NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(pursuant to NAC 445A.236)

Permittee: City of Sparks
910 Roberta Lane
Sparks, Nevada 89431

Permit: NV0022918

Location: Sparks Marina Denitrification Facility
701 E. Nugget Avenue
Sparks, Washoe County, Nevada 89434

Location of Facility:
Latitude 39° 31' 48" N
Longitude 119° 43' 53" W
Township 19 N, Range 20 E, Section 9 MDB&M

Location of Confluence of People's Ditch/North Truckee Drain and the Truckee River:
Latitude 39° 31' 15.98" N
Longitude 119° 42' 20.32" W
Township 19 N, Range 20 E, Section 11 MDB&M

General: The Permittee has applied for renewal of a National Pollutant Discharge Elimination System (NPDES) permit, NV0022918, to continue to discharge a daily maximum of 5.5 million gallons per day (MGD) of treated and untreated SMP (SMP) lake water to the Truckee River via the People's Ditch and the North Truckee Drain. Permanent dewatering of the SMP Lake is required to maintain the water elevation below 4,375 feet in order to protect underground services in the area and to maintain the groundwater gradient toward the lake for the Sparks Solvent/Fuel Site (SSFS) Remediation Project, which lies south of the lake. At the Sparks Marina Denitrification Facility, the nitrate in SMP lake water can be biologically converted to nitrogen gas in two fluidized bed reactors. The treated and untreated water is aerated prior to discharge.

The SMP Lake began as an aggregate quarry in 1972, operated by the R.L. Helms Construction Company. Dewatering at an average rate of 6.0 MGD was required to allow mining. The discharge of the dewatering operation was routed via the People's Ditch and the North Truckee Drain approximately 1.58 miles to the Truckee River as authorized by NPDES permit NV0020893. Aggregate extraction continued through 1988, when Helms declared bankruptcy. Lowering of the groundwater elevation in the area captured a fuel and solvent plume originating from the SSFS. Dewatering was continued by the Sparks Terminal Railyard Group, later known as Vista Canyon Group LLC (VCG), to manage the location of the plume and aid in the remediation of the releases. Discharge from the groundwater remediation system was directed into the Helms Pit and conveyed, with the dewatering discharge, to the People's Ditch.

After the January 1997 flood, the dewatering and the remediation activities were separated with the Permittee obtaining responsibility for maintaining the lake elevation and VCG discharging treated groundwater directly to the People's Ditch under NV0020893. The lake water met drinking water standards but contained a nitrate concentration, 3 to 4 milligrams per liter (mg/L),

that exceeded the Truckee River discharge standard, 2.0 mg/L. The lake water was discharged without treatment until February 1, 2001, when the denitrifying water treatment plant began operation. An interim mixing zone previously used was eliminated from the permit with the renewal issued in January, 2004.

The SMP pump station is located north of and adjacent to Interstate 80, at 790 E. Lincoln Way. Lake water is screened and pumped, via a 10-inch HDPE pipeline from a wet well, to the south side of I-80. From there, the water can be routed to the Denitrification Facility at the Sparks Treatment Facility site, to the People's Ditch via the aeration basin, or to the Truckee Meadows Water Reclamation Facility (TMWRF) (administered under NPDES permit NV0020150), via the sanitary sewer system. Lake water requiring on-site denitrification is routed to the 3,500-gallon influent storage tank that provides constant head for the treatment process. Storage tank overflow drains to the sanitary sewer and is delivered to TMWRF, where it undergoes further treatment. Influent can flow to the anoxic bed denitrification bioreactors via the fluidization pumps, or directly to the aeration basin if denitrification is not required.

Water requiring denitrification is pumped by the fluidization pumps to two anoxic bed denitrification bioreactors, each designed to treat 1,000 gallons per minute (1.44 MGD), operating in parallel. Methanol and phosphoric acid are added to the fluid bed influent as needed to maintain sufficient microbial activity within the fluid bed. The bioreactors each contain a bed of inert sand with an attached biomass growth completely immersed in the process stream. Excess biomass is discharged to the sanitary sewer for treatment at TMWRF. Denitrified effluent from the fluid beds discharges to parallel sand separators. The separator tank effluent is pumped to the aeration basin for re-oxygenation prior to discharge. Methanol (CH_3OH) used in the denitrification facility is stored in an 8,000-gallon, above ground, double-walled steel storage tank. Phosphoric acid, H_3PO_4, is stored in a 220-gallon poly tank located within the main building.

