SDG860016	Gary Water Distribution
SDG860017	South Lincoln Rural Water System
SDG860018	Winner Water Distribution
SDG860019	Lead Water Distribution
SDG860020	Rapid City WTP
SDG860021	Sioux Falls WTP
SDG860022	Mt. Rushmore WTP
SDG860023	Deadwood Water Distribution
SDG860024	Lennox WTP
SDG860025	Milbank WTP
SDG860026	Madison WTP
SDG860027	Worthing Water Distribution
SDG860028	Aurora-Brule Rural Water System
SDG860029	Volga WTP
SDG860030	Belle Fourche WTP
SDG860031	Langford Water Distribution
SDG860032	Pierre Water Distribution
SDG860033	Butte Meade Sanitary Water
SDG860034	Lincoln County Rural Water System
SDG860035	Clay Rural Water System
SDG860036	East Winds Court
SDG860037	VA Medical Distribution
SDG860038	Davison Rural Water System
SDG860039	Hanson Rural Water System
SDG860040	Colonial Pine Hills WTP
SDG860041	B-Y Rural Water System

Permit Number	Facility Name
SDG860043	Mid-Dakota Rural Water System
SDG860044	Wagner Water Distribution
SDG860045	Watertown WTP
SDG860046	Martin WTP
SDG860047	Randall Community Rural Water System
SDG860048	Crooks Distribution
SDG860049	Harrisburg Distribution
SDG860050	Wall Distribution
SDG860051	Ethan Distribution
SDG860052	Howard Distribution
SDG860054	Lewis & Clark Rural Water System
SDG860055	Grenville Distribution
SDG860056	Wharf Resources WTP
SDG860057	Oacoma WTP
SDG860058	Spearfish WTP
SDG860059	Ft. Pierre WTP
SDG860060	Kingbrook RWS
SDG860061	SD Army National Guard WTP
SDG860063	Springfield WTP
SDG860064	Chapel Lane WTP
SDG860065	Armour Water Distribution
SDG860066	Clark Kampeska RWS
SDG860067	North Sioux City Distribution
SDG860068	Lake Norden WTP
SDG860069	Colton Water Distribution
SDG860070	Canton Distribution
SDG860071	Gregory WTP
SDG860072	City of Ipswich WTP
SDG860073	Blackhawk Water User District
SDG860074	Brandon WTP
SDG860075	Clear Lake Distribution
SDG860076	Terry Trojan Water District
SDG860078	City of Box Elder WTP
SDG860079	City of Edgemont WTP
SDG860080	Hayti Distribution
SDG860081	TM Rural Water District
SDG860082	Lake Andres Distribution
SDG860083	Brookings BMU WTP
SDG860084	Midland WTP
SDG860085	Mobrdige WTP
SDG860086	Onida Distribution
SDG860087	Plankinton Distribution

Permit Number	Facility Name
SDG860088	Summit Water Distribution
SDG860090	Warner Distribution
SDG860091	Minnehaha Community Water
SDG860092	Miller Distribution
SDG860093	Ellsworth AFB
SDG860094	Dell Rapids Distribution

Facilities that have Applied to Obtain Coverage Under the General Permit

Permit Number	Facility Name
SD0027464	Huron Water Treatment Facility
SDG860005	Chamberlain WTP
SDG860042	Oelrichs Water Distribution
SDG860053	Humboldt Distribution
SDG860089	Deer Mountain WTP
SDG860096	Custer WTP
SDG860097	Hot Springs WTP

ATTACHMENT 3

Reasonable Potential Analysis

Reasonable Potential Analysis Methods

The following reasonable potential analyses were completed to determine if parameters found in the discharge activities associated with Outfalls DW1 and DW2 have a reasonable potential to violate the SDSWQS or the current general permit limits. The SDDANR reasonable potential analysis methodology is documented in *Reasonable Potential Implementation Procedure for SWD Permits*, April 2013.

