STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION
Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Colleen Cripps, Ph.D., Administrator

FACT SHEET
(pursuant to NAC 445A.236)

Applicant: City of Henderson
240 Water Street
Henderson, NV 89015

Permit Number: NV0024139

Facility Locations: The City of Henderson drinking water and wastewater systems require periodic to regular operational maintenance and discharge to outfalls within the City of Henderson city limits, in Clark County, Nevada.

Discharge Outfalls: to the Las Vegas Wash via direct Outfalls between the extents identified:
001W: Las Vegas Wash via multiple stormdrain system outfalls & channels;
002E: Las Vegas Wash via multiple stormdrain system outfalls & channels;
And indirectly to the Las Vegas Wash via the following tributaries:
003: Duck Creek Wash via multiple stormdrain system outfalls & channels
004: Pittman Wash via multiple stormdrain system outfalls & channels
005: C-1 Channel via multiple stormdrain system outfalls & channels

The majority of the discharges enter the Las Vegas Wash or its tributaries between the system discharge boundaries, through identified and unidentified outfalls. Major outfalls to the Wash are identified and listed below.

Identified Outfalls and System Extents for the COH Water Systems Discharges:
West (Upstream) and East (Downstream) Extents of Potential Outfalls to the Las Vegas Wash:
Outfall 001: Latitude 36° 05' 31.28" N, Longitude 115° 01' 15.57" W
Outfall 002: Latitude 36° 07' 18.47" N, Longitude 114° 54' 19.49" W

Most Downstream Location of Potential Outfalls to Duck Creek Wash:
Outfall 003: Latitude 36° 04' 41.04" N, Longitude 115° 04' 57.06" W

Most Downstream Location of Potential Outfalls to Pittman Wash:
Outfall 004: Latitude 36° 05' 01.64" N, Longitude 115° 02' 14.84" W

Most Downstream Location of Potential Outfalls to C-1 Channel:
Outfall 005: Latitude 36° 05' 09.67" N, Longitude 114° 58' 6.71" W

Other discharges flow to established drainage-ways and may make their way to the Wash, or its tributaries. In many cases, exact discharge points to the Wash are unknown.

General: The Permittee, City of Henderson (COH), owns, operates, and maintains a system of drinking water treatment, supply and distribution facilities, and a system of wastewater collection, treatment, and reuse facilities, in Henderson, Clark County, Nevada. The COH currently operates and maintains the systems to supply the needs of approximately 278,000 COH residents and businesses.

Potable Water and Raw Water System Information:
The COH potable and raw water system provides approximately 15% of the water needs for the City; the remaining 85% of COH water needs is purchased from the Southern Nevada Water Authority (SNWA), and distributed by the COH. The COH potable water system includes a 15-million gallon-per-day drinking water treatment plant, approximately 45 reservoirs and tanks which store more than 103 million gallons of treated drinking water, 32 pumping stations, and more than 1,200 miles of underground water distribution pipelines, to supply COH needs. The raw water supplied by Basic Water Company from Lake Mead supplies the water treatment facilities, and irrigation/fill needs for Lake Las Vegas in Henderson.

Wastewater System Information:
The COH owns, operates, and maintains two wastewater reclamation facilities (WRFs): the Kurt R. Segler WRF, and the Southwest WRF, and approximately 935 miles of underground sanitary sewer mains. The WRFs operate and discharge under individual and separate permits. The COH also owns, operates and maintains five reuse water pumping stations, 9 reuse water reservoirs, and 43 miles of reuse water mains.

System-wide Discharges:

Chlorinated discharges (Total Residual Chlorine {TRC} ≥ 0.1 mg/l) result from either planned or unplanned maintenance activities on drinking water systems. For hyper-chlorinated discharges (TRC > 2.0 mg/l) dechlorination and sampling are required.

Non-chlorinated discharges (TRC < 0.1 mg/l) meet the State TRC limit and require no TRC dechlorination or monitoring.

Unplanned water discharges are the result of accidents or incidents that may pose an immediate risk to health, life, property or the environment. Unplanned releases cannot be scheduled or planned for in advance. These may include, but are not limited to, equipment failures and emergencies, water main breaks, leaks, reservoir and tank overflows, fire hydrant shearing, and emergency flushing activities.

Planned water discharges result from routine operational maintenance activities such as disinfection of mains, testing of fire hydrants, storage tank draining for maintenance, cleaning and lining of pipeline sections, equipment and facility flow testing, and routine flushing of distribution facilities.

