



STATE OF NEVADA

Department of Conservation & Natural Resources

DIVISION OF ENVIRONMENTAL PROTECTION

901 S. Stewart Street, Suite 4001 Carson City, Nevada 89701 (775) 687-4670 FAX 687-5856

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

Permittee Name: The Walters Group - Southwest Golf LTD
2030 E Flamingo Road, Suite 290
Las Vegas, Nevada 89119

Permit Number: NEV96019

Description of Discharge: Treated Effluent Reuse for Irrigation

Location: Desert Pines Golf Course
3415 E Bonanza Ave.
Las Vegas, Clark County, Nevada 89129

Latitude: 36° 10' 22.70" North
Longitude: 115° 05' 59.70" West
Township 20 South, Range 61 East, Section 36, M.D.B. & M.

Flow: 1.5 MGD Daily Maximum and 1.1 MGD 30-day average. The annual volume of reuse water allowed for delivery by the supplier to the Permittee is not regulated by this permit. The annual volume of reuse water that may be applied at the facility site is limited in accordance with the Division approved EMP.

Drinking Water Protection: No Wellhead Protection Area (WHPA) has been established for this vicinity. The permitted facility property lies within the 6,000 foot radius Drinking Water Protection Area (DWPA) of two Public Water System (PWS) wells (NV0000124; W01 and W02). Reuse water used by the facility in accordance with permit limitations is not expected to adversely impact PWS wells in the area.

Corrective Actions Sites: Desert Pines Golf Course is located within one mile of a NDEP Bureau of Corrective Actions (BCA) remediation site as listed below. The BCA case officers for the remediation site listed have indicated that no adverse effects to their ongoing remediation projects are expected due to the application of reclaimed water at the Permittee's facility.

Project ID #	Site #	Facility Name	Corrective Action type (Media/Contaminant)
N/A	8-000619	7-11	Leaking UST

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 is supplied secondary-treated,

nitrified, and disinfected reclaimed wastewater from the Bonanza Mojave Water Resource Center (BMWRC, Permit NEV96020). The supplied water is used for golf course water features and irrigation of vegetation on the course. Drawing influent from the Mojave sewer line, the BMWRC operates as a satellite reclamation facility specifically for providing up to 1.5 million gallons per day (mgd) of reclaimed water for the Desert Pines Golf Course and other end users in the vicinity contracted by BMRWC.

There are four (4) water features located at the golf course. Lake 1 receives reuse water from BMWRC and is connected to Lake 2 by an equalization line. These ponds are constructed with a 20-mil polyvinylchloride (PVC) liner and have a storage capacity in excess of 1.1 million gallons (1 day delivery volume) for feeding the course's reuse water irrigation system. Lakes 3 and 4 receive BMWRC water through valve connections with the reuse effluent supply line. These ponds are also constructed with a 20-mil PVC liner and used for ornamental purposes.

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 2001 edition is on file with the BWPC; however, as part of the 2011 permit renewal process, the Permittee must submit an updated EMP.

Water Quality Limitations for Reuse Supplied by the Bonanza Mojave Water Resource Center [NEV96020]:

BMWRC provides secondary (biological) treatment, filtration and disinfection. However, this facility was not designed to denitrify the effluent. Typically, this facility can produce an effluent containing less than 10 mg/L, individually, of BOD₅ and TSS, and 25 mg/L or less of total nitrogen.

PARAMETER	AVERAGE VALUE	MAXIMUM VALUE
Fecal Coliform (CFU/100 mL)	0.55	1.1
5-Day Biochemical Oxygen Demand (BOD ₅ , mg/L)	3.8	8.5
Total Suspended Solids (TSS, mg/L)	3.4	9.0
Total Nitrogen (mg/L)	20.0	22.2
Nitrate (mg/L)	18.6	20.0
pH (SU)	7.16	7.24
Chlorine (mg/L)	4.85	8.50

CFU: Colony Forming Units mg/L: milligrams per Liter mL: milliliter SU: Standard Units

Storage ponds or water features on site containing treated wastewater are required to be managed and operated in accordance with the conditions included in the approved EMP to minimize the potential for uncontrolled discharge during storm events. Calculations and model results submitted in the EMP confirm that Lake 1 has the capability to contain, without discharge, the once-in-one-hundred year, 24-hour storm, which is also required as a condition of the permit

Receiving Water Characteristics: Treated effluent used for irrigation discharges to groundwater, and effluent limitations are based, in part, on primary drinking water standards to protect the potential beneficial use of groundwater resources. Groundwater is encountered at depths ranging from approximately 10 to 15 feet below grade surface, with a reported flow

direction toward the southeast.

Groundwater monitoring wells, identified as, Desert Pines North, Desert Pines South, and Desert Pines West (DPN, DPS, and DPW, respectively) are used to characterize groundwater at the course. DPN and DPW are located immediately within, and near midpoints along, the east and west property boundaries, respectively. DPS is located in the southeastern corner of the golf course, representing the best down gradient monitoring location of the three (3) wells. DPN also reflects some down gradient characteristics, and while DPW provides some indication of up gradient groundwater conditions, the north and northwest property boundaries are unmonitored. Well locations are configured at locations subject to irrigation with reclaimed wastewater.

