

# NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

## FACT SHEET

(pursuant to NAC 445A.236)

**Permittee Name:** Lake Las Vegas Resort  
1605 Lake Las Vegas Parkway  
Henderson, NV 89011

**Permit Number:** NV0022691

**Outfall Location:** Lake Las Vegas Dam  
1605 Lake Las Vegas Parkway  
Henderson, Clark County Nevada  
Latitude: 36° 07' 09" N, Longitude: 114° 54' 41" W  
Township 21S, Range 63E, Section 14

**Description of Discharge:** The Permittee has applied for renewal of National Pollutant Discharge Elimination System (NPDES) Permit #NV0022691 for discharges of water from Lake Las Vegas to the Las Vegas Wash (LVW) for the purposes of water quality management. During dry weather, discharge normally occurs from a 30" diameter lake drain valve located at monitoring point LLV-1 at a depth of 75 ft. below the lake surface. Water quality discharges are permitted from the period of November 1<sup>st</sup> through March 30<sup>th</sup> of each year when the lake water column is de-stratified and aerobic throughout, i.e., dissolved oxygen content of 5.0 mg/L or higher. Discharges are allowed up to 2,500 acre-feet per year (AF/yr) for water quality management purposes, during the period from November 1 through March 30. When discharging, the lake drain valve is maintained in the 20% open position, which corresponds to a flow of 100 cubic feet per second (cfs). The lake discharge is routed through a concrete energy dissipation structure and then merges with the entire Las Vegas Wash flow routed underneath the Lake Las Vegas Dam.

The Division of Environmental Protection does not regulate discharges from this lake for the purposes of dam safety or flood control. These discharges are regulated under a State Engineer's dam permit. The NPDES permit requires that the cumulative flow volume from dam safety and flood control discharges be reported to the Division on an annual basis. Flood control discharges occur through the lake's three spillways and the 30" lake drain valve.

**General:** Lake Las Vegas is located between Lake Las Vegas Parkway and North Shore Road, which is accessed via Lake Mead Drive (State Route 564) in Henderson, Clark County, Nevada. The resort is a 2,600-acre property incorporating residential, resort and commercial development. Lake Las Vegas is a 320-acre man-made impoundment filled with water from Lake Mead, supplied by the Basic Management, Inc. (BMI) pipeline. The lake is approximately two miles in length, one mile in width, with an average depth of 33 ft. The lake is permitted to hold 10,600 acre-feet (AF). Up to 7,000 AF/yr of Lake Mead water, purchased from the City of Henderson, can be used to replenish the lake and irrigate the resort's landscaping and golf courses. In addition, Lake Las Vegas has certificated water rights to 2,029 AF stormwater that are utilized during wet years. The resort's sewer and water utilities are provided by the City of Henderson. The lake is formed by an earthen embankment dam, 4,800 ft. in length and 150 ft. high, which was completed in 1992. Twin 84" diameter reinforced concrete pipelines divert the entire flow of the LVW under the lake, for a

length of 9,450 ft. The bypass conduits discharge underneath the dam into the established Las Vegas Wash streambed, which conveys the water into Las Vegas Bay of Lake Mead. The bypass conduits are designed to carry up to a total of 1,200 cubic feet per second (cfs). Reported flows, representative of dry weather conditions, averaged approximately 250 cfs (20% of pipeline capacity). The LVW flow is comprised of the Las Vegas Valley's tertiary-treated municipal wastewater effluent, stormwater, urban runoff and groundwater seepage, which is conveyed into Lake Mead.

Lake Las Vegas is a private recreational lake, used for swimming, catch & release sport fishing, and non-fuel powered boating (electric, oar or sail-powered vessels). The lake also serves as a storage reservoir for irrigation of the resort's landscaping and golf courses. Due to high evaporative losses and infiltration of high salinity groundwater (e.g., as high as 5,000-6,000 mg/L of Total Dissolved Solids or TDS), Lake Las Vegas TDS levels increase up to four (4) times the level observed in Lake Mead water. Generally, the Lake Las Vegas TDS level increases to about 2,500 mg/L before it is diluted with BMI pipeline water from Lake Mead, which averages 600-700 mg/L of TDS. During the period from August 2003 through March 2008, there have been no releases of water from the lake for water quality management purposes.

The lake operations must also comply with dam safety requirements of the State Engineer's Office. Water that normally seeps through the embankment is collected in a toe drain to protect the structural integrity of the embankment fill material, and is discharged to the LVW. At present, the toe-drain discharges 100 gpm of lake seepage to the LVW. The dam must also be protected from high stormwater runoff events in the LVW, which can exceed the carrying capacity of the bypass conduits. During peak storm events, surcharge from the bypass conduits enters the lake via an overflow structure. To maintain freeboard requirements during peak storm events, lake water levels are normally lowered through the lake drain valve and a spillway opening maintained with an air-adjusted rubber bladder. Altogether, the dam has three spillways. During the period from August 2003 through March 2008, 18799 AF of stormwater was discharged from the Lake to maintain required freeboard levels. Storm overflows into the lake dilute the TDS content, and these occurrences minimize the need for planned discharges for water quality management purposes, since the Valley's stormwater runoff is less saline than the lake's water.

