

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET (Pursuant to NAC 445A.236) November 2006

APPLICANT NAME: EAGL Golf
5500 East Flamingo Road
Las Vegas, Clark County, Nevada 89122

PERMIT NUMBER: NEV2007504 - New

DISCHARGE LOCATION: Stallion Mountain Country Club
5500 East Flamingo Road
Las Vegas, Clark County, Nevada 89122

Latitude: 36° 07' 05" North
Longitude: 115° 02' 48" West
(Latitude/Longitude at Club House)
Township 21 South, Range 62 East, Sections 15 and 16

PUBLIC WATER SUPPLY: No public water supply wells are located within a 7,000-foot buffer zone.

FLOW: The Applicant has requested the following flow rates:
1.75 million gallons per day as the 30-day average
3.50 million gallons per day as the daily maximum

Outfall 001: Discharge of City of Las Vegas Water Pollution Control Facility reclaimed wastewater to groundwater via percolation through reuse irrigation of the Stallion Mountain Country Club Golf Course.

GENERAL:

Stallion Mountain Country Club (SMCC) is a 171 acre golf course located in Las Vegas at 5500 East Flamingo Road. SMCC presently receives tertiary treated, nitrified wastewater from the City of Las Vegas (CLV) Water Pollution Control Facility (Permit NV0020133) for irrigation of golf course turf and other landscaping areas, under the authority of NPDES permit NV0021679. Excess irrigation water had been collected in a tile drain field and then discharged to the Las Vegas Wash (LVW). The tile drain was damaged during a construction project in June 2004 and has not been used since that time. Since the reclaimed water is no longer being discharged directly to the LVW, the Applicant has requested that NPDES Permit NV0021679 be canceled and a Nevada Groundwater Discharge Permit for reuse of treated effluent be issued in its stead. A complete application has been received for Permit NEV2007504. Irrigation using treated effluent is conducted with an Effluent Management Plan (EMP) submitted to and approved by the Nevada Division of Environmental Protection for Permit NV0021679. This EMP is required to be updated as a condition for the issuance of the new permit.

DISCHARGE CHARACTERISTICS:

Water used for irrigation is treated to meet tertiary standards and disinfected. Data on file from January 2006 to June 2006 reports effluent characteristics from CLV as follows:

PARAMETER	AVERAGE VALUE	MAXIMUM VALUE
Fecal Coliform (CFU/100 mL)	0.58	46
CBOD ₅ (mg/L)	0.45	4
Total Suspended Solids (TSS, mg/L)	0.51	9.1
Total Dissolved Solids (TDS mg/L)	1226	1310
Total Nitrogen (mg/L)	20.5	23.4
pH (SU)	6.69	7.76

CFU: Colony forming units mg/L milligram per liter
 mL: milliliter SU: standard units

The flow rate from May 2005 to June 2006 was reported to be between 0.30 MGD and 1.23 MGD with an average flow of 0.75 MGD.

RECEIVING WATER CHARACTERISTICS:

Discharge limitations to groundwater are based, in part, on primary drinking water standards adopted by the State of Nevada (NAC 445A.4525 and NAC 445A.453).

Groundwater underlying the SMCC is of non-drinking water quality.¹ Groundwater is encountered at depths ranging from approximately 10 to 12 feet below ground surface, with a reported flow direction toward the east.

Groundwater monitoring wells Stallion Mountain Country Club North (SMCC-N) and Stallion Mountain Country Club South (SMCC-S) are upgradient monitoring wells used to characterize groundwater at the course. SMCC-N and SMCC-S are located at the northwest corner and the mid-west edge of the golf course, respectively. A downgradient monitoring well, MW-5, also known as Stallion Mountain Country Club East (SMCC-E) has been installed and approved by the Division at the mid-eastern edge of SMCC. Well locations are configured at locations subject to irrigation with reclaimed water.

¹Groundwater characteristics routinely monitored at each well location are as follows*:

Well Location	Approximate Depth to Water (feet below ground surface)	Total Nitrogen as N (mg/L)	Total Dissolved Solids (mg/L)
SMCC-North	11.54	35.0	5,628
SMCC-South	10.68	25.9	5,455

*: January 2003 through April 2006

PROPOSED LIMITATIONS:

Proposed limitations are designed to verify the constituent composition of effluent discharges and control application and operational parameters to protect groundwater from any further degradation.

