COLORADO DISCHARGE PERMIT SYSTEM (CDPS)
FACT SHEET TO PERMIT NUMBER CO000002
SOUTHWEST GENERATION COLORADO, LLC, SWG ARAPAHOE FACILITY
DENVER COUNTY

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I. TYPE OF PERMIT

A. Permit Type: Industrial Minor, New

B. Discharge To: Surface Water

II. FACILITY INFORMATION

A. SIC Code: 4911(Electric Services)

B. Facility Classification: Class A per Section 100.6.2 of the Water and Wastewater Facility Operator Certification Requirements

C. Facility Location: Latitude: 39° 40' 06 " N, Longitude: 105° 66' 01" W

D. Permitted Feature: 001A, following disinfection and prior to mixing with the receiving stream at 39° 40' 06 " N, 105° 66' 01" W

The location(s) provided above will serve as the point(s) of compliance for this permit and are appropriate as they are located after all treatment and prior to discharge to the receiving water.

E. Facility Flows: 0.425 MGD

ISSUED EFFECTIVE EXPIRATION

F. Major Changes From Last Renewal:

This is a new permit, and therefore there are no changes to discuss. Note that although this is a new permit, this is not a new loading to the South Platte River. The Southwest Generation (SWG) facility previously discharged through the Xcel Energy Arapahoe Station facility, and with this new permit, will bypass the Xcel facility and discharge directly to the South Platte River. Therefore the loading to the river is not new and the water source is not new; the permit itself, as it applies to the SWG Arapahoe facility is new.

III. RECEIVING STREAM

A. Waterbody Identification: COSPUS14, the South Platte River

B. Water Quality Assessment:

An assessment of the stream standards, low flow data, and ambient stream data has been performed previously, to determine the assimilative capacities for **the South Platte River** for potential pollutants of concern. This information, which is contained in the Water Quality Assessment (WQA) for this receiving stream(s), also includes an antidegradation review, where appropriate. The Division's Permits Section has reviewed the assimilative capacities to determine the appropriate water quality-based effluent limitations as well as potential limits based on the antidegradation evaluation, where applicable. The limitations based on the assessment and other evaluations conducted as part of this fact sheet can be found in Part I.A of the permit.

Note that the WQA that was developed to assess the water quality for the renewals of the Arapahoe Station (Xcel Energy) and Cities of Littleton and Englewood permits was used to determine the limitations for this permit action. As this source of wastewater was already quantified in the Xcel Energy permit, and since this wastewater will no longer flow through the Xcel Energy facility, the same limitations are being applied. Note that the antidegradation analysis was tailored specifically to this facility, as described below.

Permitted Feature **001A** will be the authorized discharge point to the receiving stream.

IV. FACILITY DESCRIPTION

A. Industry Description

The SWG Arapahoe Facility is a combined cycle peaking power plant consisting of two natural gas-fired General Electric LM6000 combustion turbines each equipped with a Heat Recovery Steam Generator (HRSG) with natural gas fired duct burners. The SWG Arapahoe Facility has a total plant capacity of approximately 122 megawatts (MW). It is located at 2601 S. Platte River Drive in Denver, Colorado. It should be noted that the Arapahoe Facility is located adjacent to a coal-fueled power plant owned by Xcel Energy called the Arapahoe Power Plant (Arapahoe Plant). The SWG Arapahoe Facility has been regulated under the permit assigned to the Xcel Arapahoe Plant (CO-001091) through an agreement between the two entities. The discharge from SWG goes to settling ponds on the Xcel property and Xcel has been meeting relevant effluent limits in its permit, inclusive of the discharge from SWG. Concern has arisen at SWG Arapahoe Facility that the Xcel discharge option may not be sustainable and therefore has requested that the Division prepare a permit specifically for them where

discharges will be routed through a proprietary outfall that will be built sometime in the near future and which will discharge to Segment 14 on the South Platte River.

B. **Sources to the Treatment Plant**

Discharge from the facility will be via the Cooling Tower 3 blowdown pipe. The water discharged to the South Platte River consists of:

-Cooling tower blowdown (city water) including biocide and antiscalant (Defined as "blowdown" from recirculated cooling water)

All other wastewater at the facility is evaporated, according to the permittee, and consists of the following:

-RO reject water (city water with concentrated solids and biocide). This is defined as a "low-volume waste."

-Carbon Filter backwash (city water). This is defined as a "low-volume waste."

-HRSG blowdown (demineralized water with biocide and antiscalant). This is defined as a "low-volume waste."

C. **Chemical Usage**

The permittee stated in the application that they utilize the following chemicals in their treatment process. The MSDS sheets have been reviewed and the following chemicals have been approved for use and are summarized in the following table.

Table IV-1 – Chemical Additives

Chemical Name	Purpose	Constituents of Concern
Tolytriazole (Quadrasperce)	Corrosion inhibitor	Sodium salt
Bromine chloride	Biocide	Bromine
5-chloro-2-methyl-4-isothizolin-3-one, 2-methyl-4isothizolin-3-one	Biocide	5-chloro-2-methyl-4-isothizolin-3-one, 2-methyl-4isothizolin-3-one
Tetrapotassium pyrophosphate	Anti-scalant/corrosion inhibitor	Phosphate
Methoxypropylamine, ammonia	Corrosion inhibitor	Ammonia
Diethylhydroxylamine	Oxygen Scavenger	Diethylhydroxylamine
Sodium Hypochlorite	Oxidant	Chlorine

Chemicals deemed acceptable for use in waters that will or may be discharged to waters of the State are acceptable only when used in accordance with all state and federal regulations, and in strict accordance with the manufacturer's site-specific instructions.