As stated, the lake water meets drinking water standards but at the time of initial permitting contained a nitrate concentration greater than the Truckee River discharge standard of 2.0 mg/L. The elevated nitrate level was assumed to be anthropogenic with likely sources including fertilizers, leaking sanitary sewer, or past use of septic tanks and leach fields. From August 1997 through August 1999, the nitrate concentration ranged from 1.2 mg/L to 4.7 mg/L with an average concentration of approximately 2.9 mg/L. Prior to the February 2001 completion of the denitrification facility, the untreated lake water nitrate concentration had dropped below 1.0 mg/L. During the year and a half of plant operation, the treated discharge had a nitrogen concentration of less than 0.5 mg/L and was frequently below the 0.005 mg/L detection limit. Due to low nitrate concentrations in the lake water, the Permittee discontinued use of the denitrification plant in August 2002. Denitrification is not currently used.

During emergency (flood) conditions, another set of pumps can be used to transfer SMP lake water directly to the People's Ditch. These unmetered pumps are only used when the water elevation cannot be maintained by the denitrification plant pump station.

Receiving Water Characteristics: Treated and untreated effluent is discharged to the People's Ditch, where it flows approximately one mile to the North Truckee Drain. It is approximately a mile and a half from the confluence of the People's Ditch and the North Truckee Drain to the Truckee River. Water quality standards for the Truckee River at Lockwood Bridge (Nevada Administrative Code (NAC) 445A.187) apply to this reach of the river. Beneficial uses listed for

this segment of the Truckee River include: aquatic life, water contact recreation, wildlife propagation, irrigation, stock watering, municipal or domestic supply, industrial supply, and non-contact recreation. Discharge is also subject to limitation in accordance with NAC 445A.110 *"Toxic Material" defined* and with NAC 445A.144 *Standards for toxic materials applicable to designated waters*.

Total Maximum Daily Loads (TMDLs): Section 303 (d) (1) (C) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) shall be established at a level necessary to implement the applicable water quality standards. In February 1994, the Final Truckee River Total Maximum Daily Loads and Waste Load Allocations was adopted by the State. The Truckee River TMDL compliance point was set at Lockwood because the majority of controllable sources are upstream of this point. At the time of TMDL development, only TMWRF received individual waste load allocations (IWLAs). The loading from the Helm's Pit discharge was included in the North Truckee Drain nonpoint source load. To establish IWLAs for the Helm's Pit discharge, loads were extracted from the North Truckee Drain loads for VCG and the SMP. Nevada's 2004 303 (d) Impaired Waters List for the Truckee River Basin, East McCarran to Lockwood, lists existing TMDLs as total nitrogen (TN), total phosphorus (TP), and TDS with TP as the pollutant of major concern.

The Total Maximum Daily Loads and the Individual and Total Waste Load Allocations are listed below:

The Permittee shall be considered in compliance if either:

i. The Permittee does not exceed the IWLA listed below or the IWLA in effect due to transfers, or

ii. The ΣWLA listed below is not exceeded.

Constituent	TMWRF IWLA	VCG IWLA	SMP IWLA	ΣWLA	TMDL at Lockwood
Total Nitrogen –N[1] (lb/day)	500	16.7	33.3	550	1,000
Total Phosphorus –P (lb/day)	134	4.75	0	138.75	214
Total Dissolved Solids[2] (lb/day)	120,168[3]	9,730	19,390	149,288	900,528

Notes:

1: 30-day Average Load May 1 through October 31 and
Annual Average Load November 1 through April 30.

2: Annual Average Load. The annual average load will be calculated as the average of the 12 monthly average loads.

3: If the average weekly flow in the Truckee River at the USGS gaging station at Farad, 10346000, is less than 150 cfs, TMWRF may substitute that month's load with a load based on the following calculation in determining the annual average:

-N: As nitrogen. mg/L: Milligrams per liter. MGD: Million gallons per day.
lb/day: Pounds per day. cfs: Cubic feet per second. TDS: Total dissolved solids.
-P: As phosphorus.

Monthly Load = (monthly average effluent flow, MGD) X (360 mg/L, or the actual TDS concentration in mg/L, if lower) X (8.345).

Total Nitrogen TMDL: The Truckee River TN TMDL is 1,000 pounds per day (lb/day). The

sum of Individual Wasteload Allocations (IWLAs) for all three dischargers is 550 lbs/day. The SMP's IWLA is 33.3 lb/day for both the annual average and the 30-day average (May through October). The SMP's IWLA is based on a target TN concentration of 1.4 mg/L and a discharge flow of 2.9 MGD. The discharge has complied with the TN IWLA since January 2000, with the exception of one occasion (February 2008, TN=35.17 lbs/day). The sum of the IWLs for the three dischargers has not been exceeded.

Total Phosphorus TMDL: The Truckee River TP TMDL is 214 lb/day. The sum of Individual Wasteload Allocations (IWLAs) for all three dischargers is 138.75 lbs/day. The SMP was not granted a TP IWLA. The SMP must either discharge TP at less than the State's de minimis policy load of 1 lb/day or less, or temporarily trade for a portion of the TMWRF or VCG TP IWLA, as authorized in Part I.A.2.c. of the permit. When the initial SMP permit was issued, the SMP's TP load was estimated to be 8.4 lb/day. During the period from February 2004 through August 2008, the IWL from the facility has averaged 1.27 lbs/day, with a maximum load of 3.13 lbs/day and a minimum load of 0.12 lbs/day. The sum of the IWLs for the three dischargers has not been exceeded.