During the period beginning on the effective date of this permit and lasting until the permit expires, the Permittee

is authorized to discharge treated wastewater effluent for irrigation at SMCC. Samples and/or measurements taken in compliance with the monitoring requirements specified below shall be collected:

- At a flow meter located at a point after treatment and prior to distribution for reuse, accessible at the facility and available for routine measurement; and
- Data may be obtained from CLV to satisfy compliance and reporting requirements confirming effluent quality.

The supplier of the effluent may perform required analytical monitoring; however, the Permittee must report the analytical results to verify compliance with effluent reuse limitations in accordance with quarterly reporting requirements.

The discharge shall be limited and monitored as specified below:

PARAMETERS	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS	
	30-Day Average	Daily Maximum	Monthly Total	Measurement Frequency	Sample Type
Total Flow (MGD)	1.75	3.50	----	Continuous	Flow Meter
Total Application Volume (MGM)	----	----	Monitor & Report	Monthly	Flow Meter/ Totalizer
Fecal Coliform (CFU/100 mL)	2.2	23	----	Weekly	Discrete
Nitrate as N (mg/L)	Monitor & Report	Monitor & Report	----	Weekly	Discrete
Total Nitrogen as N (mg/L)	Monitor & Report	Monitor & Report	----	Weekly	Discrete
Total Nitrogen Applied (pounds)	----	----	Monitor & Report	Monthly	Calculation
Annual Nitrogen Load (pounds/acre/year)	527 ³			Monthly	Calculation (cumulative)
Cumulative Annual Nitrogen Applied (pounds/year) ¹	65,894 ²			Monthly	Calculation (cumulative)

MGD: million gallons per day CFU/100 mL: colony forming units per 100 milliliters
 MGM: million gallons per month mg/L: milligrams per liter as N: as nitrogen

¹: Annual nitrogen load is determined based on the nitrogen budget. The total annual nitrogen applied (lbs/year) shall not be greater than the total annual nitrogen uptake (lbs/year). Calculations and monitoring data shall use the total nitrogen in the applied wastewater (monitored by the treatment facility), total nitrogen from fertilizer applications, nitrogen uptake by crops or vegetation, and fraction of applied nitrogen removed by denitrification and volatilization.

²: This value is calculated as 110% of the total nitrogen maximum uptake/requirement data provided (59,904 pounds of total nitrogen) in the nitrogen loading calculations received from HYDROTECH Consulting Services, LLC on November 13, 2006.

³: To be reported in the 4th Quarter. Annual nitrogen load is determined based on the nitrogen budget. The total annual nitrogen applied (lbs/year) shall not be greater than the total annual nitrogen uptake

(lbs/year). Calculations and monitoring data shall use the **total nitrogen** in the applied wastewater (monitored by the treatment facility), total nitrogen from fertilizer applications, nitrogen uptake by crops or vegetation, and fraction of applied nitrogen removed by denitrification and volatilization.

Quarterly accounting of nitrogen load is required to track and verify timely management of nitrogen application throughout the progression of a calendar year. Each quarter, the cumulative annual amount of total nitrogen applied (January through December) shall be increased by the incremental amount of nitrogen applied during the reported quarter. Data provided in the fourth quarter annual report must demonstrate compliance with the annual nitrogen load allocated (January through December).

Rationale:

Flow: Flow is limited by the volume of treated effluent requested for application, and as long as the nitrogen budgets presented in the approved EMP are observed and annually balanced, the flow rate or volume of water requested can be authorized.

Total Application Volume: This parameter is required to be recorded and reported because it is a variable that is used to calculate the total mass of nitrogen applied to the golf course on a quarterly basis, which is used to reconcile the annual nitrogen balance.

Fecal Coliform: The concentration of fecal coliform in treated wastewater discharged for irrigation is restricted in accordance with NAC 445A.276 for a zero-distance buffer zone.

Nitrate: The nitrate concentration in applied effluent is a monitor and report requirement to track this fraction of the total nitrogen mass applied to the site for purposes of evaluating groundwater conditions. Should nitrate concentrations in groundwater begin to exhibit an increasing trend, further examination of nitrate concentrations in effluent and how application rates affect groundwater may be required.

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. The cumulative (allowable) total nitrogen applied is calculated as 110% of the total nitrogen maximum uptake/requirement data provided by HYDROTECH Consulting Services, LLC on November 13, 2006. Quarterly reconciliation of the nitrogen is required so that facility operators can assess and optimize irrigation practices to effectively manage and routinely demonstrate projected compliance with the annual nitrogen load (balance) limitation.