D. Wastewater Treatment Description

No treatment is currently provided for the discharge to the Xcel Arapahoe Station facility. The permittee intends to develop treatment as necessary to comply with the limitations contained herein and will have suitable equipment in place prior to beginning discharges to the South Platte River.

V. PERFORMANCE HISTORY

A. Monitoring Data

1. Self Reported Data– The following tables summarize the self reported effluent data provided by the facility for the previous permit term, from January 2010 through December 2012. This facility was regulated under a permit held by Xcel's Arapahoe Power Plant and the data below is characteristic of the Southwest Generation effluent discharged to Xcel's settling ponds.

Table V-1 – Summary of Self Reported Data for Permitted Feature 001A

Parameter	*# Samples or Reporting Periods*	*Reported Average Concentrations Avg/Min/Max*	*Reported Maximum Concentrations Avg/Min/Max*	*Previous Avg/Max/AD Permit Limit*	*Number of Limit Excursions*
Effluent Flow (MGD)	*10*	*0.11/0/0.19*	*0.30/0/0.43*	*0.425*	
TRC (mg/l)	*22*	*0/0/0*	*0/0/0*	*NA/NA*	
Nitrate as N (mg/l)	*23*	*0.77/0.21/2.6*	*0.77/0.21/2.6*	*NA/NA*	
NH3 as N, Tot (mg/l) Jan	*2*	*0.041/0.011/0.07*	*0.041/0.011/0.07*	*NA/NA*	
NH3 as N, Tot (mg/l) Feb	*2*	*0.15/0.14/0.16*	*0.15/0.14/0.16*	*NA/NA*	
NH3 as N, Tot (mg/l) Mar	*2*	*0.075/0.07/0.08*	*0.075/0.07/0.08*	*NA/NA*	
NH3 as N, Tot (mg/l) Apr	*2*	*0.14/0.13/0.14*	*0.14/0.13/0.14*	*NA/NA*	
NH3 as N, Tot (mg/l) May	*2*	*0.075/0.05/0.1*	*0.075/0.05/0.1*	*NA/NA*	
NH3 as N, Tot (mg/l) Jun	*2*	*0.14/0.06/0.22*	*0.14/0.06/0.22*	*NA/NA*	
NH3 as N, Tot (mg/l) Jul	*2*	*0.17/0.08/0.26*	*0.17/0.08/0.26*	*NA/NA*	
NH3 as N, Tot (mg/l) Aug	*2*	*0.08/0.08/0.08*	*0.08/0.08/0.08*	*NA/NA*	
NH3 as N, Tot (mg/l) Sep	*2*	*NA/NA/NA*	*0.07/0.07/0.07*	*NA/NA*	
NH3 as N, Tot (mg/l) Oct	*1*	*0.12/0.12/0.12*	*0.12/0.12/0.12*	*NA/NA*	
NH3 as N, Tot (mg/l) Nov	*3*	*0.13/0.03/0.22*	*0.13/0.03/0.22*	*NA/NA*	
NH3 as N, Tot (mg/l) Dec	*1*	*0.04/0.04/0.04*	*0.04/0.04/0.04*	*NA/NA*	
TSS, effluent (mg/l)	*23*	*5.7/0/17*	*5.7/0/17*	*NA/NA/*	
Cr, TR (µg/l)	*24*	*5.5/0/9.3*	*5.5/0/9.3*	*NA/NA*	
Cr+6, Dis (µg/l)	*24*	*0/0/0*	*0/0/0*	*NA/NA*	
Cu, Dis (µg/l)	*24*	*48/5/212*	*48/5/212*	*NA/NA*	
Se, Dis (µg/l)	*23*	*3.1/0/8.7*	*3.1/0/8.7*	*NA/NA*	
Zn, Dis (µg/l)	*24*	*37/4.5/106*	*37/4.5/106*	*NA/NA*	
Sulfate (mg/l)	*24*	*225/43/908*	*NA/NA/NA*	*NA/NA*	

** Geometric mean
NA means Not Applicable
NV means No Visible Sheen

VI. DISCUSSION OF EFFLUENT LIMITATIONS

A. Regulatory Basis for Limitations

1. Technology Based Limitations

a. Federal Effluent Limitation Guidelines – The federal guidelines that apply to this type of facility are found in 40 CFR Part 423, titled Steam Electric Power Generating Point Source Category. The Low Volume Waste and Cooling Tower Blowdown categories are the only two that apply to this facility's discharge and those ELGs are listed in the table below and will typically apply, unless a more stringent limitation or an alternate limitation that would be protective of the limits shown below is applied.

Table VI-1 – Federal Standards

Parameter	30 Day Avg Concentration (mg/l)	Daily Maximum Concentration (mg/l)
COOLING TOWER BLOWDOWN		
*Free Available Chlorine**	0.2	0.5
126 Priority Polllutants ***except***	No detectable amount	No detectable amount
Total Chromium	0.2	0.2
Total Zinc	1.0	1.0

*Neither free available chlorine nor totatl residual chlorine may be discharged from any unit for mor than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time.

Table VI-2 – Technology-Based Effluent Limits Calculated from ELGs and Regulation 62

Effluent Category	Limitation Type	TSS (mg/l)		Oil and Grease (mg/l)		Total Chromium (mg/l)		Total Zinc (mg/l)		Free Available Chlorine (mg/l)	
		30-Day Avg	Daily Max	30-Day Avg	Daily Max	30-Day Avg	Daily Max	30-Day Avg	Daily Max	30-Day Avg	Daily Max
Cooling Tower Blowdown	Federal ELG					0.2	0.2	1.0	1.0	0.2	0.5
	Reg 62	30	45	NA*	10						

*Neither Regulation 62 nor the EPA guidance document referring to the Steam Electric Power Generation Point Source Category assign a 30-day limitation on oil and grease for cooling tower blowdown.

