



STATE OF NEVADA

Department of Conservation & Natural Resources

DIVISION OF ENVIRONMENTAL PROTECTION

Brian Sandoval, Governor

Leo M. Drozdoff, P.E., Director

Colleen Cripps, Ph.D., Administrator

FACTSHEET

(pursuant to NAC 445A.236)

Permittee Name: WASHOE CO DEPT OF WATER RESOURCES
4930 ENERGY WAY
RENO, NV - 89502

Permit Number: NS2008507

Location: LEMMON VALLEY WATER RECLAMATION FACILITY, WASHOE
11000 LEMMON DRIVE, RENO, NV - 89506
LATITUDE: 39.648744, LONGITUDE: -119.832931
TOWNSHIP: T21N, RANGE: R19E, SECTION: S22

Outfall / Well Num	Outfall / Well Name	Location Type	Well Log Num	Outfall City	Outfall State	Outfall Zip	Outfall County	Latitude	Longitude	Receiving Water
001	PUMP STATION FLOW METER	Influent Structure		RENO	NV	89506	WASHOE	39.648744	-119.832931	GROUNDWATER
002	TREATMENT PLANT EFFLUENT PRIOR TO EVAPORATION PONDS	External Outfall		RENO	NV	89506	WASHOE	39.648744	-119.832931	GROUNDWATER
003	POND 9 EFFLUENT PRIOR TO LEMMON LAKE PLAYA	External Outfall		RENO	NV	89506	WASHOE	39.651994	-119.834708	GROUNDWATER

General:

The Lemmon Valley Water Reclamation Facility (LVWRF), which has been in operation since 1971, provides secondary treatment of wastewater generated from approximately 1,100 homes and light-commercial businesses, located approximately 13 miles north of downtown Reno, Nevada. LVWRF discharges effluent from a treatment process consisting of a circular treatment basin and evaporation ponds for polishing. During times of low evaporation, the effluent is discharged to the Lemmon Lake Playa.

LVWRF formerly operated under National Pollutant Discharge Elimination System (NPDES) permit NV0021539. The U.S. Army Corp of Engineers determined that the Swan Lake Basin, including the Lemmon Lake Playa, is not a jurisdictional water. Nevada Division of Environmental Protection (NDEP) required the facility to obtain a State of Nevada Groundwater Discharge Permit, which the Permittee applied for in September 2007.

Raw sewage enters LVWRF at the headworks which consists of a comminutor, grit removal, wet well, and lift station. The flow is measured by tracking the run time on the pump station time clocks. From the headworks, influent is pumped into a 25 feet (radius) by 15 feet (deep) circular treatment basin designed with partitioned compartments for aeration, clarification, and sludge digestion. The sludge digestion compartment has been retrofitted to be part of the extended aeration process. On/off blower cycles in the aeration compartment have been implemented to achieve some degree of nitrification/denitrification of the wastewater. Waste activated sludge is periodically discharged to evaporation pond # 2 for further digestion and long-term storage. Non-chlorinated effluent from the clarifier overflow is discharged to the evaporation

ponds for polishing, evaporation, and natural decay of fecal coliform bacteria. Occasionally, the polished effluent from an outfall in pond #9 is discharged into the southern portion of Lemmon Lake Playa.

Discharge Characteristics:

The 30-day average flow for January 2010 to June 2013 was reported to be 0.189 million gallons per day (MGD). The discharge from the treatment unit had the following concentrations for the above mentioned time period:

5-day Biochemical Oxygen Demand (BOD₅): 30-day avg. - 12 mg/L; daily max. - 18 mg/L

Total Suspended Solids (TSS): 30-day avg. - 13 mg/L; daily max. - 20 mg/L

pH: 7.4 standard units

LVWRF has only discharged from the evaporation ponds to Lemmon Lake Playa twice since January 2010.

Receiving Water:

Lemmon Lake Playa is a seasonal playa. Fish are not found in this playa as it evaporates in the warmer months due to low summer precipitation and high surface evaporation rates.

Summary of Changes From Previous Permit:

The 85% removal rate of BOD₅ and TSS has been removed from this permit. This removal rate is required in NPDES permits, but not required for Nevada State Groundwater permits.

The requirement to monitor and report the BOD₅ and TSS for influent has been removed from this permit. Monitoring of influent is required for NPDES permits, but not required for Nevada State Groundwater permits.

The monitoring frequency for BOD₅, TSS, and pH in the effluent leaving the treatment plant has been reduced from weekly to monthly. This monthly monitoring requirement is consistent with other wastewater treatment plants in the state that discharge to groundwater.

The monitoring frequency for CBOD, TSS, pH, and Fecal Coliform in the effluent leaving the evaporation ponds has been reduced from biweekly to monthly. This monthly monitoring requirement is consistent with other wastewater treatment plants in the state that discharge to groundwater.

The requirement to monitor and report total nitrogen has been added to this permit. Total nitrogen monitoring is required for wastewater treatment plants that discharge to groundwater in the State of Nevada.

An annual groundwater characterization report requirement has been added to the permit.