GROUNDWATER MONITORING REQUIREMENTS:

Existing monitoring wells shall be sampled for the presence of nitrogen compounds, TDS, and chloride. Monitoring wells shall be measured and sampled according to the following parameters:

PARAMETERS	GROUNDWATER LIMITATIONS	SAMPLE LOCATIONS ¹	MONITORING REQUIREMENTS
------------	-------------------------	-------------------------------	-------------------------

			Measurement Frequency	Sample Type
Depth to Water (feet)	Monitor & Report	Each Well	Quarterly	Discrete Measurement
Groundwater Elevation (amsl)	Monitor & Report	Each well	Quarterly	Discrete Measurement
Total Nitrogen as N (mg/L)	Monitor & Report	Each well	Quarterly	Discrete
Nitrate as N (mg/L)	Monitor & Report	Each well	Quarterly	Discrete
Total Dissolved Solids (mg/L)	Monitor & Report	Each well	Quarterly	Discrete
Chloride (mg/L)	Monitor & Report	Each well	Quarterly	Discrete

amsl: above mean sea level mg/L: milligram per liter as N: as Nitrogen

- ¹: Monitoring wells include: SMCC North, SMCC South, and MW-5 (a.k.a. SMCC East).
- 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 in MW-5, 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.

It shall be the responsibility of the Permittee to determine the cause(s) of the increase in Total Nitrogen concentration measurements.

SCHEDULE OF COMPLIANCE:

The Permittee shall implement and comply with the provisions of the schedule of compliance, including in said implementation and compliance, any additions or modifications which the Administrator may make in approving the schedule of compliance.

- **Upon issuance of the permit**, the Permittee shall achieve compliance with all discharge limitations.
- **Within 60 days (Month XX, 2007)** of the permit issuance, an updated EMP, prepared and stamped by a licensed professional engineer, shall be submitted to the Division for approval. **The Permittee shall not use reclaimed water after the 60-day due date without having submitted a redrafted EMP per NAC 445A.275, unless granted otherwise by the Division. The Permittee shall submit the updated EMP to:**

Mr. Nadir Sous
 Bureau of Water Pollution Control
 1771 E. Flamingo Road, Suite 121A
 Las Vegas, Nevada 89119

- The EMP shall contain the information required to comply with this permit. Preparation of the EMP in accordance with **WTS-1A – General Design Criteria for Reclaimed Water Irrigation Use** is recommended.
 - The EMP shall include operation and maintenance procedures for the use and operation of the irrigation systems, including storage ponds.
 - Copies of documentation used for purposes of hazard notification to grounds keepers, contractors, or exposed personnel shall be included in the EMP.
 - The EMP shall include a description of sampling and analysis procedures for monitoring requirements specified as a condition of this permit.
- **Within 60 days (Month XX, 2007)** of permit issuance, the Permittee shall submit current cross-connection control documentation required by **Part I.A.13.** of the permit and annually thereafter, due with the fourth quarter report. The cross-connection control inspection shall be conducted by an American Water Works Association certified cross-connection control specialist.
 - **Within 180 days of permit issuance (Month XX, 2007)** the Permittee shall submit a Technical Evaluation compiling and interpreting the array of data available from groundwater monitoring; nitrogen budget analysis, i.e. consumptive use estimations, hydraulic loading, and nutrient uptake; irrigation practices; and any other factors that may impact constituent loading to groundwater. This consolidated evaluation is required to comprehensively assess on-site conditions and how those conditions do or do not affect groundwater. If conditions are found to be impacting groundwater, remedial measures must be proposed. If on-site conditions are not concluded to be impacting groundwater, then a clear interpretation of circumstances negating groundwater impact must be defined.

PROPOSED DETERMINATION:

The Division has made the tentative determination to issue the proposed permit, under the provisions prescribed, for a 5-year period. Under NAC 445A.232, this permit is classified as a *Discharge of Treated Effluent for Irrigation - 1,000,000 gallons or more but less than 10,000,000 gallons daily.*

PROCEDURES FOR PUBLIC COMMENT:

Notice of the Division's intent to issue 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 **Las Vegas Review Journal** for publication. Notice is also mailed to interested persons on our 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 public notice, and must be postmarked, faxed, or e-mailed by 5:00 p.m. on **February 12, 2007**. 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 reason(s) why a hearing is warranted. Public hearings granted by the Division are conducted in accordance with NAC 445A.238. The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Prepared by: James T. Hogan
November, 2006
P:\BWPC Permits\NV and NEV\NEV2007504_SMCC_FS.doc