Table VI-3 – Final Selection of WQBELS, NILs, ELGs or ADBACs

Pollutant	*NIL*	*New WQBEL*	*ELG*	*ADBAC*	*Chosen Limit*
TRC (mg/l)	0.0	0.014	NA	0.0021	ADBAC
Free Available Chlorine (mg/l)	NA	NA	0.2	NA	ELG
Nitrate as N (mg/l)	2.6	207	NA	31	ADBAC
NH3 as N, Tot (mg/l) Jan	0.07	7.2	NA	2.8	ADBAC
NH3 as N, Tot (mg/l) Feb	.016	6.8	NA	2.8	ADBAC
NH3 as N, Tot (mg/l) Mar	0.08	4.9	NA	1.9	ADBAC
NH3 as N, Tot (mg/l) Apr	0.14	4.8	NA	1.8	ADBAC

NH3 as N, Tot (mg/l) May	0.1	5.1	NA	1.6	ADBAC
NH3 as N, Tot (mg/l) Jun	0.22	4.3	NA	1.6	ADBAC
NH3 as N, Tot (mg/l) Jul	0.26	3.9	NA	1.7	ADBAC
NH3 as N, Tot (mg/l) Aug	0.08	3.8	NA	1.7	ADBAC
NH3 as N, Tot (mg/l) Sep	0.07	3.7	NA	1.7	ADBAC
NH3 as N, Tot (mg/l) Oct	0.12	4.3	NA	2.2	ADBAC
NH3 as N, Tot (mg/l) Nov	0.22	4.9	NA	2.1	ADBAC
NH3 as N, Tot (mg/l) Dec	0.04	5.7	NA	2.6	ADBAC
Oil and Grease (mg/l)	NA	10	NA	NA	WQBEL
As, TR (µg/l)	NA	0.57	NA	8.9	ADBAC
As, Dis (µg/l)	NA	50	NA	NA	WQBEL
Cd, Dis (µg/l)	NA	5.9	NA	.88	ADBAC
Cr, TR (µg/l)	9.3	58	200	8.7	NIL
Cr+3, TR (µg/l)	NA	58	NA	8.7	ADBAC
Cr+6, Dis (µg/l)	<20	12	NA	3.6	WQBEL
Cu, Dis (µg/l)	212	74	NA	14	WQBEL
CN, Free (µg/l)	NA	5.8	NA	.87	ADBAC
Fe, Dis (µg/l)	NA	300	NA	227	ADBAC
Fe, TR (µg/l)	NA	1087	NA	621	ADBAC
Pb, Dis (µg/l)	NA	9.4	NA	1.9	ADBAC
Mn, Dis (µg/l)	NA	190	NA	163	ADBAC
Hg, Tot (µg/l)	NA	0.012	NA	0.0036	ADBAC
Ni, Dis (µg/l)	NA	153	NA	28	ADBAC
Se, Dis (µg/l)	8.7	4.6	NA	3.5	WQBEL
Ag, Dis (µg/l)	NA	2.3	NA	0.36	ADBAC
U, TR (µg/l)	NA	35	NA	5.2	ADBAC
Zn, Tot (ug/l)	NA	NA	1000	NA	ELG
Zn, Dis (µg/l)	106	349	NA	81	NIL
Chloride (mg/l)	NA	282	NA	140	ADBAC
Sulfate (mg/l)	NA	285	NA	189	ADBAC

b. Regulation 62: Regulations for Effluent Limitations – These Regulations include effluent limitations that apply to all discharges of wastewater to State waters and are shown in Section VIII of the WQA. These regulations are applicable to the discharge from the SWG Colorado, LLC WWTF.

2. Numeric Water Quality Standards - The WQA contains the evaluation of pollutants limited by water quality standards. The mass balance equation shown in Section VI of the WQA was used for most pollutants to calculate the potential water quality based effluent limitations (WQBELs), M_2, that could be discharged without causing the water quality standard to be violated. For ammonia, the AMMTOX Model was used to determine the maximum assimilative capacity of the receiving stream. A detailed discussion of the calculations for the maximum allowable concentrations for the

relevant parameters of concern is provided in Section V of the Water Quality Assessment developed for this permitting action.

The maximum allowable effluent pollutant concentrations determined as part of these calculations represent the calculated effluent limits that would be protective of water quality. These are also known as the water quality-based effluent limits (WQBELs). Both acute and chronic WQBELs may be calculated based on acute and chronic standards, and these may be applied as daily maximum (acute) or 30-day average (chronic) limits.

3. Narrative Water Quality Standards - Section 31.11(1)(a)(iv) of The Basic Standards and Methodologies for Surface Waters (Regulation No. 31) includes the narrative standard that State surface waters shall be free of substances that are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life.

   a. Agricultural Use Protection – The Division's Implementing Narrative Standards in Discharge Permits for the Protection of Irrigated Crops policy does not apply because there are no irrigation intakes that may be affected by the discharge.

   b. Whole Effluent Toxicity - The Water Quality Control Division has established the use of WET testing as a method for identifying and controlling toxic discharges from wastewater treatment facilities. WET testing is being utilized as a means to ensure that there are no discharges of pollutants "in amounts, concentrations or combinations which are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life" as required by Section 31.11 (1) of the Basic Standards and Methodologies for Surface Waters. The requirements for WET testing are being implemented in accordance with Division policy, Implementation of the Narrative Standard for Toxicity in Discharge Permits Using Whole Effluent Toxicity (Sept 30, 2010). Note that this policy has recently been updated and the permittee should refer to this document for additional information regarding WET.