Discharge rates and duration ranges are estimated for the system maintenance discharges in Table 1. Discharges throughout the systems may contain any combination of the discharge types and categories listed in the table.

Table 1. Water System Discharge Types, Flow Ranges, Duration, Frequency & Purpose

Discharge Type and Category Number			Flow Rate Range (gpm)	Typical Duration	Frequency and Purpose
Potable or raw water discharges	1	P	100-4,500	<1 day	Frequent: pipeline flushing, tank maintenance, reservoir & forebay draining, main disinfection, hydrant flushing & testing, or meter testing
Groundwater (shallow aquifer) discharges	2	P	100-300	<1 day	Infrequent: automatic floor drain sump pumping, pipeline maintenance dewatering and subsurface vault dewatering
Emergency discharges and upsets (treated or raw water)	3	U	Varies	<1 day	Infrequent: pipeline leaks, main breaks, and reservoir/forebay overflows, and emergency flushing activities

Notes: Discharge water categories may either be planned (P) on unplanned (U).

Discharge rates are estimated based on facility capacities and capabilities and worst-case failures. The systems may experience no discharge some days, while other days may have substantial and multiple discharges depending upon maintenance needs and emergencies.

Depending on the water quality and discharge water body standards, various Best Management Practices (BMPs), including treatment and monitoring, will be employed to ensure that water quality is not degraded, and dissipate energy and minimize erosion and sediment transport. If water contains sediments, then sediment barriers such as fiber rolls, gravel bags, and silt fences will be employed to contain sediments. All BMPs are implemented as expeditiously as possible during emergency events. All potable water releases and some raw water releases may contain residual chlorine. Planned releases containing residual chlorine greater than 2.0 mg/l will be de-chlorinated to the State Standard of 0.1 mg/l, prior to discharge to any surface water outfall, including the stormdrain system.

Flow: The applicant requested a total maximum discharge flow rate of 0.99 million gallons per day (MGD). Actual flow rates will be determined by system operational maintenance needs, and emergencies. Total maximum daily flow rate from all system maintenance discharges, planned and unplanned, will be permitted at 0.99 MGD.

Receiving Water Characteristics: The receiving waters for the discharges include: the Las Vegas Wash, Pittman Wash, Duck Creek Wash, C-1 Channel, and numerous tributaries to those water bodies. The water quality/characteristics for each of the receiving water bodies vary depending on source waters. The water quality standards for each of the applicable water bodies/reaches will be applied to the potential points of discharge.

Site Groundwater: Within the project area the elevation of the groundwater varies with location substantially, and generally is divided into three zones: shallow, middle and deep. The local groundwater flow is towards Lake Mead. Groundwater monitoring wells throughout the COH system area are sampled on a regular basis.

Corrective Actions Sites: There are numerous Bureau of Corrective Actions (BCA) remediation sites throughout the COH discharge areas, including the BMI Complex. There are no anticipated effects to the remediation sites from the system-wide discharges.

Proposed Discharge Limitations, Sampling and Monitoring Requirements: Specific sampling requirements are listed in Tables 2-6, including frequency and location of sampling. The Permittee is authorized to discharge potable water, raw water, and groundwater, to waters of the State from planned and unplanned operational maintenance activities related to the COH facilities and systems. Discharges shall be routed and handled to prevent water quality degradation, sediment transport and soil erosion to the extent practicable, in accordance with the plans and information submitted to NDEP. The most stringent of the water quality Requirements to Maintain Higher Existing Quality (RMHQ), and Beneficial Use Standards specified in the NAC regulations for the Las Vegas Wash (**NAC 445A.198, 199, 200, and 201**) are applied at the points of discharge.

Table 2 outlines the system-wide discharges to be reported on DMR #1. Tables 3-6 detail four broad types of discharges: planned and unplanned, chlorinated and non-chlorinated, and list the required sampling parameters. The discharges, organized by discharge category (Table 1), are grouped into the primary discharge water quality characteristics: planned chlorinated discharges (Table 3 –DMR #2); unplanned chlorinated discharges (Table 4 –DMR #3); planned non-chlorinated discharges (Table 5 –DMR #4); and, unplanned non-chlorinated discharges (Table 6 –DMR #5). Table 7 contains Table Definitions and Footnote Explanations.

Discharge shall be limited and monitored by the Permittee as specified in Tables 2-6 below.