Reasonable potential is determined based on the highest reasonable potential concentration and the SDSWQS or the current general permit limits. The highest reasonable potential concentration is the product of the maximum effluent concentration and the multiplying factor. The multiplying factor is computed in accordance with EPA's reasonable potential determination (page 6, *Reasonable Potential Implementation Procedure for SWD Permits*, April 2013).

If it is determined that there is reasonable potential for discharge activities associated with Outfalls DW1 or DW2 to violate the SDSWQS or the current general permit limits for a given parameter, limits will be included in the draft general permit. If the highest reasonable potential concentration is greater than 50% of the SDSWQS or the current general permit limits, increased monitoring may be required for the given parameter. If the highest reasonable potential concentration is less than 50% of the SDSWQS or the current general permit limit, the parameter may have decreased monitoring requirements, or no monitoring requirements included in the draft general permit. This determination is based on the current monitoring frequency in the draft general permit.

Outfall DW1

In order to complete the reasonable potential analysis, sample data for discharge activities associated with Outfall DW1 had to be reviewed. This data was obtained from Discharge Monitoring Summary Forms submitted by permittees during the current general permit cycle. Those parameters that were reported as 'Below Detection' were assumed to be present at the detection level. Analyses were completed for nine permittees which submitted Discharge Monitoring Summary Forms. Separate analyses were completed for each facility due to the different receiving streams, the varying treatment types, and the different characteristics of source water.

Sample data and the reasonable potential calculations for the nine permittees are available from SDDANR upon request. The results of the nine analyses are included in the tables below. Those parameters that have a highest reasonable potential concentration greater than the SDSWQS or the current general permit limits are shown as "Yes" in the "RP?" column. Those parameters that have a highest reasonable potential concentration within 50% of the SDSWQS or the current general permit limits are shown as "Yes" in the "≥50%?" column. The SDSWQS has a standard for total fluoride for discharges to waters of the state classified as (1) domestic water supply waters. Therefore, discharges to waters of the state not classified as domestic water supplies were not analyzed for total fluoride. Facilities which do not add ammonia, chlorine, or fluoride are not required to monitor for each given parameter.

Outfall DW1

Permit Number / Parameter	SDG860028		SDG860001		SDG860066	
	RP?	≥50%?	RP?	≥50%?	RP?	≥50%?
Conductivity	No	No	No	No	No	**Yes**
TDS	No	No	**Yes**	**Yes**	No	**Yes**
TSS	No	**Yes**	No	No	No	No
Ammonia	No	No	No	No	--	--
Sulfate	No	**Yes**	No	**Yes**	--	--
Fluoride	No	No	No	**Yes**	--	--
TRC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Permit Number / Parameter	SDG860014		SDG860054		SDG860043	
	RP?	≥50%?	RP?	≥50%?	RP?	≥50%?
Conductivity	No	**Yes**	No	**Yes**	No	**Yes**
TDS	**Yes**	**Yes**	No**	**Yes****	No	No
TSS	No	No	No	No	--	--
Ammonia	--	--	No	No	--	--
Sulfate	No	**Yes**	No**	**Yes****	--	--
Fluoride	No	No	No	No	--	--
TRC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Permit Number / Parameter	SDG860067		SDG860047 (D2)		SDG860047 (D1)	
	RP?	≥50%?	RP?	≥50%?	RP?	≥50%?
Conductivity	No	**Yes**	No	No	No	No
TDS	No	**Yes**	No	**Yes**	No	**Yes**
TSS	**Yes**	**Yes**	No	No	No	No
Ammonia	--	--	No	No	--	--
Sulfate	No	No	No	**Yes**	No	No
Fluoride	--	--	No	No	No *	**Yes ***
TRC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

* This facility has an outlier more than 4x the next highest sample result. This sample has been excluded from the RP calculations.

** This facility has 2 separate receiving waters that have separate beneficial use designations. The RP for TDS and Sulfate was run using only the samples discharging to the domestic water supply

waters beneficial use designation. These RP calculations excluded an outlier for both TDS and Sulfate. When excluding the outlier, there is no RP for either TDS or Sulfate.