Total Dissolved Solids TMDL: The Truckee River TDS TMDL is 900,528 lb/day at Lockwood. The sum of IWLAs for all three dischargers is 149,288 lbs/day. The SMP's TDS IWLA is 19,390 lb/day, calculated on an annual average. The SMP's IWLA is based on a target TDS concentration of 805 mg/L and a discharge flow of 2.9 MGD. During the period from February 2004 through August 2008, the IWL from the facility has averaged 7,133 lbs/day, with a maximum load of 11,568 lbs/day and a minimum load of 51.5 lbs/day. The sum of the IWLs for the three dischargers has not been exceeded.

Discharge Flow and Characteristics: The discharge consists of treated and untreated surface water from the SMP Lake. During the period from February 2004 through August 2008, the facility reported the following water quality information:

Parameter	Permit Limit	Monitoring Frequency	Average	Maximum	Minimum
Flow (MGD)					
30-Day Average	***2.88/5.5***	***Continuous***	1.61	2.4	0.9
Daily Maximum	***2.88/5.5***		2.06	2.96	1.2
Total Suspended Solids (mg/l)					
30-Day Average	***25***	***Monthly***	4.74	9	2
Daily Maximum	***50***		6.79	12	3
pH (Standard Units)					
Minimum	***7.1***	***Monthly***	7.48	---	6.7
Maximum	***8.5***		7.96	8.5	---
Total Phosphorus (mg/l)					
Average	***M&R***		0.0927	---	0.013
Maximum	***M&R***	***Monthly***	0.1396	0.39	---
IWLA(lbs/day) **OR**	***M&R***		1.266	0.016	0.012
∑Wasteload Allocations (lbs/day)	***138.75***		71.9	101.6	39.3
Total Nitrogen (mg/l)					
Average	***M&R***		1.404	---	1.0
Maximum	***M&R***	***Monthly***	1.73	4.5	---
IWLA(lbs/day) **OR**	***33.3***		18.9	35.17	7.6
∑Wasteload Allocations (lbs/day)	***550***			494	
Total Dissolved Solids (mg/l)					
Average	***M&R***		556.4	---	398
Maximum	***M&R***	***Monthly***	580.1	619	---
IWLA(lbs/day) **OR**	***19,390***		7133.3	11568	51.47
∑Wasteload Allocations (lbs/day)	***149,288***			NA	
Nitrate (mg/l)					
Average	***M&R***	***Monthly***	0.369	---	0.05
Maximum	***2.0***		0.482	0.92	---
Sulfate (mg/l)					
Average	***M&R***	***Monthly***	165.5	---	150
Maximum	***250***		171.1	200	---
Dissolved Oxygen (mg/l)					
Average	***M&R***	***Monthly***	10.00	---	
Minimum	***6.0 Nov-Mar***		8.61	---	8.3
	5.0 Apr-Oct			---	6.9
Hardness (mg/l)	***M&R***	***Quarterly***	366.9	408	288
Dissolved Lead (µg/l):					
Calculated Chronic Limit	$e^{(1.273\ln(H)-4.705)}$	***Quarterly***	***16.67***	***19.06***	***12.23***
Calculated Acute Limit	$e^{(1.273\ln(H)-1.460)}$		***427.75***	***488.99***	***313.86***
Reported Value			<0.5	<5	<0.5
Benzene(µg/l)	***5***	***Quarterly***	<1	<1	<1
Toluene (µg/l)	***100***	***Quarterly***	<1	<1	<1
Total Xylenes (µg/l)	***200***	***Quarterly***	<1	<1	<1
Ethyl Benzene (µg/l)	***100***	***Quarterly***	<1	<1	<1
Total Petroleum Hydrocarbons (mg/l)	***1***	***Quarterly***	<0.5	<1	<0.5
MTBE (µg/l)	***40***	***Quarterly***	<0.5	<1	<0.5
Carbon Tetrachloride (µg/l)	***5***	***Quarterly***	<1	<1	<1
Tetrachloroethylene (PCE) (µg/l)	***5***	***Quarterly***	<1	<1	<1
Trichloroethylene (TCE) (µg/l)	***5***	***Quarterly***	<1	<1	<1
1,1-Dichloroethylene (DCE) (µg/l)	***7***	***Quarterly***	<1	<1	<1
Vinyl Chloride (µg/l)	***2***	***Quarterly***	<1	<1	<1
1,1,1-Trichloroethane (µg/l)	***200***	***Quarterly***	<1	<1	<1
Total Trihalomethanes (µg/l)	***100***	***Quarterly***	<1	1.5	<1
Methylene Chloride (µg/l)	***5***	***Quarterly***	<2	<2	<2
WET Toxicity (Exhibits Toxicity)	***Permit Part 1.A.3***	***Quarterly***	NO	NO	NO

Proposed Effluent Limitations: The discharge is limited as outlined below in Table I.A.1. Effluent limitations have been developed using the beneficial use numbers found at NAC 445A.118, the standards for toxic materials NAC 445A.144 or the Truckee
Rriver standards at Lockwood, the downstream control point NAC 445A.187.