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

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 (DPN)	14.02	5.4	8,300	790
Desert Pines South (DPS)	13.77	15.0	5,700	600
Desert Pines West (DPW)	15.43	16.0	4,300	340

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From January 2006 to September 2011 the level of nitrate as N in both the up-gradient monitor well DPW and the down-gradient monitor well DPS have shown a slight upward trend. With the exception of the October 2006 sample period the trends of DPW and DPS have been similar. While DPW and DPS together have shown an upward trend, individually they indicate that the level of oxidized nitrogen as N in the shallow groundwater is impacted by up-gradient quality and not effluent irrigation. During the past three year (2009-2011) reporting periods, the nitrate as N values in the down-gradient monitor well DPS have been less than or equal to the nitrate as N values in the up-gradient monitor well DPW for nine of the eleven sampling events.

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 Bonanza Mojave Water Resource Center (BMWRC) on the Desert Pines Golf Course (DPGC). The DPGC is authorized to irrigate turf and other landscape features with effluent treated in accordance with permit NEV96020 issued to BMWRC.

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

- a. 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
- b. Data may be obtained from the BMWRC 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.

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.

TABLE I.A.1: EFFLUENT DISCHARGE LIMITATIONS

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
Fecal Coliform (CFU/100 mL)	2.2	23	-----	Weekly	Discrete
Nitrate as N (mg/L)	Monitor & Report	Monitor & Report	-----	Weekly	Composite
Total Nitrogen as N (mg/L)	Monitor & Report	Monitor & Report	-----	Weekly	Composite
Cumulative Annual Nitrogen Applied (pounds/acre/year)	As specified in the EMP			Annual	Calculation (cumulative)

mgd: million gallons per day mg/L: milligrams per Liter CFU/100 mL: Colony forming units per 100 milliliters as N: as Nitrogen
 EMP: Effluent Management Plan M&R: Monitor and Report

Groundwater Monitoring Requirements:

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

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".

If 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.

Groundwater monitoring wells shall be conspicuously labeled, capped to prevent migration of surface contaminants to the groundwater, and locked to restrict access.

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.

TABLE I.A.2: GROUNDWATER MONITORING

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	-----	Annual	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

ft: feet
mg/L: milligram per liter

amsl: above mean sea level
as N: as Nitrogen

Rationale for Permit Requirements:

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 as 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 Reuse Category B.

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.

Update Effluent Management Plan (EMP): In accordance with BWPC permit processing requirements, the Permittee must review and update, as necessary, the approved EMP to reflect current and/or proposed operations at the facility that will be used during proposed permit cycle period. For a facility with an EMP edition that is approaching, or is greater than, ten (10) years old, the Permittee is required to submit a new EMP edition for approval to BWPC. As guidance to preparing an EMP for submittal, it is recommended that the Permittee utilize "WTS-

1 B: General Criteria for Preparing an Effluent Management Plan”, available from the BWPC website.

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.

- a. The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit.
- b. Within ninety (90) days of the permit effective date, **MMM DD, 2012**, the permittee shall provide documentation to the Division that notification has been made to the local water purveyor and the local health agency regarding the use of reclaimed wastewater for irrigation at the subject facility. The documentation shall describe the plan for complying with cross-connection control requirements of the local water purveyor.
- c. Within ninety (90) days of the permit effective date, **MMM DD, 2012**, an updated EMP, prepared and stamped by a licensed professional engineer, shall be submitted to the division for approval.
 - i. The EMP shall contain the information required to comply with this permit. Preparation of the EMP in accordance with *WTS-1B - Guidance Document for Effluent Management Plans for Reuse of Wastewater Effluent* is recommended.
 - ii. The EMP shall include operating and maintenance procedures for the use and operation of the irrigation systems, including storage ponds.
 - iii. Copies of documentation used for purposes of hazard notification to grounds keepers, contractors, or exposed personnel shall be included in the EMP.

If no updates or revisions are required, the Permittee shall submit a letter by the above due date stating that there have been no changes to the previously approved EMP.

- d. Each quarter, the Permittee shall submit a document confirming adherence to the approved EMP:

“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.”

- e. Schedule of compliance submittals and evidence of compliance documents must be submitted to:

**Department of Conservation and Natural Resources
Division of Environmental Protection
Bureau of Water Pollution Control
ATTN: Compliance Coordinator
901 S. Stewart Street, Suite 4001
Carson City, Nevada 89701**

Proposed Determination

The Division has made the tentative determination to issue (renew) the proposed permit, under the provisions prescribed, for a period of five (5) years. 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:

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 **January 3, 2012**. 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.

Prepared by: Michele R. Reid
November 2011

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