**Receiving Water Characteristics:** The receiving water for lake discharges is the Lower Las Vegas Wash. Water quality standards for the appropriate reach of the Las Vegas Wash are specified in NAC 445A.201. The stated beneficial uses of the LVW are irrigation, livestock watering, non-contact recreation, freshwater marsh maintenance, and propagation of wildlife and aquatic wildlife, excluding fish, although this does not preclude a fishery.

**Flow:** The permit allows for an annual discharge of up to 2,500 AF/yr for water quality management during non-storm flow events. Flood control and toe-drain discharges are not limited, but the cumulative flow shall be reported annually in the facility's 4<sup>th</sup> Quarter Discharge Monitoring Report. During the period from August 2003 to November 2007, the flow limitations for water quality management has not been exceeded.

**Rationale for Permit Requirements:** Monitoring requirements for the parameters specified in Table 1 have been established to ensure that discharges from this lake for water quality

management purposes do not degrade beneficial uses of the LVW.

**Proposed Effluent Limitations and Special Conditions:**

**Table 1: Discharge Limitations for Water Quality Management (Outfall 001)**

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	30-Day Average	Daily Maximum	Daily Maximum	Sample Type
Cumulative Flow for Water Quality Management, Acre-Feet/yr	2,500 November 1 thru March 30		Continuous	Flow Measurement Devices
Stormwater Releases, acre-feet	Monitor & Report <sup>1</sup>		Monthly	Flow Measurement Devices
pH, S.U.	Within range 6.5 – 9.0		Prior to Discharge then Weekly <sup>2</sup>	Composite <sup>3</sup>
Dissolved Oxygen, mg/L	5.0		Prior to Discharge then Weekly <sup>2</sup>	Composite <sup>3</sup>
Total Inorganic Nitrogen (as N), mg/L	17		Prior to Discharge then Weekly <sup>2</sup>	Composite <sup>3</sup>
Total Suspended Solids, mg/L	135		Prior to Discharge then Weekly <sup>2</sup>	Composite <sup>3</sup>
Total Dissolved Solids, mg/L	3,000		Prior to Discharge then Weekly <sup>2</sup>	Composite <sup>3</sup>
Fecal Coliform, c.f.u. or mpn/100 ml	200	400	Prior to Discharge then Weekly <sup>2</sup>	Composite <sup>3</sup>

Notes:

All flow measurements shall be submitted as part of the quarterly monitoring reports. All water quality data shall be submitted annually as part of the annual water quality monitoring report required by the Division's Bureau of Water Quality Planning, and copied to the Bureau of Water Pollution Control in fulfillment of the Permit NV0022691 reporting requirement.

1. Reporting of stormwater releases shall be made to Nevada Division of Environmental Protection Bureau of Water Pollution control within 24 hours of the discharge event. The discharge event shall also be reported in the quarterly Discharge Monitoring Report (DMR).
2. For discharge events greater than one week in duration, samples shall be collected on a weekly basis.
3. A composite sample profile at monitoring point LLV-1 shall consist of (1) sample collected one meter below lake surface, (1) sample collected at mid-water column depth, and (1) sample collected one meter above lake bottom.

**Schedule of Compliance:** The Permittee shall submit the following item to the attention of:

**Mr. Nadir Sous**  
**Division of Environmental Protection**  
**Bureau of Water Pollution Control - Las Vegas**  
**2030 E. Flamingo Rd**  
**Suite 230**  
**Las Vegas, NV 89119-0837**

- **By September 25, 2008**, the Permittee shall submit a copy of an Operations & Maintenance (O&M) Manual, which addresses discharges of water from Lake Las Vegas for the purposes of water quality management and sampling procedures. The O&M Manual shall also include a section discussing discharges for dam safety and flood control management. The O&M Manual shall be prepared in accordance with the Division's WTS-2 Guidance: *Minimum Information Required for an Operations and Maintenance Manual*. This manual shall also be included with all other required materials provided to the Nevada Division of Water Resources Dam Safety Board.

**Procedures for Public Comment:** The Notice of the Division's intent to issue (renew) an NPDES discharge permit authorizing releases from Lake Las Vegas for water quality management purposes, subject to the conditions contained within the permit is being sent to the **Henderson Home News** and **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 **June 2, 2008 by 5:00 P.M.** A copy of the public notice and fact sheet can also be downloaded from the Division's website at the following address: <http://ndep.nv.gov/admin/public.htm>

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.

**Proposed Determination:**

The Division has made the tentative determination to issue (renew) the proposed NPDES discharge permit for a period of five (5) years.

Prepared by: Janine O. Hartley  
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Bureau of Water Pollution Control  
March, 2008  
Revised June 2008