Based on the analyses the following parameters will have a limit included in the draft general permit: TDS (for discharges to waters of the state classified as a domestic water supply waters), TSS, and TRC. The following parameters will have monitoring requirements included in the draft general permit: TDS (for discharges to waters of the state not classified as domestic water supply waters), ammonia-nitrogen (as N), fluoride, total sulfate (as SO_4), and conductivity.

Outfall DW2

In order to complete the reasonable potential analysis, sample data for discharge activities associated with Outfall DW2 had to be reviewed. This data was obtained from Discharge Monitoring Summary Forms submitted by permittees during the current general permit cycle. Those parameters that were reported as 'Below Detection' were assumed to be present at the detection level. Analyses were completed for four permittees which submitted Discharge Monitoring Summary Forms. Separate analyses were completed for each facility due to the different receiving streams, the varying treatment types, and the different characteristics of source water.

Sample data and the reasonable potential calculations for the four permittees are available from SDDANR upon request. The results of the four analyses are included in the tables below. Those parameters that have a highest reasonable potential concentration greater than the SDSWQS or the current general permit limits are shown as "Yes" in the "RP?" column. Those parameters that have a highest reasonable potential concentration within 50% of the SDSWQS or the current general permit limits are shown as "Yes" in the "≥50%?" column. The current general permit states that facilities which do not add ammonia or chlorine, are not required to monitor for each given parameter. Permittees have the option of developing and implementing a BMP plan to reduce monitoring requirements for TSS and/or TRC. Some of the facilities analyzed have developed a BMP plan to reduce monitoring requirements.

Outfall DW2

Parameter	SDG860014		SDG860021 (A)	
	RP?	≥50%?	RP?	≥50%?
TSS	No	No	No	No
Ammonia	--	--	**Yes**	**Yes**
TRC	**Yes**	**Yes**	**Yes**	**Yes**

Parameter	SDG860021 (B)		SDG860011	
	RP?	≥50%?	RP?	≥50%?
TSS	No	No	No	No
Ammonia	**Yes**	**Yes**	--	--
TRC	**Yes**	**Yes**	**Yes**	**Yes**

Based on the analyses the following parameters will have a limit included in the draft general permit: TSS, ammonia-nitrogen (as N), and TRC.

ATTACHMENT 4

Best Management Practices (BMPs)

BEST MANAGEMENT PRACTICE	USES
Permanent Seeding and Planting	• Areas where soils are unstable because of their texture, structure, water table, winds, or slopes. • Filter strips, buffer areas, vegetated swales, steep slopes, and stream banks.
Silt Fence	• Immediately upstream of the point(s) of runoff discharge from a site before flow becomes concentrated. • Below disturbed areas where runoff may occur in the form of overland flow.
Temporary Sediment Trap	• At the outlet of the perimeter controls installed during the first stage of construction. • At the outlet of any structure which concentrates sediment-laden runoff, e.g. at the discharge point of diversions, channels, slope drains, or other runoff conveyances. • Above a storm water inlet that is in inline to receive sediment-laden runoff.
Temporary Seeding	• Areas which have been disturbed by construction and which are likely to be redisturbed, e.g. denuded areas, soil stockpiles, dikes, dams, sides of sediment basins, and temporary road banks.
Aeration	• When flushing hydrants. • Attaches to the hydrant to aerate the water as it is discharged to dissipate any TRC.
Controlled Discharge Rate	• Line and hydrant flushing. • Discharge slowly enough to allow solids to settle out. • Allow enough time that water can soak into the ground. • Water at lower velocity will pick up less solids.
Dechlorinator	• When discharges are planned. • Attaches to the end of the pipe to remove chlorine. • Contains chemicals to remove chlorine.
Managing Discharges	• Timing hydrant flushing for times when TRC is getting too low to be useful. • Discharge long enough to accomplish the goal, then stop. • Allow water to settle and chlorine to dissipate before pumping.

Information obtained from the Environmental Protection Agency's "Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices" (September 1992).