4. Water Quality Regulations, Policies, and Guidance Documents

   a. Antidegradation - Since the receiving water is Undesignated, an antidegradation review is required pursuant to Section 31.8 of The Basic Standards and Methodologies for Surface Water. As set forth in Section VII of the WQA, an antidegradation evaluation was conducted for pollutants when water quality impacts occurred and when the impacts were significant. Based on the antidegradation requirements and the reasonable potential analysis discussed above, antidegradation-based average concentrations (ADBACs) may be applied.

      According to Division procedures, the facility has three options related to antidegradation-based effluent limits: (1) the facility may accept ADBACs as permit limits (see Section VII of the WQA); (2) the facility may select permit limits based on their non-impact limit (NIL), which would result in the facility not being subject to an antidegradation review and thus the antidegradation-based average concentrations would not apply (the NILs are also contained in Section VII of the WQA); or (3) the facility may complete an alternatives analysis as set forth in Section 31.8(3)(d) of the regulations which would result in alternative antidegradation-based effluent limitations.

      The effluent must not cause or contribute to an exceedance of a water quality standard and therefore the WQBEL must be selected if it is lower than the NIL. Where the WQBEL is not the

most restrictive, the discharger may choose between the NIL or the ADBAC: the NIL results in no increased water quality impact; the ADBAC results in an "insignificant" increase in water quality impact. The ADBAC limits are imposed as two-year average limits.

b. Antibacksliding - As the receiving water is designated Reviewable or Outstanding, and the Division has performed an antidegradation evaluation, in accordance with the Antidegradation Guidance, the antibacksliding requirements in Regulation 61.10 have been met.

c. Determination of Total Maximum Daily Loads (TMDLs) – This rationale and the accompanying permit include TMDLs developed as specified in Total Maximum Daily Load Assessment Nitrate, South Platte River, Segment 14, Bowles Ave to Burlington Ditch Diversion, Arapahoe and Denver Counties, Colorado (Colorado Department of Public Health and Environment, April 21, 2004), and Total Maximum Daily Load Assessment *Escheria Coli*, South Platte River, Segment 14, Bowles Ave to Burlington Ditch Diversion, Arapahoe and Denver Counties, Colorado (Colorado Department of Public Health and Environment, October 30, 2007), and the corresponding waste load allocations (WLAs) for nitrate and *E. coli*. As required under the Clean Water Act Section 303(d), these TMDLs have been submitted, through the normal public notification process, to EPA Region VIII for their review and approval, and were approved on April 21, 2004 and October 30, 2007 respectively.

d. Colorado Mixing Zone Regulations – Pursuant to section 31.10 of The Basic Standards and Methodologies for Surface Water, a mixing zone determination is required for this permitting action. The Colorado Mixing Zone Implementation Guidance, dated April 2002, identifies the process for determining the meaningful limit on the area impacted by a discharge to surface water where standards may be exceeded (i.e., regulatory mixing zone). This guidance document provides for certain exclusions from further analysis under the regulation, based on site-specific conditions.

The guidance document provides a mandatory, stepwise decision-making process for determining if the permit limits will not be affected by this regulation. Exclusion, based on Extreme Mixing Ratios, may be granted if the ratio of the facility design flow to the chronic low flow (30E3) is greater than 2:1 or if the ratio of the chronic low flow to the design flow is greater than 20:1. Since the ratio of the chronic low flow to the design flow is 27:1 the permittee is eligible for an exclusion from further analysis under the regulation.

e. Reasonable Potential Analysis – Using the assimilative capacities contained in the WQA, an analysis must be performed to determine whether to include the calculated assimilative capacities as WQBELs in the permit. This reasonable potential (RP) analysis is based on the Determination of the Requirement to Include Water Quality Standards-Based Limits in CDPS Permits Based on Reasonable Potential, dated December, 2002. This guidance document utilizes both quantitative and qualitative approaches to establish RP depending on the amount of available data.

A qualitative determination of RP may be made where ancillary and/or additional treatment technologies are employed to reduce the concentrations of certain pollutants. Because it may be anticipated that the limits for a parameter could not be met without treatment, and the treatment is not coincidental to the movement of water through the facility, limits may be included to assure that treatment is maintained.

A qualitative RP determination may also be made where a federal ELG exists for a parameter, and where the results of a quantitative analysis results in no RP. As the federal ELG is typically less stringent than a limitation based on the WQBELs, if the discharge was to contain concentrations at the ELG (above the WQBEL), the discharge may cause or contribute to an exceedance of a water quality standard.

To conduct a quantitative RP analysis, a minimum of 10 effluent data points from the previous 5 years, should be used. The equations set out in the guidance for normal and lognormal distribution, where applicable, are used to calculate the maximum estimated pollutant concentration (MEPC). For data sets with non-detect values, and where at least 30% of the data set was greater than the detection level, MDLWIN software is used consistent with Division guidance to generate the mean and standard deviation, which are then used to establish the multipliers used to calculate the MEPC. If the MDLWIN program cannot be used the Division's guidance prescribes the use of best professional judgment.

For some parameters, recent effluent data or an appropriate number of data points may not be available, or collected data may be in the wrong form (dissolved vs total) and therefore may not be available for use in conducting an RP analysis. Thus, consistent with Division procedures, monitoring will be required to collect samples to support a RP analysis and subsequent decisions for a numeric limit. A compliance schedule may be added to the permit to require the request of an RP analysis once the appropriate data have been collected.

