

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET (pursuant to NAC 445A.236)

Permittee Name: City of Henderson
240 Water Street
Henderson, NV 89015

Permit Number: NEV80003

Location: City of Henderson Wastewater Treatment Plant #3 (WWTP#3)
2400 Moser Drive
Henderson, Clark County, Nevada 89015

Henderson Water Reclamation Facility (WRF)
450 East Galleria Drive
Henderson, Clark County, Nevada 89015

Latitude: 36° 12' 26" N; Longitude: 115° 15' 26" W.
Township 21S, Range 62E, Section 36

Flow: 9.5 MGD

General Description:

The City of Henderson (COH) operates, both a 9.5 MGD wastewater treatment facility consisting of three parallel trains of three aerated lagoons (WWTP#3), and a 20 MGD facility of two oxidation ditches providing extended aeration, activated sludge process treatment in the water reclamation facility (WRF), located in the City of Henderson, Clark County, Nevada. The WRF Phase III expansion currently in progress, and to be completed in late 2007, will then allow the lagoons to be taken out of service, emptied and cleaned. The Phase III expansion consists of : headworks for pre-treatment, equalization basins, biological nutrient removal (BNR) basins, secondary clarification, chemical phosphorus removal, filtration and ultra violet disinfection. Reclaimed water is chloraminated prior to distribution. Effluent that is pumped to the Bird Viewing Preserve (WWTP#3 evaporation percolation ponds) will be nitrified, de-nitrified secondary effluent or reclaimed effluent (reuse) water. The Permittee is requesting renewal of their existing permit.

Description of Discharge:

Upstream of the two headworks, all the raw sewage is divided at a splitter box. An automatic gate structure is used to split the flow between WWTP#3 and the WRF. The goal is to baseload the WRF with relatively constant flows, and send the diurnal peak flows and loads to WWTP#3.

City of Henderson WWTP#3:

The WWTP# 3 system consists of a headworks, and three parallel trains of three lined aerated lagoons each of which have a large primary treatment lagoon that is approximately twice the volume and surface area of each of the two following secondary lagoons in each train. From the lagoons this effluent is discharged to the Bird Viewing Preserve (WWTP#3 ponds) or the Pabco Rapid Infiltration Basins (RIBs) or to the P2RIBs. A portion of WWTP#3 is used for flow equalization, whereby, the operators can return a portion of the aerobically pretreated flow from WWTP#3 to the WRF. Since the bottom of the lagoons are at or above the headworks of the WRF, equalized flows are returned by gravity to the WRF.

City of Henderson WRF:

The WRF treatment facility consists of a headworks where the flow is metered, screened, and de-gritted. Grit is extracted from grit chambers and dewatered by a classifier and then transported to a dumpster for landfill disposal along with the screened waste. Screw pumps then lift the influent wastewater up into the oxidation ditches where biological treatment occurs by aeration and the mixing of solids (biological mass). After the oxidation ditches the wastewater is clarified, removing the microorganisms and other solids by gravity settling, then is directed to the intermediate pump station where effluent is pumped to the RIBs, or, further clarified and treated with alum coagulation, and sedimentation before final filtration and chlorination for flows directed to reuse, or, for flows to be discharged to the Las Vegas Wash (regulated under permit No. NV0022098). There is further treatment and filtration of this effluent for phosphorus removal followed by chlorination and dechlorination.

The treatment facilities are adjacent to each other, with WWTP#3 slightly higher in elevation and to the west of the WRF.

Effluent Limitations:

Table I.

<u>PARAMETERS</u>	<u>EFFLUENT DISCHARGE LIMITS</u>		<u>Sample Location</u>	<u>Monitoring</u>	<u>Requirements</u>
	<u>30 Day Ave.</u>	<u>Daily Max.</u>		<u>Measurement Frequency</u>	<u>Sample Type</u>
FLOW: MGD	9.5	-----	INF	Continuous	Meter
Flow: MGD	Monitor and Report for each outfall	Monitor and Report for each outfall	EFF To 001, 002, 003	Continuous	Meter
Flow: MGD	Monitor and Report for each outfall	Monitor and Report for each outfall	EFF To 004, 005, (future)	Continuous	Meter
			Sample	Measurement	Sample