Table 2. Sum of all COH Water System Maintenance Discharges –DMR #1

System-Wide Discharge Parameters, Units & Categories			Discharge Limitations	Monitoring Frequency	Monitoring Type
Discharge Rate [1]	MGD	Σ (1-3)	0.99	Continuous, as discharge occurs	Flow meter, estimate, calculation
Total Volume [1]	MG		M&R		Estimate, calculation
Number of Events [1]	#		M&R	per discharge event	Calculation

Table 3. Planned Chlorinated or Raw Lake Water Discharges From: Main & Pipeline Flushing; Tank, Reservoir or Pond Draining and Overflows; and Meter Calibration & Testing –DMR #2

Potable Water and Raw Water Discharge Parameters, Units & Categories			Discharge Limitations		Monitoring Requirements		
			Daily Max	30-Day Avg	Location (Outfall)	Frequency	Type
Discharge Rate [1]	MGD	1	M&R	M&R	All [5]	Continuous	Flow meter, estimate, calculation
Total Volume [1]	MG		M&R	M&R			
Number of events [1]	#		M&R	M&R		per event	
TRC [2]	mg/l	1	0.1	0.1	All [5]	per event	Discrete

Table 4. Un-Planned Chlorinated Discharges From: Pipeline Leaks; Main Breaks; and Reservoir & Tank Overflows –DMR #3

Unplanned Discharges Parameters, Units & Categories			Discharge Limitations		Monitoring Requirements		
			Daily Max	30-Day Avg	Location (Outfall)	Frequency	Type
Discharge Rate [1]	MGD	3	M&R	M&R	All [5]	Continuous, as discharge occurs	Flow meter, estimate, calculation
Total Volume [1]	MG		M&R	M&R			
Number of events [1]	#		M&R	M&R		per event	
TRC [2]	mg/l	3	M&R	M&R	All [5]	per event	Discrete

Table 5. Planned Non-Chlorinated Discharges From: Raw Water Pipeline Flushing; and Shallow Groundwater, Main and Vault Dewatering –DMR #4

Non-chlorinated Discharges Parameters, Units & Categories			Discharge Limitations		Monitoring Requirements		
			Daily Max	30-Day Avg	Location (Outfall)	Frequency	Type
Discharge Rate [1]	MGD	1, 2	M&R	M&R	All [5]	Continuous, as discharge occurs	Flow meter, estimate, calculation
Total Volume [1]	MG		M&R	M&R			
Number of events [1]	#		M&R	M&R		per event	
TDS [3]	mg/l	2	M&R	M&R	All [5]	Annually [3]	Discrete
Total Nitrogen [3]	mg/l	2	M&R	M&R	All [5]	Annually [3]	Discrete
Total Phosphorus [3]	mg/l	2	M&R	M&R	All [5]	Annually [3]	Discrete
Perchlorate [3]	μg/l	2	M&R	M&R	All [5]	Annually [3]	Discrete
Attachment A Priority Pollutants [4]	μg/l	2	M&R	M&R	All [5]	Annually [4]	Discrete

Table 6. Un-Planned Non-Chlorinated Discharges From: Raw Water and Sewer Pipeline Leaks, Main Breaks, Reservoir & Other Overflows –DMR #5

Emergency Discharge Parameters, Units & Categories			Discharge Limitations		Monitoring Requirements		
			Daily Max	30-Day Avg	Location (Outfall)	Frequency	Type
Discharge Rate [1]	MGD	3	M&R	M&R	All [5]	Continuous, as discharge occurs	Flow meter, estimate, calculation
Total Volume [1]	MG		M&R	M&R			
Number of events [1]	#		M&R	M&R		per event	