For other parameters, effluent data may be available to conduct a quantitative analysis, and therefore an RP analysis will be conducted to determine if there is RP for the effluent discharge to cause or contribute to exceedances of ambient water quality standards. The guidance specifies that if the MEPC exceeds the maximum allowable pollutant concentration (MAPC), limits must be established and where the MEPC is greater than half the MAPC (but less than the MAPC), monitoring must be established. Table VI-1 contains the calculated MEPC compared to the corresponding MAPC, and the results of the reasonable potential evaluation, for those parameters that met the data requirements. The RP determination is discussed for each parameter in the text below.

Table VI-1 – Reasonable Potential Analysis

Parameter	30-Day Average			7-Day Ave or Daily Max			Antideg (2 Year Roll. Ave)		
	MEPC	WQBEL (MAPC)	Reasonable Potential	MEPC	WQBEL (MAPC)	Reasonable Potential	MEPC	ADBAC (MAPC)	Reasonable Potential
Temp Daily Max (°C) March-Nov				NA	29	Monitor			
Temp Daily Max (°C) Dec-Feb				NA	15	Monitor			
Temp MWAT (°C) March-Nov	NA	24	Monitor						
Temp MWAT (°C) Dec-Feb	NA	12	Monitor						
TRC (mg/l)	0	0.014	Monitor	0	0.39	Monitor	0	0.0021	Yes (Qual)
Nitrate as N (mg/l)	NA	NA	NA	6	207	No	1.2	31	No
NH3 as N, Tot (mg/l) Jan	0.07	7.2	Yes (Qual)	0.07	15	Yes (Qual)	0.07	2.8	Yes (Qual)
NH3 as N, Tot (mg/l) Feb	0.16	6.8	Yes (Qual)	0.16	13	Yes (Qual)	0.16	2.8	Yes (Qual)
NH3 as N, Tot (mg/l) Mar	0.08	4.9	Yes (Qual)	0.08	11	Yes (Qual)	0.08	1.9	Yes (Qual)
NH3 as N, Tot (mg/l) Apr	0.14	4.8	Yes (Qual)	0.14	10	Yes (Qual)	0.14	1.8	Yes (Qual)
NH3 as N, Tot (mg/l) May	0.1	5.1	Yes (Qual)	0.1	14	Yes (Qual)	0.075	1.6	Yes (Qual)
NH3 as N, Tot (mg/l) Jun	0.22	4.3	Yes (Qual)	0.22	13	Yes (Qual)	0.14	1.6	Yes (Qual)

NH3 as N, Tot (mg/l) Jul	0.26	3.9	Yes (Qual)	0.26	15	Yes (Qual)	0.17	1.7	Yes (Qual)
NH3 as N, Tot (mg/l) Aug	0.08	3.8	Yes (Qual)	0.08	16	Yes (Qual)	0.08	1.7	Yes (Qual)
NH3 as N, Tot (mg/l) Sep	0.07	3.7	Yes (Qual)	0.07	12	Yes (Qual)	0.07	1.7	Yes (Qual)
NH3 as N, Tot (mg/l) Oct	0.12	4.3	Yes (Qual)	0.12	11	Yes (Qual)	0.12	2.2	Yes (Qual)
NH3 as N, Tot (mg/l) Nov	0.22	4.9	Yes (Qual)	0.22	12	Yes (Qual)	0.18	2.1	Yes (Qual)
NH3 as N, Tot (mg/l) Dec	0.04	5.7	Yes (Qual)	0.04	13	Yes (Qual)	0.04	2.6	Yes (Qual)
As, TR (µg/l)	NA	0.57	Monitor	NA	NA	NA	NA	NA	NA
As, Dis (µg/l)	NA	50	Monitor	NA	50	Monitor	NA	NA	NA
Cd, Dis (µg/l)	NA	5.9	Monitor	NA	15	Monitor	NA	0.88	Monitor
Cr, TR (µg/l)	17	58	No	17	58	No	6	NA	NA
Cr+3, TR (µg/l)	17	58	No (Qual)	17	58	No (Qual)	6	8.7	Monitor
Cr+6, Dis (µg/l)	0	12	No	0	18	No	0	3.6	No (Qual)
Cu, Dis (µg/l)	287	74	Yes	287	117	Yes	153	NA	NA
CN, Free (µg/l)				NA	5.8	Monitor	NA	0.87	Monitor
Fe, Dis (µg/l)	NA	300	Monitor				NA	227	Monitor
Fe, TR (µg/l)	NA	1087	Monitor				NA	621	Monitor
Pb, Dis (µg/l)	NA	9.4	Monitor	NA	229	Monitor	NA	1.9	Monitor
Mn, Dis (µg/l)	NA	190	Monitor	NA	4881	Monitor	NA	163	Monitor
Hg, Tot (µg/l)	NA	0.012	Monitor	NA	NA	NA	NA	0.0036	Monitor
Ni, Dis (µg/l)	NA	153	Monitor	NA	1317	Monitor	NA	28	Monitor
Se, Dis (µg/l)	20	4.6	Yes	20	21	Monitor	NA	NA	NA
Ag, Dis (µg/l)	NA	2.3	Monitor	NA	14	Monitor	NA	0.36	Monitor
U, Dis (µg/l)	NA	134041	Monitor	NA	35	Monitor	NA	20102	Monitor
Zn, Dis (µg/l)	233	106	Yes	233	329	Monitor	NA	NA	NA
Chloride (mg/l)	NA	282	Monitor	NA	NA	NA	NA	140	Monitor
Sulfate (mg/l)	2270	265	Yes	NA	NA	NA	455	189	Yes

B. Parameter Evaluation

Total Suspended Solids - The TSS concentrations in Reg 62 are the most stringent effluent limits and are therefore applied. These limitations are effective upon startup of discharges to the South Platte River.

