

**NEVADA DIVISION OF ENVIRONMENTAL PROTECTION**

**FACT SHEET**  
(pursuant to NAC 445A.236)

**Applicant:** USDOJ –National Park Service –Lake Mead National Recreation Area  
601 Nevada Way  
Boulder City, NV 89005-2426

**Facility:** Cottonwood Cove Water Treatment Plant (CCWTP)  
202 Raven Nest Road  
Cottonwood Cove, Nevada 89046

**Permit Number:** NEV2010506

**Location:** The CCWTP is located in the Lake Mead National Recreation Area (NPS –LMNRA), at 202 Raven Nest Road, approximately 13 miles east of Searchlight, in Clark County, Nevada.

Latitude: 35° 29' 01"N; Longitude: 114° 42' 08"W  
Section 26, T 28S, R 65E MDB&M

**General:** NPS-LMNRA operates the Cottonwood Cove Water Treatment Facility (CCWTP), a facility designed to remove arsenic from groundwater by filtration. Water used for the Cottonwood Cove Resort is provided by two onsite water supply wells. The water is currently potable except for arsenic above the MCL of 0.01 mg/L; recent water quality data show arsenic concentrations at 0.016 mg/L. Treatment consists of pre-filtration to remove sand, chlorine injection to oxidize arsenic and disinfect the water supply, adsorptive media filtration to remove arsenic, and additional chemical injection to inhibit corrosion in the distribution system. Media washdown water will primarily contribute Total Iron in solution, with levels expected as follows: Fe (soluble): Highly variable, <0.025 – 0.225 mg/L; Fe (particulate): 5.0 - 7.5 mg/L. Expected TSS concentrations are unknown at this time, but would appear to be well within design loading for this system. Other constituents include: TDS: 100-430 mg/L, and Turbidity: 12-600 NTU.

The volumetric sum of the two arsenic removal filters is 2,353 ft<sup>3</sup>. Each of the basins is approximately 6' deep with a minimum freeboard of 2 ft. The infiltration basins are sized based on the monthly and annual maintenance media rinse volumes, on an annual basis. Basins are sized to a minimum volume of 3,028 ft<sup>3</sup>, each. Requirements include annual media replenishment wash volume of 4679 ft<sup>3</sup>, monthly filter maintenance wash volume of 976 ft<sup>3</sup>, and a filter to waste volume of 201 ft<sup>3</sup>, for a total of 5,856 ft<sup>3</sup>.

**Description of Discharge:** The arsenic filters will be housed in a building. The building will contain a manhole (Outfall 001) in the NE corner that will capture all process waste flows, with no

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routing or bypass between the vessel wastes and the infiltration basins (Outfall 002). The maintenance waste flow generated will consist of one washdown rinse during system start-up, and upon replenishment with new media (0.035 MGD once per year) and filter maintenance wash flows (0.007 MGD monthly). These filter maintenance washes function primarily to “fluff” the media, restoring consistency and eliminating channelization. The filter maintenance wash water will be run through a 74-µm mesh filter with a magnetic iron removal insert, and discharged to one of two infiltration/ evaporation basins, located approximately 400 feet east of the CCWTP. The waste flows will include the trench drain, sand separator overflows, vessel overflow, filter to waste, filter maintenance wash and vessel drain. Sampling of the discharge will be performed with a long-handled sampler in this manhole; and the waste flow discharge will flow directly, with no other inflow, to the basin outfalls. No organic loading component is expected as a result of this discharge, and very little TSS or TDS. The source for both processes will be treated water from existing potable water storage tanks. Spent filter media from the annual media replenishment will be removed off site to an approved landfill.

**Corrective Actions Sites:** There are no Bureau of Corrective Actions remediation sites within a one-mile radius of the facility.

**Wellhead and Drinking Water Supply Protection:** The facility and discharge location are within a 6,000 foot buffer of the current public water supply wells at Cottonwood Cove, Wells #1 and #2. Both wells are ranked as low vulnerability for all compounds, except for Arsenic. A Wellhead Protection Area has not been established for this site.

**Flow:** Current design capacity for the water treatment system is rated at 24 gpm. The requested maximum daily flow rate of the filter maintenance wash discharge into the proposed infiltration/ evaporation basins is 50 gallons per minute (gpm).

**Receiving Water Characteristics:** At the infiltration basins, depth to groundwater is approximately 300 feet. Water quality is generally good with the exception of elevated Arsenic.