Table 7. Table Definitions and Footnote Explanations

Term/ Footnote	Table	Definitions/ Explanations
MGD	All	million gallons per day

M&R	All	Monitor and report
Σ	2	Summation symbol; sum of all discharge categories (treated water and raw water, shallow groundwater, and emergency discharges).
Footnote 1	All	Monitor daily on tracking logs, and record separately for each Table/DMR/Discharge Category. Table 2 requires the total of all discharges to be reported. For each DMR and discharge category, report maximum daily discharge in MGD, total volume for the reporting period, in MG, and the number of events, on quarterly DMR forms (one DMR for total system flow only and one DMR for each of the discharge categories).
TRC	3, 4	Total Residual Chlorine
mg/l	3,4,5	milligrams per liter
Footnote 2	3, 4	Potable water discharges and raw water discharges shall be sampled for TRC. Not all hydrant flushing discharges require sampling for TRC; a representative distribution sample is required. Dechlorination to ≤ 0.1 mg/l is required for discharges with TRC > 2.0 mg/l. For discharges with TRC ≤ 2.0 mg/l, dechlorination is not required, sampling at the surface water outfall, or other approved methods, is required, and the 0.1 mg/l limit is applied. Analytical results may be from sampling conducted at the surface water outfall, or reported from a computerized control system.
TDS	5	Total Dissolved Solids
Footnote 3	5	Sample and analyze for detailed parameters (TDS, TN, TP, ClO_4^-) once annually, and report in the 4th quarter. One representative sample is required annually for all sump and drain discharges**, only if discharge occurs**. Report exceedances of individual MCLs or designated beneficial uses standards for a specific Outfall.
Attachment A	5	Priority Pollutants –full suite, including organics and metals (total, recoverable).
μg/l	5	micrograms per liter
Footnote 4	5	Sample and analyze once as discharge occurs (not all underdrains and vaults discharge annually and consequently require sampling each year; **a minimum of 1 underdrain and vault dewatering events' discharges are required to be sampled and reported annually, only if discharge occurs)**. Track and report on Quarterly DMRs. If no discharge occurs note that on the DMR.
Footnote 5	All	Sampling may be performed at discharge outlet or at the nearest Outfall. The sample shall be representative of the discharge.

Rationale for Permit Requirements: The Division has established the monitoring requirements in Tables 2-6 above to ensure that the receiving waters, the Las Vegas Wash, and its tributaries, are not degraded as a result of the system-wide discharges.

Flow, Total Volume, and Number of Events: The rationale for the daily maximum discharge was explained in the **General** and **Flow** sections of this fact sheet. The flow rate for each discharge event, total volume, and number of events must be tracked and reported per quarterly reporting period.

Total Residual Chlorine (TRC): 0.1 mg/l for planned discharges; M&R for emergency discharges. Sampling and analysis is required for all planned chlorinated discharges. The requirement is to sample for TRC once per discharge event. Sampling and analysis may be done by qualified personnel using a hand-held meter, or by a certified laboratory. Dechlorination, sampling and analysis are required for all planned hyper-chlorinated discharges (TRC > 2.0 mg/l). Dechlorination is not required for planned or unplanned non-hyper-chlorinated discharges (TRC ≤ 2.0 mg/l) due to the rapid volatilization of chlorine upon contact with air or solid surfaces. The reported concentration may be that observed

by the control system, rather than a sample obtained at the discharge.

Select Nevada Profile I Parameters (pH, TDS, TN, TP): M&R. Sampling and analysis is required for sump and underdrain dewatering (a minimum of 1 sump or drain discharges are required to be sampled annually and reported in the 4th quarter, if discharge occurs).

Perchlorate: M&R. The shallow groundwater with potentially elevated ClO_4^- levels would flow to the Wash, if it was not intercepted by the dewatering system. The discharge is viewed as bypass. Data is collected for informational purposes.

Attachment A Priority Pollutant Parameters: M&R. Sampling and analysis is required for sump and underdrain dewatering (a minimum of 1 underdrain and sub-surface vault dewatering events' discharges are required to be sampled annually, and results are to be reported in the 4th quarter, **if discharge occurs**). If no discharge occurs from underdrain or vault dewatering, then no sampling is required; report no discharge on DMR.

Schedule of Compliance: The Permittee shall implement and comply with the provisions of the 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:

- The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit.

- Within 90 days of the permit effective date (**May 16, 2012**), the Permittee shall submit to the Division, for review and approval, an Operations and Maintenance (O&M) Manual. The O&M Manual shall include copies of the pertinent field instruction manuals for each discharge category, and locations of where the manuals will be kept, and who has responsibility for maintaining the records for DMR submittals.

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 a NPDES permit authorizing the Permittee to discharge directly and indirectly to the Las Vegas Wash, Duck Creek Wash, Pittman Wash, and the C-1 Channel, for a five-year period, 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 our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of publication of the public notice in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline date and time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, e-mails, or hand-delivered items) to the Division is **February 13, 2012 by 5:00 P.M.**

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 determines to be appropriate. All public hearings must be 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: Jeryl R. Gardner, P.E.
Date: January 2012

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