During the period beginning on the effective date of this permit and lasting until the permit expires, the Permittee is authorized to discharge from Outfall 001, the treatment plant outfall to the People's Ditch, and Outfall 002, the direct discharge from the SMP Lake to the People's Ditch. The use of Outfall 002 is only authorized during emergency/flood events. Other uses of Outfall 002 may be approved on a temporary basis with increased monitoring.

a. Samples and/or measurements taken in compliance with the monitoring requirements specified below shall be taken:

i. Influent flow meter;
ii. Overflow flow meter;
iii. Outfall 002 discharge;
iv. Effluent, auto-sampler on 12-inch line prior to discharge to the People's Ditch;
v. Data from Truckee Meadows Water Reclamation Facility; and
vi. Data from Vista Canyon Group.

b. The discharge shall be limited and monitored by the Permittee as specified below:

TABLE I.A.1.

PARAMETERS	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS		
	Quarterly Average	30-day Average	Daily Maximum	Sample Location	Measurement Frequency	Sample Type
Total Flow, MGD	2.88	---	5.5 [A]	i.	Continuous	Flow meter
				iii.	Continuous	Calculation
	---	---	2.88 [B]	i.	Continuous	Flow meter
Flow to Sanitary Sewer, MGD	Monitor and Report			ii.	Continuous	Flow meter
Effluent Flow to Truckee River, MGD	Report 30-Day Average			v., vi.	Monthly	Data from others
Nitrate as N, mg/L	---	---	2.0	iv.	Monthly	Discrete
Kjeldahl Nitrogen as N, mg/L	Monitor and Report			iv.	Monthly	Discrete
Total Ammonia as N, mg/L	---	[1]	[2]	iv.	Monthly	Discrete
Total Nitrogen as N, mg/L	Monitor and Report			iv.	Monthly	Calculation
Total Nitrogen as N, lb/day	---	33.3[3]	---	iv.	Monthly	Calculation
	Monitor and Report			v., vi.		Data from others
Total Phosphorus as P, mg/L	Monitor and Report			iv.	Monthly	Discrete
Total Phosphorus as P, lb/day	---	1.0[4]	---	iv.	Monthly	Calculation
	Monitor and Report			v., vi.		Data from others
Total Dissolved Solids, mg/L	Monitor and Report			iv.	Monthly	Discrete

PARAMETERS	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS		
	Quarterly Average	30-day Average	Daily Maximum	Sample Location	Measurement Frequency	Sample Type
Total Dissolved Solids, lb/day	---	19,390[5]	---	iv.	Monthly	Calculation
	Monitor and Report			v., vi.		Data from others
pH, Standard Units, inclusive	---	---	7.1 to 8.5	iv.	Monthly	Discrete
Dissolved Oxygen, mg/L — Nov. - March,	---	---	≥6.0	iv.	Monthly	Discrete
Dissolved Oxygen, mg/L — April - Oct,	---	---	≥ 5.0	iv.	Monthly	Discrete
Total Suspended Solids, mg/L	25[6]	---	50	iv.	Monthly	Discrete
Sulfate, mg/L	---	---	250	iv.	Monthly	Discrete
Temperature, ° C	Monitor and Report			iv.	Monthly	Discrete
Hardness, mg/L as $CaCO_3$	Monitor and Report			iv.	Quarterly	Discrete
Lead, Total Recoverable, µg/L	[7]		[8]	iv.	Quarterly	Discrete
Total petroleum hydrocarbons, extractable, mg/L	---	---	1.0	iv.	Quarterly	Discrete
Benzene, µg/L	---	---	5	iv.	Quarterly	Discrete
Toluene, µg/L	---	---	100	iv.	Quarterly	Discrete
Xylene, total, µg/L	---	---	200	iv.	Quarterly	Discrete
Ethy1benzene, µg/L	---	---	100	iv.	Quarterly	Discrete
Methyl tertiary butyl ether, µg/L	---	---	20	iv.	Quarterly	Discrete
Tetrachloromethane µg/L	---	---	5	iv.	Quarterly	Discrete
Tetrachloroethylene µg/L	---	---	5	iv.	Quarterly	Discrete
Trichloroethylene, µg/L	---	---	5	iv.	Quarterly	Discrete
1,1- Dichloroethylene µg/L	---	---	7	iv.	Quarterly	Discrete
Chloroethylene, µg/L	---	---	2	iv.	Quarterly	Discrete
1, 1, 1- Trichloroethane, µg/L	---	---	200	iv.	Quarterly	Discrete
Trihalomethanes, total, µg/L	---	---	100	iv.	Quarterly	Discrete
1, 2- Dichloroethane, µg/L	---	---	5	iv.	Quarterly	Discrete
Chloroethane, µg/L	Monitor and Report			iv.	Quarterly	Discrete
Dichloromethane, µg/L	---	---	5	iv.	Quarterly	Discrete
Whole Effluent Toxicity	See I.A.3.			iv.	Quarterly	Discrete

