

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET

(pursuant to NAC 445A.236)

Permittee Name: Clark County Dept. of Parks and Recreation
2601 E Sunset Rd
Las Vegas, Nevada 89120

Permit Number: NEV2004533

Description of Discharge: Treated Effluent Reuse for Irrigation

Location: Silver Bowl Sports Complex Park
6800 E Russell Rd
Las Vegas, Nevada 89015

Sec 35	Township 21 South	Range 62 East	Mt Diablo Base & Meridian	
FEATURE	LAT (d m s)	LON (d m s)	LAT (decimal °)	LON (decimal °)
Structure at east end of parking area on north side of site	36° 05' 06.25" N	115° 01' 30.00" W	36.0850694°	-115.0250000°

General: Clark County Water Reclamation District (NV0021261) wastewater is treated to tertiary standards and effluent is piped to the reuse site, Silver Bowl Sports Complex Park (Silver Bowl SCP). Application is by spray irrigation for 66 acres of turf and drip irrigation for trees. The facility was issued its first reuse permit in 2005 when the park was converted from a potable water irrigation system. The reuse irrigation system is independent of the potable water supply at the site. The permittee manages the facility in accordance with the Division approved Effluent Management Plan (EMP) on file with the Division.

Flow: 0.500 MGD 30-Day Average. Annual application volume authorized by supplier is 1,680 acre feet per year (547.43 MG per year).

Characteristics: The permit is for the discharge of tertiary treated, partially denitrified (20.0 mg/L Total N), filtered and disinfected effluent for use in drip and spray irrigation of approximately 66 acres of turf and other landscape vegetation at the Silver Bowl Sports Complex Park. The site has large areas of turf grass used primarily as soccer playing fields and other similar recreational uses, including four baseball diamonds. Limited potable water is available for drinking water fountains and restroom facilities. The potable water system is independent of the reuse water irrigation system. Cross connection and backflow prevention are addressed in accordance with permit requirements. The park complex is located at 6800 East Russell Road, southwest of the Silver Bowl Stadium, in Las Vegas, Clark County, Nevada.

Reuse Water Quality supplied by the Clark County Water Reclamation District [NV0021261]:

CBOD ₅ :	30 mg/l 30-Day average; 45 mg/l Daily Maximum
TSS:	30 mg/l 30-day average; 45 mg/l Daily Maximum
Fecal Coliform (cfu, mpn ¹)	2.2/100 ml 30 day average; 23/100 ml daily max.
Total Nitrogen as N:	Average is less than 17.25 mg/L
pH	Between 6.0 and 9.0 SU
¹ cfu = colony forming unit	mpn = most probable number

Receiving Water Characteristics: Groundwater in the vicinity of the site is approximately 12 feet below ground surface with groundwater flow direction to the north-northeast. Shallow aquifer water quality in the area is historically poor. The average concentration for TDS is at 5,000 mg/L and above, and that for chlorides and sulfate is generally exceeding limits set for drinking water. Two monitoring wells, one up gradient and one down gradient are installed to monitor the delivered effluent impacts to the groundwater. The reuse effluent received at the site is only partially denitrified with an averaging less than 17.25 mg/l Total Nitrogen as N.

The annual hydraulic loading limit was not exceeded in the last permit period, 2005 to 2010. The 30-day average flow

was reported as: 0.49 MGD in Jun. '08, 0.52 MGD in Jul. '08, 0.49 MGD in Aug. '08, and 0.489 MGD in Jul. '10 of the last permit period, exceeding the 2005 30-day average flow permit limit of 0.438 MGD. Per permittee request, the 30-day average flow rate for this permit cycle will be set at 0.500 MGD with the allowed annual application volume set at 1,680 acre feet per year as allowed by the effluent supplier.

Groundwater monitoring wells 1 and 2 are used to characterize groundwater conditions of the site. Both wells were constructed and put into service beginning the third quarter of 2007. MW-1 is located at the west side of the site (upgradient) and MW-2 is located near the east property boundary (downgradient). Groundwater monitoring requirements of the 2005 permit set action thresholds for nitrate as N at 7, 9 and 10 mg/l. The necessary actions to be taken by the Permittee may be summarized as: when at 7 mg/l, revise management practices to increase nitrogen uptake by vegetation; when at 9 mg/l, corrective actions shall be taken to decrease nitrogen loading impact at the site, this may include limiting effluent application and/or more effective de-nitrification; when at 10 mg/l, the use of effluent must cease.