**Proposed Discharge Limitations, Schedule of Compliance and Special Conditions:** During the period beginning on the effective date of this permit and lasting until the permit expires, the Permittee is authorized to discharge filter maintenance wash water as presented to NDEP in the permit application. Discharge limits and monitoring requirements are summarized in Table 1.

**Table I.A.1. Discharge Limits and Sampling and Monitoring Requirements**

Parameters & Units		Discharge Limitations	Sampling Location	Monitoring Frequency	Monitoring Type
Flow <sup>1</sup>	gpm	50	001	Continuous	Flow meter
Flow <sup>2</sup>	MGD	0.035	001*	Continuous	Calculation
Total Arsenic	mg/L	M&R	001*	Monthly <sup>3</sup>	Composite
TDS	mg/L	M&R	001*	Monthly <sup>3</sup>	Composite
Total Iron	mg/L	M&R	001*	Annually <sup>4</sup>	Composite

001 = Outfall 001, water treatment discharge manhole prior to discharge to infiltration basins.

\*002 = Outfall 002, discharge outfall to infiltration basins. (alternate sample location to 001).

1. As monthly filter media maintenance occurs, record flow as average gpm per month.
2. As annual media replenishment maintenance wash occurs, record flow as MGD.
3. Sample when filters are maintenance washed (generally monthly, but may vary).
4. Sample as filter media is replenished and rinsed (generally once per year, but may vary).

gpm: gallons per minute

MGD: million gallons per day

mg/L: milligrams per liter

TDS: Total Dissolved Solids

M&R: Monitor and Report

**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.

- a. The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit;
- b. By **July 20, 2010**, the Permittee, or its representative, shall submit for approval an updated Operations and Maintenance Manual (O & M). The document shall be prepared by the Certified Water Treatment Plant Operator, and reviewed by the National Park Service Utility Systems Manager prior to submission. The updated O&M Manual shall contain the sediment filtration and arsenic treatment portions of the drinking water treatment system, as well as the filter wash maintenance system/activities, and infiltration basins O&M.
- c. The Permittee shall submit a letter of certification, within 90 days of final completion, stating that the treatment system, piping and infiltration basins were constructed in accordance with the Division-approved plans. If the as-builts differ significantly from the submitted design plans, a copy of the as-builts, wet-stamped by a Nevada Professional Engineer, shall be included with the certification.
- d. All compliance deliverables shall be submitted to the address listed below:

Compliance Coordinator  
Nevada Division of Environmental Protection  
Bureau of Water Pollution Control  
901 S. Stewart Street, Ste. 3003  
Carson City, NV 89701

**Special Conditions:**

- a. The Permittee shall conduct regular and routine inspections and maintenance, including the periodic removal of materials to restore capacity, to be conducted

in accordance with the O&M Manual. Summaries of these activities shall be reported with the Quarterly Reports.

- b. Each time filter media is removed (at a frequency as noted in the O&M Manual) an inspection of the maintenance washing delivery system and infiltration basins shall be conducted. A report of the inspections shall be included with Quarterly Reports.
- c. Only potable water from the treatment facility shall be used for the filter maintenance wash operations.
- d. In the event of treatment system failure, delivery system failure and/or infiltration basin leaking/failure, discharge shall cease, and a repair plan submitted to the Division within 30 days of failure.
- e. Filter media removed will be hauled off-site for disposal at an approved landfill.

**Procedures for Public Comment:** The notice of the Division's intent to issue a permit authorizing the facility to discharge to the infiltration basins 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 or by phone/FAX for a period of 30 days following the date of the public notice, by **April 15, 2010**. 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, 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 scheduled by the Administrator 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 the proposed permit for a 5-year period.

**Rationale for Permit Requirements:** Discharge monitoring is required by this permit. Regular and routine inspections and maintenance are also required by the permit.

*Flow:* The flow limits have been set at the applicant's request. Treatment facilities and control structures were designed based upon maximum usage rates and filter maintenance

frequency.

Arsenic: Monitor & Report. Monthly monitoring required. Prior to treatment, recent water quality data shows Arsenic concentrations of approximately 0.016 mg/L. After treatment, arsenic is removed to below 0.01 mg/l, the drinking water standard.

TDS: Monitor & Report. Monthly monitoring required.

Iron: Monitor & Report. Monthly monitoring required because of the use of iron in the media filters.

Prepared by: Jeryl Gardner  
(March 2010)

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