Oil and Grease – The oil and grease limitations from the Regulations for Effluent Limitations are applied as they are the most stringent limitations. These limitations are effective upon startup of discharges to the South Platte River.

pH - This parameter is limited by the water quality standards of 6.5-9.0 s.u., as this range is more stringent than other applicable standards and is effective upon startup of discharges to the South Platte River.

Total Residual Chlorine (TRC) - The limitation for TRC is based upon the ADBAC and there exists a federal ELG for free available chlorine. The ADBAC is the more stringent than the ELG and there for the ADBAC will apply. This limitation has been added to the permit and based on monitoring analysis, the facility is capable of meeting this limitation. Therefore it shall apply at the startup of discharges to the South Platte River.

Total Inorganic Nitrogen - The calculated WQBEL/ADBAC for T.I.N.is to protect downstream water supplies. Based on available data, using the normal distribution, a finding of no reasonable potential was made, therefore limitations for TIN are not necessary at this time.

Ammonia - The limitation for ammonia is based upon the WQBEL as described in the WQA. A qualitative determination of RP has been based on the potential for ammonia in the discharge due to chemical use. Therefore, limitations for ammonia have been added to the permit and are effective upon startup of the SWG Arapahoe facility discharge to the South Platte River.

Total Arsenic – There were no data points available to perform a RP analysis for total arsenic. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Potentially Dissolved Cadmium – There were no data points available to perform a RP analysis for potentially dissolved cadmium. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Potentially Dissolved Trivalent Chromium – There were no data points available to perform a RP analysis for potentially dissolved trivalent chromium. However, there was total chromium data available and based on the results of those analyses, a determination of no reasonable potential was made for the 30-day average and the daily maximum limitations. Monitoring has been prescribed for the ADBAC based on the MEPC being greater than half of the MAPC. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Dissolved Hexavalent Chromium – The RP analysis for dissolved hexavalent chromium was based upon the ADBAC as calculated in the WQA. With the available data a qualitative analysis for determination of reasonable potential was conducted and no RP was found. Therefore limitations are not necessary at this time.

Potentially Dissolved Copper –The RP analysis for potentially dissolved copper was based upon the WQBEL as described in the WQA. With the available data, the log-normal program was used to determine the appropriate statistics to determine the MEPC. The MEPC was greater than the MAPC and therefore limitations are required. Therefore a, 30-day maximum and daily maximum requirement have been added to the permit. Based upon previous monitoring, the permittee may not be able to consistently meet this limitation and a compliance schedule has been added to the permit to give the permittee time to meet this limitation. Note also that the compliance schedule extends beyond the end date for the temporary modification on this segment for copper. This will require the facility to meet the underlying standard upon expiration of the compliance schedule.

Cyanide There were no data points available to perform a RP analysis for cyanide. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Total Recoverable Iron - There were no data points available to perform a RP analysis for total recoverable iron. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Dissolved Iron - There were no data points available to perform a RP analysis for dissolved iron. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Potentially Dissolved Lead - There were no data points available to perform a RP analysis for potentially dissolved lead. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Dissolved Manganese - There were no data points available to perform a RP analysis for dissolved manganese. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Total Mercury - There were no data points available to perform a RP analysis for total mercury. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Potentially Dissolved Nickel - There were no data points available to perform a RP analysis for potentially dissolved nickel. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Potentially Dissolved Selenium - The RP analysis for potentially dissolved selenium was based upon the WQBEL. With the available data the MDLWIN program was used to determine the appropriate statistics to determine the MEPC. The MEPC was greater than the MAPC and therefore limitations are required. Therefore a, 30-day maximum and daily maximum requirement have been added to the permit. However, the receiving water has a temporary modification for this parameter of, "current conditions," which expires on 12/31/13. Until then, the Division will impose a monitoring only requirement and upon expiration of the temporary modification, a compliance schedule will become applicable to provide the facility time to meet the limitation.

Potentially Dissolved Silver - There were no data points available to perform a RP analysis for potentially dissolved silver. Therefore, this parameter has been added to the permit with a report only condition for the collection of data for a RP analysis.

Potentially Dissolved Zinc - The RP analysis for potentially dissolved zinc was based upon the NIL. With the available data the normal program was used to determine the appropriate statistics to determine the MEPC. The MEPC was greater than the MAPC and therefore limitations are required. Therefore a, 30-day maximum and daily maximum requirement have been added to the permit. Previous monitoring as shown in Table V-1 indicate that the permittee may not be able to meet this limitation, therefore a compliance schedule has been added to the permit to provide the permittee time to meet this limitation.

Temperature- The MWAT is the maximum weekly average temperature, as determined by a seven day rolling average, using at least 3 equally spaced temperature readings in a 24-hour day (at least every 8 hours for a total of at least 21 data points).

The daily maximum is defined as the maximum 2 hour average, with a minimum of 12 equally spaced measurements throughout the day.

As continuous ambient water quality data, in accordance with the definition of the standard, is not available to calculate any potential assimilative capacity, the permittee is encouraged to collect instream temperature data on a continuous basis, if calculation of assimilative capacity for temperature is desired.

Since ambient data and appropriate effluent temperature data are not available, the Division will impose a report only requirement based on the temporary modification on this stream segment (expire

12/31/15). Upon expiration of the temporary modification, the limitations in the permit table will become effective as the nature of the discharge (cooling tower blowdown) qualifies for a qualitative finding of reasonable potential. The interim period should allow the facility enough time to adjust processes to meet these limitations.