The concentration level for nitrate as nitrogen at the facility has consistently been below the 7 mg/l threshold as managed by the Permittee in accordance with the approved Effluent Management Plan (EMP). However; monitoring well 1 and 2 have each reported two sampling events where threshold values have been exceeded during the period from the third quarter of 2007 (Q3 '07) to the fourth quarter of 2010 (Q4 '10). [Report date and concentration levels of exceedance for this period at MW1 were: Q4 '08, 12 mg/l and Q2 '10, 7.2 mg/l; at MW2 were Q1 '09, 12 mg/l and Q2 '09, 7.6 mg/l].

The renewal permit contains threshold provisions requiring response actions if total nitrogen as nitrogen concentrations increase to 7, 9, or 10 milligrams per liter (mg/L) at any of the monitoring well locations. This provision to use total nitrogen rather than nitrate thresholds in the proposed permit will allow the Division and Permittee the ability to have more response time to provide groundwater protection from potential nitrate loading.

Drinking Water Protection: Wellhead Protection Areas (WHPA) have not been established for this vicinity. The permitted facility property does not lie within a 6,000 foot Drinking Water Protection Area (DWPA) of Public Water System (PWS) wells. Reuse water used by the facility in accordance with permit limitations is not expected to adversely impact PWS wells in the area.

Corrective Action Sites: This Bureau of Water Pollution Control (BWPC) permit facility is within a one mile radius of a portion of the BMI Complex and of one active Bureau of Corrective Actions (BCA) facility site, H-000534. Reuse water used at the BWPC permit site is not expected to adversely impact either BCA site facility remediation activity.

Proposed Effluent Limitations: During the period beginning on the effective date of this permit, and lasting until the permit expires, the Permittee is authorized to manage and discharge reuse water supplied by the CCWRD on the Silver Bowl Sports Complex Park site. The Permittee is authorized to irrigate turf and other landscape features with effluent treated in accordance with permit NV0021261 issued to CCWRD. The Permittee is authorized consumptive use of treated effluent water for spray and drip irrigation and soil conditioning at the site.

The Permittee shall monitor the discharge (Outfall 001) of treated effluent delivered to the Silver Bowl Sports Complex Park site for use authorized by this permit [NEV2004533]. Samples taken for compliance with the monitoring requirements specified below shall be obtained from CCWRD [NV0021261] and reported by the Permittee for permit compliance before blending with any water supplied by any other source. The quality of the irrigation water used by the Permittee may be reported as calculated values when the treated effluent is blended with another water supply.

Discharge shall be monitored and reported by Permittee in accordance with limitations specified in Table I.1.

TABLE I.1

PARAMETER		LIMITATIONS		MONITORING REQUIREMENTS ¹	
		30-Day Average	Daily Maximum	Measurement Frequency	Sample Type
Flow ² (Outfall 001)	MGD	0.500	M&R	Daily	Flow meter

PARAMETER	LIMITATIONS		MONITORING REQUIREMENTS ¹	
	30-Day Average	Daily Maximum	Measurement Frequency	Sample Type
Total Nitrogen ² as N mg/l	M&R	20.0	Weekly	Composite
Fecal Coliform ² cfu, mpn per 100 ml	2.2	23	Weekly	Discrete
MGD: Million Gallons per Day M&R: Monitor & Report	cfu: Colony Forming Unit mpn: Most Probable Number		ml: milliliter mg/l: milligram per liter	

1. See Part I.C. of permit for additional information on sampling, testing, reporting, monitoring and definitions related to requirements.
2. During application periods, sample results are to be obtained weekly from NV0021261 and reported in Permittee's quarterly DMR.

Groundwater Monitoring Requirements

Wells shall be monitored in accordance with permit conditions and EMP requirements. Should site conditions and/or operational activities necessitate or warrant the installation of additional monitoring wells, all wells shall be incorporated into the required monitoring schedule. All subsequent monitoring wells proposed or required (designs and locations) shall be approved by the Division prior to installation and constructed in general accordance with "WTS-4: Monitoring Well Design Requirements" (NDEP, February 1997).

If an increasing total nitrogen as nitrogen trend is evident or suspect, the EMP shall be revised to provide management practices that increase nitrogen uptake by vegetation and/or adjust other nitrogen sources such as fertilizer application rates. The Permittee shall also take all corrective action necessary to ensure that there is no further degradation of groundwater.

Discrete groundwater samples shall be collected to confirm the effective protection of groundwater under the established discharge conditions of this permit.