Due to a new permit naming convention at NDEP, Bureau of Water Pollution Control, the permit identification has been changed from NEV2008507 to NS2008507. This change does not reflect a change in the type of permit being issued. NEV and NS permits are for groundwater discharges to the State of Nevada. These are not to be confused with NV permits which are reserved for NPDES permitting

Proposed Effluent Limitations:

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

WWTP Discharge Limitations Table for Sample Location 001 (External Outfall) To Be Reported Monthly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Daily Maximum	<= 0.33 Million Gallons per Day (Mgal/d)		Intake	001	Continuous	METER
Flow rate	30 Day Average	<= 0.30 Million Gallons per Day (Mgal/d)		Intake	001	Continuous	METER

WWTP Discharge Limitations Table for Sample Location 002 (External Outfall) To Be Reported Monthly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
BOD, 5-day	30 Day Average ^[1]		<= 30 Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Monthly	DISCRT
BOD, 5-day	Daily Maximum [1]		<= 45 Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Monthly	DISCRT
Solids, total suspended	30 Day Average ^[1]		<= 30 Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Monthly	DISCRT
Solids, total suspended	Daily Maximum [1]		<= 45 Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Monthly	DISCRT
Nitrogen, total	Daily Maximum		M&R Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Monthly	DISCRT
pH, maximum	Maximum		<= 9.0 Standard Units (SU)	Internal Monitoring Point	002	Monthly	DISCRT
pH, minimum	Minimum		>= 6.0 Standard Units (SU)	Internal Monitoring Point	002	Monthly	DISCRT

Notes (WWTP Discharge Limitations Table):

1. If only one sample is reported during the month, the 30 mg/L discharge limit is applied. If more than one sample is reported, the 30-day average of 30 mg/L and the daily maximum of 45 mg/L is applied.

WWTP Discharge Limitations Table for Sample Location 003 (External Outfall) To Be Reported Monthly^[1]

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	30 Day Average	<= 0.65 Million Gallons per Day (Mgal/d)		Effluent Gross	003	Daily When Discharging	CALCTD [2]
Flow rate	Daily Maximum	<= 1.0 Million Gallons per Day (Mgal/d)		Effluent Gross	003	Daily When Discharging	CALCTD [2]
BOD, carbonaceous, 05 day, 20 C	Daily Maximum		<= 35 Milligrams per Liter (mg/L)	Effluent Gross	003	Monthly When Discharging	DISCRT
Solids, total suspended	Daily Maximum		<= 90 Milligrams per Liter (mg/L)	Effluent Gross	003	Monthly When Discharging	DISCRT
Coliform, fecal general	30 Day Average ^[3]		<= 200 Most Probable Number per 100ml T (MPN/100m L)	Effluent Gross	003	Monthly When Discharging	DISCRT
Coliform, fecal general	Daily Maximum ^[3]		<= 400 Most Probable Number per 100ml T (MPN/100m L)	Effluent Gross	003	Monthly When Discharging	DISCRT
pH, maximum	Maximum		<= 9.5 Standard Units (SU)	Effluent Gross	003	Monthly When Discharging	DISCRT
pH, minimum	Minimum		>= 6.0 Standard Units (SU)	Effluent Gross	003	Monthly When Discharging	DISCRT

Notes (WWTP Discharge Limitations Table):

1. If no discharge to the playa occurred during the monthly reporting period, the Permittee shall write "no discharge" on the applicable discharge monitoring report (DMR) form.

2. Calculate the discharge rate using the staff gauge in the pond.
3. If only one sample is reported during the month, the 200 MPN/100 mL discharge limit is applied. If more than one sample is reported , the 30-day average of 400 MPN/100mL is applied.

**WWTP Discharge Limitations Table for Sample Location 003 (External Outfall) To Be Reported
Once During The Permit Term^[1]**

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Antimony, total (as Sb)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Arsenic, total (as As)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Beryllium, total (as Be)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Cadmium, total (as Cd)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Chromium, total (as Cr)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Copper, total (as Cu)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Lead, total (as Pb)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Mercury, total (as Hg)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Nickel, total (as Ni)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Selenium, total (as Se)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Silver, total (as Ag)	Value		M&R Milligrams per Liter	Effluent Gross	003	Once Per Permit Term	DISCRT

**WWTP Discharge Limitations Table for Sample Location 003 (External Outfall) To Be Reported
Once During The Permit Term^[1]**

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration (mg/L)	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Thallium, total (as Tl)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT
Zinc, total (as Zn)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Permit Term	DISCRT

Notes (WWTP Discharge Limitations Table):

- The Priority Pollutant Metals shall be sampled for once during the term of this permit, within one year of the issuance date, and be reported as part of the 4th quarter DMR in the year that the sample was obtained.

Rationale for Permit Requirements:

BOD₅: The BOD₅ of effluent from the activated sludge treatment plant is limited to 30 mg/L and 45 mg/L, respectively, for the 30-day average and daily maximum values.