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<u>PARAMETERS</u>	<u>EFFLUENT DISCHARGE LIMITS</u>		<u>Location</u>	<u>Monitoring</u>	<u>Requirements</u>
	<u>30 Day Ave.</u>	<u>Daily Maximum</u>		<u>Frequency</u>	<u>Type</u>
Flows to each existing and future Reuse Sites:from 004, 005, and any truck fill facilities and future pump station outfalls (006/007), (and to 001- BVP with Phase III's completion)	Monitor and Report MGD	Monitor and Report MGD	Each Reuse Site	Continuous	Meter
CBOD ₅ : (inhibited) mg/L	Monitor & Report 25 mg/L	Monitor & Report 40 mg/L	INF, EFF - to 001, 002, 003	Weekly Weekly	Composite Composite
BOD ₅ :mg/L	Monitor & Report Monitor & Report	Monitor & Report Monitor & Report	INF, EFF - to 001, 002, 003	Monthly Monthly	Composite Composite
BOD ₅ : ⁽¹⁾ Reuse	30 mg/L	45 mg/L	EFF, to 004, 005, Future 006 (001*)	Weekly	Composite
Total Suspended Solids: mg/L	Monitor & Report	Monitor & Report 90 mg/L	INF, EFF - to 001, 002, 003	Weekly	Composite
Total Suspended Solids : ⁽¹⁾ Reuse	30 mg/L	45 mg/L	EFF - to 004, 005, Future 006, (001*)	Weekly	Composite
Total Dissolved Solids: mg/L	Monitor and Report **		DW & EFF	Weekly	Composite
Total Phosphorus as P: mg/L	Monitor and Report		INF	Weekly	Composite
pH:	not less than 6.0 S.U. nor greater than 9.0 S.U.		EFF	Weekly	Discrete
Fecal Coliform Bacteria: ⁽¹⁾ Reuse	2.2/100 ml MPN or CFU	23/100 ml MPN or CFU	EFF - to 004, 005, Future 006	Weekly	Discrete
Ammonia as N: mg/L	Monitor and Report		EFF 001, 002, 003, 004, 005,Future 006	Weekly	Composite
	<u>30 Day Ave.</u>	<u>Daily Maximum</u>	<u>Sample</u>	<u>Measurement</u>	<u>Sample</u>

<u>PARAMETERS</u>	<u>EFFLUENT DISCHARGE LIMITS</u>		<u>Location</u>	<u>Monitoring</u>	<u>Requirements</u>
				<u>Frequency</u>	<u>Type</u>
Nitrate as N: Outfalls 001, 002, 003	30-Day Average Monitor and Report mg/L	Daily Maximum Monitor and Report mg/L	EFF 001, 002, 003,	Weekly	Composite
Outfalls 004, 005 Reuse (any future outfalls)	Monitor and Report mg/L	Monitor and Report mg/L	EFF 004, 005, future 006	Weekly	Composite
Total Nitrogen as N: Outfalls 001, 002, 003	30-Day Average Monitor and Report mg/L	Daily Maximum Monitor and Report mg/L	EFF	Weekly	Calculate
Outfalls 004, 005 Reuse (Future 006 outfalls)	10 mg/L	Monitor and Report mg/L	EFF	Weekly	Calculate

⁽¹⁾ This limit is applicable for all Reuse and, when Phase III expansion is completed in 2008 (decommissioning of WWTP#3, and all treatment is conducted by the new WRF).

Notes: ml = milliliter MPN = Most Probable Number CFU=Colony Forming Units mg/l=milligrams per liter
 SU=Standard Units DW = Drinking Water

Receiving Water Characteristics:

The proposed permit allows the Permittee to discharge to five (5) outfalls, and allows the addition of reuse sites being placed into service within the life of this permit.

The various disposal and reuse sites are as follows:

Outfall 001 - WWTP#3 Ponds - Bird Viewing Preserve. There are 13 evaporation/percolation ponds of varying shapes and sizes located north of the WWTP#3 aerated lagoons. These ponds also serve the community as a nationally-recognized Bird Viewing Preserve (BVP). These ponds can dispose approximately 4.0 MGD. After completion of the Phase III WRF expansion in 2008, the effluent delivered to the ponds will be Nitrified-denitrified secondary effluent and will be supplied by the WRF.

Outfall 002 - PABCO RIBs. There are seven linear RIBs available for use, and three RIBs are no longer used. The COH can dispose approximately 3.0 MGD in these RIBs. These RIBs are located nearly a half mile directly east of the Bird Ponds, east of Pabco Road. These RIBS will no longer be used when Phase III of the WRF expansion is complete in 2008 unless in an emergency.

Outfall 003 - P2 RIBs. The COH can dispose approximately 3.0 MG in these RIBS which are located

east of Pabco Road, northeast of Boulder Highway, and immediately upgradient and uphill to the south of the BMI disposal ponds. These are adjacent to the old abandoned COH WWTP #2. These old Plant #2 Ribs will no longer be used when Phase III of the WRF expansion is complete and on-line and discharging in 2007-2008.

Disposal capacity of Outfalls 001 - 003 meet peak monthly flow rates, if needed. When the WRF Phase III expansion is completed in 2007, the Facultative Lagoons shall be taken out of service, emptied and cleaned per a Division approved Plan of Abandonment. The COH shall also notify the Division when both the Facultative Lagoons are decommissioned, and when the 002 and 003 RIBs are no longer used, and, at such time effluent reporting shall cease for the 002 and 003 outfalls.

The Phase III WRF expansion consists of: headworks for pretreatment, flow equalization basins, biological nutrient removal basins, secondary clarification, chemical phosphorus removal, filtration and ultra violet disinfection. Reclaimed water is chloraminated before distribution. Effluent pumped to the Bird Preserve Ponds (001) will be denitrified secondary effluent or reclaimed water.