Notes:

A. Daily Maximum if no denitrification is required

B. Daily Maximum if denitrification facility is operated. The Permittee shall so note on the operation status of the facility and indicate the appropriate Daily Maximum permit limit being used on the Discharge Monitoring Report. If the Permittee wishes to operate the denitrification facility at a rate gather than 2.88 MGD, see Permit Part I.A.2.d.

1. The chronic criteria of water quality with regard to the concentration of total ammonia are subject to the following:

(a) The facility discharge Monthly chronic concentration of total ammonia, in milligrams of nitrogen per liter, shall be calculated by the NAC 445A.118 Table 2 chronic concentration formula for the 30-Day average for each discharge sample event as follows: $\left[\frac{0.0577}{1+10^{7.688-pH}}\right]+\left[\frac{2.487}{1+10^{pH-7.688}}\right] x\, MIN\ [2.85, 1.45\ x\ 10^{0.028\,x\,(25-T)}]$

where : MIN = lesser of comma separated values; T = temp. Celsius deg.; x = multiply

(b) The concentration of total ammonia, in milligrams of nitrogen per liter, expressed as a 30-day average must not exceed the applicable chronic criterion as calculated more than once every 3 years on average, and the highest 4-day average within the 30-day period must not exceed 2.5 times the applicable chronic criterion.

Measurement frequency of once per 30-day (Monthly) is an acceptable indicator for evaluating total ammonia chronic criterion and may be used in reporting to demonstrate compliance of discharge event calculated limit. However, if a sample analysis exceeds the allowed calculated chronic limit in part (a), the **measurement frequency** must be increased to a minimum of 4 consecutive days within the 30-day period so that chronic criterion part (b) can be applied for determining permit compliance.

2. The acute criteria for water quality with regard to the concentration of total ammonia are subject to the following:

(a) The facility discharge Daily Maximum acute concentration of total ammonia, in milligrams of nitrogen per liter, for **cold water fisheries** shall be calculated by the NAC 445A.118 Table 1 acute concentration formula for the 1-hour average for each sample event as follows: $\left[\frac{0.275}{1+10^{7.204-pH}}\right]+\left[\frac{39.0}{1+10^{pH-7.204}}\right]$

(b) The concentration of total ammonia, in milligrams of nitrogen per liter, must not exceed the applicable acute criterion as calculated more than once every 3 years on average.

Measurement frequency for evaluating total ammonia acute criterion as daily maximum shall utilize the same **measurement frequency** required for that of evaluating the chronic criteria of water quality defined in A above. The total ammonia concentration determined by laboratory analysis for each sample event shall be compared to the same event's calculated acute criterion limit.

For each sample event, formula terms contained in 1 and 2 above shall have the following meaning: ***pH* and *T* are *field measurements of facility discharge*** taken at the same time and location as the water sample destined for the laboratory analysis of ammonia.

3: Either 1) 33.3 lb/day 30 day average (May - Oct.), and 2) 33.3 lb/day annual average; or the ΣWLA is <550 lb/day. See Part I.A.2.
4: Either 1.0 lb/day or the ΣWLA is ≤ 138.75 lb/day. See Permit Part I.A.2.
5: Either 19,390 lb/day or the ΣWLA is ≤ 149,288 lb/day. See Permit Part I.A.2.
6: Annual average.
7: $e^{1.273 \ln (H) - 4.705}$
8: $e^{1.273 \ln (H) - 1.460}$

MGD:	Million gallons per day.	lb/day:	Pounds per day.
H:	Hardness, mg/L as $CaCO_3$	µg/L:	Micrograms per liter.
mg/L:	Milligrams per liter.	ΣWLA:	Cumulative Waste Load Allocation

Whole Effluent Toxicity Testing (WET): Whole Effluent Toxicity (WET) testing is required. The Permittee shall conduct quarterly toxicity tests on 24-hour composite effluent samples, Outfall 001, as described below:

a. Acute Toxicity Limit: The effluent shall be deemed acutely toxic when there is a statistically significant difference at the 95th percentile confidence interval between the survival of the control test organisms exposed to 0% effluent and the survival of the test organisms exposed to 100% effluent at the following limits:

i. When the survival of test organisms in the undiluted effluent (100%) sample is less than 90 percent in six (6) out of eleven (11) consecutive samples; or

ii. When the survival rate of test organisms in the undiluted effluent (100%) sample is less than 70 percent in any two (2) of eleven (11) consecutive samples.