Monitoring wells: MW-1 and MW-2, shall be sampled for the presence of nitrogen compounds, TDS, and chloride. Monitoring wells shall be measured and sampled according to the following parameters:

Groundwater Monitoring

PARAMETERS	GROUNDWATER LIMITATIONS	SAMPLE LOCATIONS ¹	MONITORING REQUIREMENTS	
			Measurement Frequency ²	Sample Type
Depth to Water (ft)	Limit Monitor & Report	Monitoring Well 1, 2	Quarterly	Discrete Measurement
Groundwater Elevation (ft, amsl)	Monitor & Report	1, 2	Quarterly	Discrete Measurement
Total Nitrogen as N (mg/L)	10	1, 2	Quarterly	Discrete
Nitrate as N (mg/L)	Monitor & Report	1, 2	Quarterly	Discrete
Total Dissolved Solids (mg/L)	Monitor & Report	1, 2	Quarterly	Discrete
Chloride (mg/L)	Monitor & Report	1, 2	Quarterly	Discrete

ft: feet
mg/L: milligram per liter

amsl: above mean sea level
as N: as Nitrogen

Footnotes:

- ¹: Monitoring wells currently include: MW-1 and MW-2. All groundwater monitoring wells installed as a function of the permitted discharge shall be included in the monitoring program prescribed.
- ²: Sampling frequency may be modified or reduced, in whole or in part, at the discretion of the Division, upon demonstration of groundwater concentrations or conditions which warrant or justify alternative monitoring schedules.

- a. Groundwater monitoring wells shall be conspicuously labeled, capped to prevent migration of surface

contaminants to the groundwater, and locked to restrict access.

- b. Wells shall be monitored in accordance with permit conditions and Effluent Management Plan (EMP) requirements. All subsequent monitoring wells proposed or required (designs and locations) shall be approved by the Division prior to installation and constructed in general accordance with "WTS-4: Monitoring Well Design Requirements" (NDEP, February 1997).

Abandonment of groundwater monitoring wells shall be conducted under the approval of, and in accordance with the requirements established by, the Division and the State Engineer's office.

- c. If the total nitrogen as nitrogen concentration in groundwater at a monitoring well location increase to:
- i. 7.0 mg/L, the Permittee shall revise the EMP to provide management practices which increase the nitrogen uptake by vegetation and/or adjust other nitrogen sources such as fertilizer application rates.
 - ii. 9.0 mg/L, the Permittee shall take all corrective action necessary to ensure no further degradation of groundwater.
 - iii. 10.0 mg/L, the Permittee shall discontinue the use of reclaimed wastewater and the discharge to groundwater shall cease, unless otherwise authorized by the Division.

Rationale for Permit Requirements

Flow: Flow is limited by the volume of treated effluent requested and available from the Clark County Water Reclamation District (CCWRD). Effluent supply by CCWRD is subject to being stopped if the allowed facility total nitrogen load applied as effluent and fertilizer per year is reached before the supplier authorized volume is used.

Total Nitrogen: The concentration of total nitrogen in treated wastewater used for irrigation is required for purposes of determining mass discharge to irrigated landscape areas. The nitrogen concentration in treated wastewater is a component of the calculation for monthly nitrogen mass application, which is ultimately used to reconcile annual nitrogen budgets. The total nitrogen as nitrogen (as N) application rate and the annual nitrogen load (balance) are required under the EMP.

Fecal Coliform: The concentration of fecal coliform in treated wastewater discharged for irrigation is restricted in accordance with NAC 445A.276 Reuse Category B.

Schedule of Compliance and Special Conditions

The Permittee shall implement and comply with the provisions of the following 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.

- a. The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit.
- b. The Permittee shall maintain and revise, as necessary, the Effluent Management Plan (EMP) sections for each site keeping all information required by I.B of the permit current in accordance with WTS-1-B design criteria. Materials submitted for Division approval shall be stamped by a registered Nevada PE.

Within ninety (90) days of permit effective date, **MM DD, 2011**, the Permittee shall:

- i. Submit an updated EMP for the permittee's managed reclaimed water use site(s) for review and approval by the Division. The submitted EMP shall include any change made to the treatment system since the last Division approved edition needed to comply with this permit as issued.
OR
 - ii. Submit a letter to the Division indicating that the current approved EMP has not changed since the last Division approval and that the manual and approved operations are still valid for the permittee's managed reclaimed water use site(s).
- c. In adherence with the approved EMP, the Permittee shall provide the following certification with each quarterly report: *"I certify that during each month of the previous quarterly reporting*

period, all operational procedures outlined in the approved Effluent Management Plan for this facility were adhered to.”

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:

The Notice of the Division's intent to issue the permit authorizing the facility to discharge to the groundwater of the State of Nevada subject to the conditions contained within the permit is being sent to the **Las Vegas Review-Journal** for publication. The notice is being mailed to interested persons on the NDEP-BWPC mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the date of the publication of the public notice. All comments must be received by 5:00 pm local time on August 9, 2011. 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 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.605.

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