TSS: The Division requires the treatment plant to achieve TSS levels of 30 and 45 mg/L for the 30-day average and daily maximum, respectively. The TSS limit for discharges from the evaporation ponds to Lemmon Lake is set at a daily maximum limit of 90 mg/L. This limit has been set because the algae produced in the evaporation ponds from nutrient consumption (e.g. nitrogen and phosphorus) during warmer months are a source of natural biological solids.

5-day Carbonaceous Biochemical Oxygen Demand (CBOD₅): The CBOD₅ of discharges to Lemmon Lake Playa is limited to a daily maximum of 35 mg/L. This limit is in place on the discharge from the evaporation ponds to Lemmon Lake Playa because CBOD₅ is an effective surrogate for the BOD₅ for pond systems, in which algae grow.

Fecal Coliform: The secondary standard effluent limits for fecal coliform are 200/100 ml and 400/100 ml, respectively, for the 30-day average and daily maximum values, for discharges of polished effluent to Lemmon Lake Playa.

pH: The Permittee is required to meet the pH limitation of 6 to 9 standard units for discharges of effluent to the evaporation ponds. However, the discharges to Lemmon Lake Playa have a pH limit of 6.0 to 9.5 due to natural algae production in the evaporation ponds which increases the pH in the polished effluent by approximately 2.0 standard units (e.g. from a pH of 7.2 in the plant effluent to 9.2 after algal growth in the ponds). Chemical adjustment of pH or the use of biocides to kill algal growths in evaporation ponds would be necessary if the polished effluent pH limit could not exceed a pH of 9.0. As indicated, any discharges of polished effluent to Lemmon Lake Playa are rapidly evaporated and are not expected to impact any

potential drinking water source.

Total Nitrogen: Monitoring and reporting of total nitrogen has been added to the permit. The State requires monitoring of total nitrogen from wastewater treatment plants that discharge to groundwater.

Metals Analysis: The Division has retained the once per five year monitoring and reporting requirement for heavy metals in discharges of polished effluent to Lemmon Lake. The applicant reports that there are no industrial dischargers into this treatment plant.

Groundwater Monitoring: The Division has previously not required LVWRF to install groundwater monitoring wells due to the discharge going into a terminal playa containing natural clay soils. In order to ensure groundwater quality is not being degraded in this area, the Division is requiring the Permittee to submit an annual groundwater characterization report. This report is intended to give the Division a better understanding of the effects, if any, on groundwater quality from operations of this facility. As part of this report, the Permittee shall provide nitrate data that has been collected from any public water system supply wells within one mile of the facility. If these wells become abandoned or unavailable for any reason, the Division may require the Permittee to install groundwater monitoring wells.

Special Conditions:

SA – Special Approvals / Conditions Table

Item #	Description
1	<p>The Permittee shall submit an annual report that characterizes the groundwater quality near LVWRF. The report shall, at minimum, include the following information:</p> <ol style="list-style-type: none"> 1. Nitrate data from public water system supply wells within one mile of the facility; 2. Local hydrogeologic information (e.g. approximate depth to groundwater aquifers and bottom of clay layer); and 3. Pond seepage rate calculations.

Flow:

The Permittee has applied for a 30-day average influent flow of 0.30 MGD and a daily maximum influent flow of 0.33 MGD. Discharges of polished effluent from pond #9 into Lemmon Lake Playa will be limited to 0.65 MGD and 1.0 MGD, respectively, for the 30-day average and daily maximum flows.

Corrective Action Sites:

There are no Bureau of Corrective Actions remediation sites located within one mile of this facility.

Wellhead Protection Program:

The facility is located within the 3000' Drinking Water Protection Area of four Lemmon Valley Water Company supply wells. These supply wells are up and cross-gradient from LVWRF, and are not anticipated to be adversely effected by wastewater treatment operations.

Schedule of Compliance:

SOC – Schedule of Compliance Table

Item #	Description	Due Date
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1	The Permittee shall submit for review and approval two (2) copies of a new Operation and Maintenance (O&M) Manual, compiled in accordance with Nevada Division of Environmental Protection (NDEP) guidance document WTS-2, "Minimum Information Required for an Operation and Maintenance Manual for a Wastewater Treatment Plant." The O&M Manual shall be prepared by a Nevada Registered Professional Engineer or Division-approved qualified person. If prepared by a Nevada Registered Professional Engineer, the O&M Manual shall be wet stamped.	11/1/2014
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Deliverable Schedule:

DLV– Deliverable Schedule for Reports, Plans, and Other Submittals

Item #	Description	Interval	First Scheduled Due Date
1	Quarterly Reports	Quarterly	4/28/2014
2	Annual Reports	Annually	4/28/2014
3	Annual Groundwater Characterization Report	Annually	1/28/2015

Procedures for Public Comment:

The Notice of the Division's intent to reissue a permit authorizing the facility to discharge to groundwater 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 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. **12/27/2013**, 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 must be conducted in the geographical area of the proposed discharge or any other area the Administrator determined 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.650.

Proposed Determination:

The Division has made the tentative determination to issue / re-issue the proposed 5-year permit.

Prepared by: **Jason Ferrin, E.I.**

Date: **5/2/2013**

Title: **Staff II Associate**