For additional details regarding the WET testing see Part I.A.3 of the permit.

Schedule of Compliance and Special Conditions: The Permittee shall implement and comply with the provisions of the schedule of compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications which the Administrator may make in approving the schedule of compliance. There are no special conditions.

a. The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit.

b. **By MMM DD, 2009** (Within sixty (60) days of the effective date of the permit), the Permittee shall submit a revised O & M Manual that explains the decision making process for the start-up and shut-down of the denitrification plant and incorporates the revised monitoring requirements of this permit.

c. The Permittee shall notify the Division in writing immediately upon initiating and ceasing operation of the denitrification facility. The use of the denitrification facility and the appropriate Daily Maximum permit limit shall be noted on the Discharge Monitoring Reports

d. At least sixty (60) days prior to proposed increase in the flow through the denitrification plant above 2.88 MGD, the Permittee shall submit to the Division for review and approval, an engineering analysis of the denitrification plant, a temporary monitoring plan with increased monitoring frequency to verify compliance, and a defined test endpoint. Increasing the flow through the denitrification plant without exceeding the discharge limitation of 5.5 MGD shall be a minor modification.

e. No later than fourteen (14) days following approved discharge from the denitrification facility greater than 2.88 MGD, the Permittee shall notify the Division of increased flow.

f. At least thirty (30) days prior to any non-emergency use of Outfall 002, the Permittee shall submit to the Division for review and approval an explanation of why it is necessary to use Outfall 002 and for what time period, an evaluation of the quality of the discharge, and a temporary monitoring plan with increased monitoring frequency.

g. No later than fourteen (14) days following any non-emergency use of Outfall 002, the Permittee shall notify the Division of such use.

Rationale for Permit Requirements: The SMP is proposing to continue to discharge treated and untreated lake/groundwater that meets all Truckee River at Lockwood Bridge, Standards of Water Quality, NAC 445A.187,NAC445A.118 and NAC445A.144 at the denitrification plant outfall (001) except for TDS. Monitoring is required to assess the level of treatment being provided and to determine when design capacity is being approached.

Flow: Previously, the denitrification plant influent flow rate daily maximum limitation, 2.88 MGD, was based on the design capacity of the facility. However, denitrification has not been necessary since 2002. Also, the Permittee has requested clarification of the Quarterly Average and Daily Maximum flow rates listed in previous permits, as the same numbers were listed for both the Quarterly Average and Daily Maximum for both the influent to the denitrification facility and Outfalls 002. The overall daily maximum discharge limitation, 5.5 MGD, is based

on historical pit dewatering rates and does not include any flow to the sanitary sewer.

Flow is monitored to calculate the mass of TDS, TN, and TP discharged to the river for TMDL compliance.

Permittee believes the denitrification plant can be operated at a flow rate greater than 2.88 MGD. Should operation of the denitrification facility be required in the future, and the To increase the flow through the plant, the Permittee shall submit an evaluation of the treatment plant capacity and a temporary monitoring plan with increased monitoring frequency as required by schedule of compliance item I.A.21.c.

Nitrate as N: The nitrate as nitrogen limitation is based on the Truckee River at Lockwood Bridge, Standards of Water Quality, NAC 445A.187. The daily maximum, 2.0 mg/L, is the nitrate single value limitation for aquatic life, the most restrictive beneficial use. The nitrate discharge limitation of the previous permit has been retained.

Total Kjeldahl Nitrogen as N (TKN): TKN is not a regulated constituent, therefore, there are no TKN effluent discharge limitations. TKN has been retained in the permit as monitor and report because it is used to calculate the TN concentration.

Total Ammonia as N: Previous permits instituted discharge limits on un-ionized ammonia to meet Truckee River Standards. On November 19, 2002, the State Environmental Commission adopted total ammonia as N standards based on algebraic relationships with pH, temperature, and whether coldwater or warm water fisheries are present and eliminated the un-ionized ammonia as N standard. In April 2003, the U.S. EPA approved the revised regulations. Therefore, total ammonia monitoring has been incorporated into the permit with the following discharge limitations:

Daily Maximum:

$$\left[\frac{0.275}{1+10^{7.204-pH}}\right]+\left[\frac{39.0}{1+10^{pH-7.204}}\right] \quad \text{mg nitrogen/L}$$

-the acute water quality criteria for total ammonia for freshwater aquatic life, cold-water fisheries;

30-Day Average:

$$\left[\frac{0.0577}{1+10^{7.688-pH}}\right]+\left[\frac{2.487}{1+10^{pH-7.688}}\right] x\,MIN\,[2.85,\ 1.45\ x\ 10^{0.028x(25-T)}] \quad \text{mg nitrogen/L}$$

MIN: Means the lesser of the two values separated by the comma.
T: Discharge temperature in degrees Celsius.