Organics – Monitoring for organics will be accomplished through the permit requirement to sample the 126 priority pollutants. Based on the results of these analyses, the Division may reopen this permit to conduct reasonable potential analyses as needed.

Whole Effluent Toxicity (WET) Testing – As there are no previous WET monitoring data, whole effluent toxicity testing is being required during this permit cycle. Because the facility may concentrate pollutants, and uses several chemicals, WET testing is being required. The facility may request relief from WET testing upon submission of enough data to perform a reasonable potential analysis and submission of a letter requesting said relief.

1. In-Stream Waste Concentration (IWC) – Where monitoring or limitations for WET are deemed appropriate by the Division, the chronic in-stream dilution is critical in determining whether acute or chronic conditions shall apply. In accordance with Division policy, for those discharges where the chronic IWC is greater than 9.1% and the receiving stream has a Class 1 Aquatic Life use or Class 2 Aquatic Life use with all of the appropriate aquatic life numeric standards, chronic conditions will normally apply. Where the chronic IWC is less than or equal to 9.1, or the stream is not classified as described above, acute conditions will normally apply. The chronic IWC is determined using the following equation:

   IWC = [Facility Flow (FF)/(Stream Chronic Low Flow (annual) + FF)] X 100%

   The flows and corresponding IWC for the appropriate discharge point are:

Permitted Feature	Chronic Low Flow, 30E3 (cfs)	Facility Design Flow (cfs)	IWC, (%)
001A - SWG Colorado, LLC	18	0.6	4.0

   The IWC for this permit is 4.0 %, which represents a wastewater concentration of 4% effluent to 96% receiving stream.

2. General Information – The permittee should read the WET testing section of Part I of the permit carefully, as this information has been updated in accordance with the Division's updated policy, Implementation of the Narrative Standard for Toxicity in Discharge Permits Using Whole Effluent Toxicity (Sept 30, 2010) . The permit outlines the test requirements and the required follow-up actions the permittee must take to resolve a toxicity incident. The permittee should also read the above mentioned policy which is available on the Permit Section website. The permittee should be aware that some of the conditions outlined above may be subject to change if the facility experiences a change in discharge, as outlined in Part II.A.2. of the permit. Such changes shall be reported to the Division immediately.

B. Parameter Speciation

Total / Total Recoverable Metals (EXCEPT Arsenic)
For standards based upon the total and total recoverable methods of analysis, the limitations are based upon the same method as the standard.

Total / Total Recoverable Arsenic
For total recoverable arsenic, the analysis may be performed using a graphite furnace, however, this method may produce erroneous results and may not be available to the permittee. Therefore, the total method of analysis will be specified instead of the total recoverable method.

Total Mercury
Until recently there has not been an effective method for monitoring low-level total mercury concentrations in either the receiving stream or the facility effluent.

To ensure that adequate data are gathered to determine reasonable potential and consistent with Division initiatives for mercury, quarterly effluent monitoring for total mercury at low-level detection methods will be required by the permit.

Dissolved Metals / Potentially Dissolved
For metals with aquatic life-based dissolved standards, effluent limits and monitoring requirements are typically based upon the potentially dissolved method of analysis, as required under Regulation 31, Basic Standards and Methodologies for Surface Water. Thus, effluent limits and/or monitoring requirements for these metals will be prescribed as the "potentially dissolved" form.

Dissolved Iron and Dissolved Manganese if WS based
The dissolved iron and chronic manganese standards are drinking water-based standards. Thus, sample measurements for these two parameters must reflect the dissolved fraction of the metals.

Cyanide
For cyanide, the acute standard is in the form of "free" cyanide concentrations. However, there is no analytical procedure for measuring the concentration of free cyanide in a complex effluent. Therefore, ASTM (American Society for Testing and Materials) analytical procedure D2036-81, Method C, will be used to measure weak acid dissociable cyanide in the effluent. This analytical procedure will detect free cyanide plus those forms of complex cyanide that are most readily converted to free cyanide.

TR Trivalent Chromium
For total recoverable trivalent chromium, the regulations indicate that standard applies to the total of both the trivalent and hexavalent forms. Therefore, monitoring for total recoverable chromium will be required.

Hexavalent Chromium
For hexavalent chromium, samples must be unacidified. Accordingly, dissolved concentrations will be measured rather than potentially dissolved concentrations.

VII. ADDITIONAL TERMS AND CONDITIONS

A. Monitoring

Effluent Monitoring – Effluent monitoring will be required as shown in the permit document. Refer to the permit for locations of monitoring points. Monitoring requirements have been established in

accordance with the frequencies and sample types set forth in the Baseline Monitoring Frequency, Sample Type, and Reduced Monitoring Frequency Policy for Industrial and Domestic Wastewater Treatment Facilities. This policy includes the methods for reduced monitoring frequencies based upon facility compliance as well as for considerations given in exchange for instream monitoring programs initiated by the permittee. However, it is Division practice to not grant reduced monitoring frequencies to new facilities as they have yet to collect sufficient data and are likely not to have stabilized their processes. Therefore, for this permit cycle, the permittee is not eligible for reduced monitoring consideration.

The quarterly monitoring frequency for mercury is imposed consistent with the Divisions' recent initiative to include quarterly monitoring for mercury because of the changes in analytical procedure that will allow total mercury to be quantified at much lower concentrations.

B. Reporting

1. Discharge Monitoring Report – The SWG Colorado, LLC facility must submit Discharge Monitoring Reports (DMRs) on a monthly basis to the Division. These reports should contain the required summarization of the test results for all parameters and monitoring frequencies shown in Part I.B of the permit. See the permit, Part I.B, C, D and/or E for details on such submission.

