

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET (Pursuant to NAC 445A.236) December 2004

PERMITTEE NAME: The Walters Group – Southwest Golf LTD
5500 East Flamingo Road
Las Vegas, Clark County, Nevada 89122

PERMIT NUMBER: NEV96019

DISCHARGE LOCATION: Desert Pines Golf Course
3415 East Bonanza Avenue
Las Vegas, Clark County, Nevada 89101

Latitude: 36°17'05" North
Longitude: 115°06'00" West

Township 20 South, Range 61 East, Section 36

PUBLIC WATER SUPPLY: Within a 7,000-foot buffer zone for water supply wells belonging to Sunrise Acres Water Association and Black Jack Motel.

FLOW: 1.1 million gallons per day as the 30-day average
1.5 million gallons per day as the daily maximum

GENERAL:

Desert Pines is a 94-acre, 18-hole golf course located within the City of Las Vegas near the intersection of Bonanza Road and Mojave Road. The course receives secondary-treated, nitrified, and disinfected, reclaimed wastewater from the Bonanza/Mojave Water Reclamation Facility (BMWRF, Permit NEV96020) for spray irrigation of golf course roughs and fairways. The BMWRF operates as a satellite reclamation facility, drawing influent from the Mojave sewer line specifically for the provision of up to 1.5 million gallons per day (mgd) of reclaimed irrigation water for the Desert Pines Golf Course.

There are four (4) water features located at the golf course. Lake 1 stores water received from BMWRF and is connected through an equalization line to Lake 2 to feed the reclaimed water irrigation system. The ponds are constructed with 20-mil polyvinylchloride (PVC) liners and have a holding capacity in excess of 1.1 million gallons (1 day delivery volume). Lake 3 and Lake 4 receive water from BMWRF through valved connections to the effluent supply line. These ponds are constructed with 20-mil PVC liners and are used for ornamental purposes only.

Irrigation using treated effluent is conducted in accordance with an Effluent Management Plan (EMP) submitted to, and approved by, the Nevada Division of Environmental Protection, Bureau of Water Pollution Control (BWPC). An approved EMP is on file at the BWPC¹.

DISCHARGE CHARACTERISTICS:

Water used for irrigation is treated to meet secondary standards and disinfected using ultraviolet light. Data on file for the 1st quarter 2005 reports effluent characteristics as follows:

¹ EMP approved by BWPC January 28, 2001

For purposes of comparison, corresponding groundwater characteristics at each monitoring location as of July 1999 were as follows¹:

Well Location	Approximate Depth to Water (feet below top of casing)	Nitrate Concentration (mg/L)	Total Dissolved Solids (mg/L)	Chlorides (mg/L)
Desert Pines North	13.00	<1.0	2,050	121
Desert Pines South	11.40	<1.0	5,210	444
Desert Pines West	14.03	4.1	3,180	213

¹ 4th Quarter Annual Report 2003; first complete data set collected when groundwater elevations were sufficient to collect representative samples at all three (3) monitoring locations.

The current permit contains threshold provisions requiring response actions if nitrate as nitrogen concentrations increase as a result of effluent reuse to 7, 9, or 10 milligrams per liter (mg/L) at any of the monitoring well locations. This provision is retained in the proposed permit for purposes of continuity. The Permittee shall be responsible to demonstrate that exceedances of the above nitrate as nitrogen limits are not a result of effluent reuse.

The golf course is located within the 7,000-foot buffer zones of three (3) pumping wells, two (2) of which are associated with the Sunrise Acres Water Association, and the third associated with the Black Jack Motel. Both the Sunrise Acres Water Association and the Black Jack Motel will be provided notice of this proposed permit renewal.

PROPOSED LIMITATIONS:

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

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 Desert Pines Golf Course. 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 the Bonanza/Mojave Water Resource Center 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	
	<u>30-Day Average</u>	<u>Daily Maximum</u>	<u>Monthly Total</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Total Flow (mgd)	1.1	1.5	-----	Continuous	Flow Meter
Total Application Volume (gallons)	-----	-----	Monitor & Report	Monthly	Flow Meter/ Totalizer

PARAMETERS	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS	
	<u>30-Day Average</u>	<u>Daily Maximum</u>	<u>Monthly Total</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Fecal Coliform ¹ (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
Cumulative Annual Nitrogen Applied (pounds/year) ²	33,778 ³			Annual	Calculation (cumulative)

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

Footnotes:

- 1: Fecal coliform concentrations must be limited based on required buffer zones specified in NAC 445A.276. For zero-distance buffer zones, fecal coliform concentrations must be equal to or below the effluent reuse limitations prescribed.
- 2: 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, evapotranspiration rate, precipitation rate, and fraction of applied nitrogen removed by denitrification and volatilization.
- 3: This value is calculated as 110% of the total nitrogen maximum uptake/requirement data provided (30,707 pounds of total nitrogen) in the approved Effluent Management Plan (January 28, 2001 Appendix J).

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 maximum nitrogen requirement for irrigation areas identified in Appendix J of the approved EMP (on file, January 2001). 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 ²	Sample Type
Depth to Water (feet)	Monitor & Report	Each well	Quarterly	Discrete Measurement
Groundwater Elevation (amsl)	Monitor & Report	Each well	Quarterly	Discrete Measurement
Groundwater Gradient and Flow Direction (ft/ft, compass direction)	Report	-----	Annually	Calculate & Illustrate ³
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
 ft/ft: foot per foot (vertical to horizontal)
 mg/L: milligram per liter
 as N: as Nitrogen

Footnotes:

- 1: Monitoring wells currently include: Desert Pines North (DPN), Desert Pines South (DPS), and Desert Pines West (DPW). 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.
 - 3: Groundwater gradient and flow direction shall be calculated based on surveyed well locations and casing elevations. Well locations must be clearly labeled on a scaled map illustrating and denoting the groundwater gradient and flow direction.
- 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 the nitrate as nitrogen (as N) concentrations measured in groundwater increase as a result of effluent reuse 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 execute all corrective action necessary to ensure no further degradation of groundwater. The Permittee shall conduct an engineering evaluation that reviews irrigation programs, lawn maintenance practices, hydrologic conditions, or any other pertinent factor or parameter to define and describe the cause or source of additional nitrate load to the shallow aquifer, and shall propose short and long-term solutions to justify the continued use of treated effluent for irrigation purposes.
 - 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.

SCHEDULE OF COMPLIANCE:

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

- **Upon issuance of the permit**, the Permittee shall achieve compliance with all discharge limitations; and
- **Within 45 days of the permit issuance date (April 13, 2006)**, an updated EMP, stamped by a professional engineer licensed in the State of Nevada, shall be submitted to the Division for approval. **The Permittee shall not use reclaimed water after the 45-day due date without having submitted a redrafted EMP per NAC 445A.275, unless authorized otherwise by the Division.**
- 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 Lake 1 and any other pertinent 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.

PROPOSED DETERMINATION:

The Division has made the tentative determination to issue (renew) 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, and to *Sunrise Acres Water Association and the Black Jack Motel*. 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 25, 2006**. 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
January 18, 2006

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