-the chronic water quality criteria for total ammonia for waters where freshwater fish in early life stages may be present.

The total ammonia limitation was instituted in the 2004 renewal of the permit and is retained in the 2009 renewal.

Un-ionized Ammonia as N: This previously limited analyte is no longer considered. Un-ionized

ammonia is no longer individually listed and limited in the revised regulation but is consolidated and regulated appropriately under the total ammonia effluent discharge limitation. The effluent limitation for total ammonia reflects the revised water quality standard referenced in NAC 445A.187 and defined under NAC 445A.118.

Total Nitrogen as N: The TN species as nitrogen limitation is based on the Permittee's IWLA, as discussed in the Quantities section of this fact sheet. The TN limitation included in the permit is the IWLA or the sum of the IWLAs for the three dischargers.

Total Phosphorus as P: The TP as phosphorus limitation is based on the Truckee River TMDL and the Permittee's IWLA, as discussed in the Quantities section of this fact sheet. NAC 445A.187 contains a Total Phosphates standard, which is interpreted as Total Phosphorus.

Total Dissolved Solids: Previously, the permit TDS limitations were based on the Truckee River at Lockwood Bridge, Standards of Water Quality, NAC 445A.187, water quality standards for beneficial uses, and the Permittee's IWLA, as discussed in the TMDL of this fact sheet. The daily maximum, 500 mg/L, was the annual average limitation with municipal or domestic supply as the most restrictive use. Due to naturally occurring elevated TDS concentrations in the shallow groundwater, the discharge routinely exceeds the 500 mg/L annual average TDS limitation. Due to the elevated levels of TDS in the shallow groundwater, and, therefore, the lake and the discharge water, and the Permittee's compliance with the IWLA or ΣWLA, the concentration based TDS discharge limitation has been removed from the permit.

pH: The daily maximum pH limitation is based on the Truckee River at Lockwood Bridge, Standards of Water Quality, NAC 445A.187, with water contact recreation and wildlife propagation as the most restrictive beneficial uses. The permit limits are set at the NAC 445A.187 pH range of 7.1 to 8.5 requirement to maintain existing higher quality (RMHQ). The pH RMHQ has been retained as the discharge limitation.

Dissolved Oxygen (DO): The DO limitation is based on the Truckee River at Lockwood Bridge, Standards of Water Quality, NAC 445A.187, with aquatic life as the most restrictive beneficial use. The single value limitation for April through October is not less than 5.0 mg/L. The single value limitation for November through March is not less than 6.0 mg/L. The DO discharge limitation remains unchanged from the previous permit.

Total Suspended Solids (TSS): The daily maximum TSS limitation, 50 mg/L, is based on the Truckee River at Lockwood Bridge, Standards of Water Quality, NAC 445A.187, water quality standards for beneficial uses with aquatic life as the most restrictive beneficial use. The quarterly average TSS limitation is based on the Truckee River at Lockwood Bridge, Standards of Water Quality, NAC 445A.187, RMHQ annual average limitation of 25 mg/L TSS. The TSS discharge limitations of the previous permit have been retained.

Sulfate: The daily maximum sulfate limitation, 250 mg/L, is based on the Truckee River at Lockwood Bridge, Standards of Water Quality, NAC 445A.187, with municipal or domestic supply as the most restrictive beneficial use. The sulfate discharge limitation of the previous permit has been retained.

Temperature: The temperature of the discharge was monitored but not limited in the initial permit. The Truckee River at Lockwood Bridge, Standards of Water Quality, NAC 445A.187,

with aquatic life as the most restrictive beneficial use, includes a seasonally varying temperature limitation. The discharge is to an urban drainage ditch located over 1.5 miles from the confluence with the Truckee River. Any fluid discharged to the drainage ditch will have equilibrated to ambient conditions by the time it reaches the Truckee River confluence. The monitoring of this parameter has been retained because it is one of the variables used to determine the total ammonia discharge limitation.

Hardness as $CaCO_3$: The monitoring of hardness as calcium carbonate has been retained from the previous permit because the aquatic life standard, NAC 445A.144, for dissolved lead is a function of the hardness. The monitoring frequency has been reduced to be consistent with the frequency of lead analysis.

Lead, Total Recoverable: NAC 445A.144, Standards for toxic materials applicable to designated waters, includes 1-hour and 96-hour average concentration standards for dissolved lead. Based on guidance from EPA Region 9 and the requirements of 40 Code of Federal Regulations 122.45(c), total recoverable lead daily maximum, acute, and quarterly average, chronic, effluent limitations will be incorporated into the permit. The total recoverable lead standards were derived by removing the correction factor from the dissolved lead standards equations. Monitoring frequency is monthly.