2. Special Reports – Special reports are required in the event of an upset, bypass, or other noncompliance. Please refer to Part II.A. of the permit for reporting requirements. As above, submittal of these reports to the US Environmental Protection Agency Region VIII is no longer required.

C. Signatory and Certification Requirements

Signatory and certification requirements for reports and submittals are discussed in Part I.E.6. of the permit.

D. Compliance Schedules

The following compliance schedules are included in the permit. See Part I.B of the permit for more information.

Activities To Meet Dissolved Copper Limitations: **By June 1, 2018**, the permittee shall submit a report showing that final limitations for copper can be met. This will provide the permittee with time to evaluate sources to the treatment plant and perform necessary tasks to meet the final limits.

Activities To Meet Dissolved Selenium Limitations: **By January 1, 2017**, the permittee shall submit a report showing that final limitations for selenium can be met. This will provide the permittee with time to evaluate sources to the treatment plant and perform necessary tasks to meet the final limits.

Activities To Meet Dissolved Zinc Limitations: **By January 1, 2017**, the permittee shall submit a report showing that final limitations for zinc can be met. This will provide the permittee with time to evaluate sources to the treatment plant and perform necessary tasks to meet the final limits.

All information and written reports required by the following compliance schedules should be directed to the Permits Section for final review unless otherwise stated.

E. Stormwater

The current situation for SWG (Arapahoe facility) is that they are covered under the Xcel Arapahoe Station stormwater permit. Coverage under this permit will terminate when the two facilities decouple their flow. SWG (Arapahoe) understands that they must comply with stormwater regulations and have begun the process of obtaining a stormwater permit unique to their facility. They also realize that this requirement must be completed prior to stormwater discharging from the independent SWG (Arapahoe) facility.

F. Economic Reasonableness Evaluation

Section 25-8-503(8) of the revised (June 1985) Colorado Water Quality Control Act required the Division to "determine whether or not any or all of the water quality standard based effluent limitations are reasonably related to the economic, environmental, public health and energy impacts to the public and affected persons, and are in furtherance of the policies set forth in sections 25-8-192 and 25-8-104."

The Colorado Discharge Permit System Regulations, Regulation No. 61, further define this requirement under 61.11 and state: "Where economic, environmental, public health and energy impacts to the public and affected persons have been considered in the classifications and standards setting process, permits written to meet the standards may be presumed to have taken into consideration economic factors unless:

a. A new permit is issued where the discharge was not in existence at the time of the classification and standards rulemaking, or

b. In the case of a continuing discharge, additional information or factors have emerged that were not anticipated or considered at the time of the classification and standards rulemaking."

The evaluation for this permit shows that the Water Quality Control Commission, during their proceedings to adopt the Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin, considered economic reasonableness.

Furthermore, this is not a new discharger and no new information has been presented regarding the classifications and standards. Therefore, the water quality standard-based effluent limitations of this permit are determined to be reasonably related to the economic, environmental, public health and energy impacts to the public and affected persons and are in furtherance of the policies set forth in Sections 25-8-102 and 104. If the permittee disagrees with this finding, pursuant to 61.11(b)(ii) of the Colorado Discharge Permit System Regulations, the permittee should submit all pertinent information to the Division during the public notice period.

John Nieland
February 10, 2013

VIII. REFERENCES

A. Colorado Department of Public Health and Environment, Water Quality Control Division Files, for Permit Number CO0000002.

B. "Design Criteria Considered in the Review of Wastewater Treatment Facilities", Policy 96-1, Colorado Department of Public Health and Environment, Water Quality Control Commission, April 2007.

C. Basic Standards and Methodologies for Surface Water, Regulation No. 31, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective January 31, 2013.

D. Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin, Regulation No. 38, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective March 1, 2013.

E. Colorado Discharge Permit System Regulations, Regulation No. 61, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective January 30, 2012.

F. Regulations for Effluent Limitations, Regulation No. 62, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective July 30, 2012.

G. Section 303(d) List of Water Quality Limited Segments Requiring TMDLs, Regulation No 93, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective April 30, 2010.

H. Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List, Regulation No 93, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective April 30, 2010.

I. Antidegradation Significance Determination for New or Increased Water Quality Impacts, Procedural Guidance, Colorado Department of Public Health and Environment, Water Quality Control Division, effective December 2001.

J. Memorandum Re: First Update to (Antidegradation) Guidance Version 1.0, Colorado Department of Public Health and Environment, Water Quality Control Division, effective April 23, 2002.

K. Determination of the Requirement to Include Water Quality Standards-Based Limits in CDPS Permits Based on Reasonable Potential, Colorado Department of Public Health and Environment, Water Quality Control Division, effective December2002.

L. The Colorado Mixing Zone Implementation Guidance, Colorado Department of Public Health and Environment, Water Quality Control Division, effective April 2002.

M. Baseline Monitoring Frequency, Sample Type, and Reduced Monitoring Frequency Policy for Domestic and Industrial Wastewater Treatment Facilities, Water Quality Control Division Policy WQP-20, May 1, 2007.

N. Implementing Narrative Standards in Discharge Permits for the Protection of Irrigated Crops, Water Quality Control Division Policy WQP-24, March 10, 2008.

O. Policy for Conducting Assessments for Implementation of Temperature Standards in Discharge Permits, Colorado Department of Public Health and Environment, Water Quality Control Division, Policy Number WQP-23, effective July 3, 2008.

P. Regulation Controlling discharges to Storm Sewers, Regulation No. 65, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective May 30, 2008.

Q. Code of Federal Regulations (40 CFR Part 423.15, Steam Electric Generation Point Source Category), Office of the Federal Register, Government Printing Office

IX. PUBLIC NOTICE COMMENTS