Outfall 004 - Nitrified and de-nitrified disinfected effluent is supplied via an export pipeline for reuse to the following sites via the Green Valley Effluent Pump Station:

Anthem Country Club Revere Golf Course - NEV98023
Del Webb Communities, Desert Willow GC - NEV95038
Foothill Partners, Dragon Ridge Country Club Golf Course - NEV97007
Legacy Golf Club Course - NEV92024.
Troon Lexington @ Revere Golf Course - NEV98019
Troon Concorde @ Revere Golf Course - NEV2001511
Rio Secco Golf Club (7 Hills Golf Course) Harrah's Operating Unit - NEV96010
Future: Wildhorse Golf Course - NEV2002518

Outfall 005 - Black Mountain Effluent Pump Station via the export pipeline from the WRF.:

Black Mountain Golf Course - NEV96017
Palm Mortuary - NEV2000505
Tuscany Golf Course/Rhodes Ranch - NEV2001323
CO Henderson Boulder Highway Beautification Project - NEV2000513
CO Henderson WRF, on site - NEV80003

Additional reuse sites can be added to the above lists as permitted by Part I.A. of the permit. Each reuse site not onsite or directly owned and managed by the COH WRF, and not currently permitted for reuse shall obtain their own permit and follow an Effluent Management Plan which shall be approved by NDEP. The COH shall update the list of new reuse sites supplied by the COH as each user comes on line. This list shall be used to update the most current O & M/EMP, and shall be

submitted to the Division to update our records, as well to ensure that all permits are in place for the new users.

Onsite landscape irrigation reuse and effluent truck fill facilities are authorized, subject to Division review and approval of plans for the truck fill facilities, whether onsite, or at a remote location(s) which is/are managed and controlled by the City of Henderson WRF.

Outfalls 002 and 003 will be Phased out in year 2008. At least 1.0 MGD of treated effluent will continued to be supplied to the WWTP#3 ponds (Outfall 001) to maintain the Bird Viewing Preserve (BVP).

Onsite Groundwater Background:

MW-16 is upgradient of the WWTP#3 ponds and MW-13 & 14 are downgradient of the ponds. The COH submitted monitoring well data on February 27, 2004 with the renewal application in which MW-13, 14 & 16 show low levels of Nitrate as N. Based on the d/g MW's data, the BVP ponds have no apparent impact on the groundwater for Nitrates.

MW-1 is upgradient and MW-8 & 9 are down gradient of PABCO RIBs. The MW's 8&9 have declined from a high of about 20 mg/L down to 5 mg/L or below in a 5-year time frame. MW-1 has shown a minor decline from a high of 30 mg/L down to the 12 to 15 mg/L range of Nitrates as N. With reducing flows to the RIBs and phasing out the RIB's by year 2007, one of the sources of Nitrates will be eliminated and monitoring will continue to determine the rate of natural degradation decreases of the nitrate level over time.

The MW-21 is upgradient and MW-17 & 18 are down gradient of P2 RIBs. MW-21 Nitrate as N have declined from about 12 mg/L to below 8 mg/L in 5 years, while MW- 17&18 have remained in the 22 to 15 - 20 mg/L range. The concentration of Nitrates in MW's have overall been reduced over this period. With reducing flows to the RIBs and phasing out the RIB's by year 2007, one of the sources of Nitrates will be eliminated and monitoring will continue to determine if natural degradation decreases the nitrate level over time.

The progressive limits for Nitrate as N in groundwater are not included in the permit, since the RIBs will be phased out 2007 and de-nitrified effluent will be supplied to the BPV in 2007 and beyond..

GROUNDWATER MONITORING - MONITORING WELLS (MW 1, 8, 9, 13, 14, 16, 17, 18 & 21)

PARAMETER	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS	
		Measurement Frequency	Sample Type
Chlorides: mg/L	Monitor and Report	Annual	Discrete
TDS: mg/L	Monitor and Report	Annual	Discrete
Nitrate as N: mg/L	Monitor and Report	Annual	Discrete
Total Nitrogen as N: mg/L	Monitor and Report	Annual	Discrete
Ammonia as N: mg/L	Monitor and Report	Annual	Discrete
Static Water Elev. MSL	Monitor and Report	Annual	Discrete
Depth to GW (ft.)	Monitor and Report	Annual	Discrete

Rationale for Permit Requirements

Monitoring is required to assess the level of treatment being provided and to assure that the wastewater will not further impact the beneficial use of groundwaters of the State per NRS445A.490.

Procedures for Public Comment:

The Notice of the Division's intent to modify the permit authorizing the facility to discharge to the groundwaters of the State under the conditions contained within the permit, is being sent to the **Las Vegas Review Journal** and the **Henderson Home News** 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 for a period of 30 days following the date of the public notice, By August 30, 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 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.

Proposed Determination

The Division has made the tentative determination to reissue the permit. The proposed permit will be for a period five (5) years.

Prepared by: Icy1 C. Mulligan, BWPC
July & November 2006