Total Petroleum Hydrocarbons (TPH): The extractable TPH discharge limitation is based on the State TPH standard for remediation projects. There have been no detections of TPH at a reporting limit of 0.50 mg/L during the life of the permit. Monthly monitoring of TPH is required, because the groundwater in the vicinity is known to be historically impacted.

Volatile Organic Compounds (VOCs): Monitoring of VOCs is required, because the groundwater in the vicinity is known to be historically impacted. Since December 1998, the only VOCs detected in the Permittee's discharge were methyl tertiary butyl ether (MTBE) and Total Trihalomethane. Due to the absence of VOCs in the discharge water, the monitoring frequency has been set at quarterly. VOC monitoring will not be eliminated due to the potential for presence from previously identified contamination. VOCs, if present in the lake water, may be volatilized during the aeration process. VOCs include the following: Benzene, Tetrachloromethane, Trichloroethylene (TCE), 1,1-Dichloroethylene, Chloroethylene (vinyl chloride), 1,1,1-Trichloroethane, Total Trihalomethanes, 1,2-Dichloroethane (DCA), Toluene, Total Xylene, Ethylbenzene, Tetrachloroethylene (PCE), Dichloromethane (methylene chloride), Chloromethane , and Methyl Tertiary Butyl Ether (MTBE):

The *Benzene*, 5 µg/L; *Tetrachloromethane*, 5 µg/L; Trichloroethylene (TCE), 5 µg/L; *1,1-Dichloroethylene*, 7 µg/L; *Chloroethylene* (vinyl chloride), 2 µg/L; *1,1,1-Trichloroethane*, 200 µg/L; *Total Trihalomethanes*, 100 µg/L; and *1,2-Dichloroethane* (DCA), 5 µg/L standards are from NAC 445A.144, Standards for toxic materials applicable to designated waters, municipal or domestic supply. These discharge limitations have been retained from the previous permit.

The *Toluene*, 100 µg/L; *Total Xylene*, 200 µg/L; and *Ethylbenzene*, 100 µg/l discharge limitations are based on State standards for remediation projects. These discharge limitations have been retained from the previous permit.

The *Tetrachloroethylene* (PCE), 5 µg/L, and *Dichloromethane* (methylene chloride), 5 µg/L, effluent discharge limitations are based on the drinking water standards of 40 CFR 141.61. The PCE standard has been retained from the previous permit.

Monitoring of *Chloromethane* has been retained in the permit as a Monitor and Report requirement without an effluent limitation because there are no standards for this constituent and there is no influent data.

The original permit limit for *MTBE* of 40 µg/L was set for consistency with the VCG permit. The VCG limit was determined to be the technologically achievable level, and this was set as the target goal for overall remediation of the contaminant plume. Since the Permittee does not have control of flow of potentially impacted groundwater into the Sparks Marina Lake, the MTBE limit was set at the overall remediation goal. It should be noted that this limit was set prior to the time the Division adopted 20 µg/L as the action level for MTBE in groundwater for sites in close proximity to receptors and/or sensitive environments. This groundwater standard is being used for all surface waters. The previous discharge limitation for MTBE, 40 µg/L, was based on MTBE Fact Sheet #1, and although this limit is not applied to new permits, the Division limit is in conformance to the approved remediation goals. MTBE levels have been below the detection level of 0.5 µg/L in the discharge during the period from 2004 through 2008.

Waste Load Allocations: Waste Load Allocations are discussed in Part I.A.2 of the permit and previously in this Fact Sheet. The waste load allocations section allows discharge flexibility among the SMP, TMWRF, and VCG. The individual Permittees have first rights to their assigned IWLA. Any remaining allocation may be shared by the dischargers. No discharger shall be penalized for the IWLA violations of the other discharges. Similar trading language has been incorporated into the TMWRF and VCG permits.

Whole Effluent Toxicity: Whole Effluent Toxicity requirements are discussed in Part I.A.3 of the permit: WET protects the receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. WET tests measure the degrees of response of exposed aquatic test organisms to an effluent. This permit requires only acute toxicity testing. Due to the consistently high quality of the effluent discharged and greater than five years of WET testing without an acutely toxic determination, the frequency of WET testing is quarterly.

Proposed Determination: The Division has made the tentative determination to issue the proposed permit for a period of five (5) years.

Procedures for Public Comment: Notice of the Division's intent to issue a permit authorizing the facility to continue to discharge to surface waters of the State of Nevada subject to the conditions contained within the permit, is being sent to the **Reno Gazette-Journal** for publication. The notice is also being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing until 5:00 P.M. **July 15, 2009**, a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the Applicant, any affected state, any affected interstate agency, the Regional Administrator of EPA Region IX or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted. Any public hearing determined by the Administrator to be held will be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted to accordance with NAC

445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.238

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Bureau of Water Pollution Control
March, 2009