

**NEVADA DIVISION OF ENVIRONMENTAL PROTECTION**  
**FACT SHEET**

(pursuant to Nevada Administrative Code 445A.236)

**Permittee Name:** Churchill County  
155 N Taylor Street  
Suite 190  
Fallon, Nevada 89406

**Permit Number:** NV0023582

**Location:** Moody Lane Regional Water Reclamation Facility  
2831 Moody Lane  
Fallon, Churchill County, Nevada 89406  
Township 19 N, Range 28 E, Section 14

**Discharge Location**

Latitude: 39° 30' 54.18" N

Longitude: 118° 48' 01.55" W

**Receiving Waters:** The Stillwater National Wildlife Refuge,  
via the Newlands Reclamation Project

**Corrective Actions Sites:**

There are no Bureau of Corrective Actions (BCA) remediation sites located within a one-mile radius of the facility.

**Well Head and Drinking Water Supply Protection:**

The facility is not within a 6,000 foot buffer of any public water supply, nor within an established Wellhead Protection Area (WPA) or capture zone.

**General:**

Churchill County operates the Moody Lane Regional Water Reclamation Facility (MLRWRF), which is located northwest of the City of Fallon, Churchill County, Nevada. The facility is a membrane bioreactor plant that utilizes biological nutrient removal, and is designed to treat up to 0.600 million gallons per day (MGD) of domestic wastewater. The facility is designed to meet 30-Day Average effluent limits of 30 mg/l BOD<sub>5</sub> and 30 mg/l Total Suspended Solids, as well as 10 mg/l Total Nitrogen. Treated effluent is disinfected by chlorination to achieve fecal coliform levels of 2.2 and 23 cfu or mpn/100 ml, for the 30-Day Geometric Mean and Daily Maximum limits, respectively. The WRF headworks has automatic fine and coarse screening, grit removal and a 1.0 million gallon emergency storage pond. Following the headworks, wastewater flows to a common flow equalization basin, followed by twin trains of membrane bioreactor (MBR) basins (concrete lined). The basins are comprised of anoxic and aerated zones, followed by basins holding the Zenon™ membrane cassettes. Treated effluent then passes into a chlorine contact chamber for disinfection before collection in an HDPE lined effluent holding basin. Sludge is removed from the reactors via pump to a sludge dewatering system (screw press), and is disposed of in an appropriate landfill.

The MLRWRF is currently permitted under Nevada Groundwater Discharge Permit NEV2007500 to discharge treated, disinfected effluent to the following: irrigation reuse and

land application; future Rapid Infiltration Disposal; and winter storage in an HDPE lined on-site effluent holding pond. Under Permit NV0023582, the Permittee proposes to discharge treated and disinfected effluent to the Stillwater National Wildlife Refuge, via the Newlands Reclamation Project facilities. Under Permit NV0023582, the Permittee will discharge to Wade Drain, which runs adjacent to the wastewater treatment facility. Wade Drain discharges to Erb Drain, which joins the Carson River just upstream of the Sagouspi diversion dam. Water is then diverted from the Carson River to the wildlife refuge through a series of delivery canals and ditches. All segments of the water path, including the portion of the Carson River specified, are considered part of the Newlands Reclamation Project facilities.

### **Discharge Flow and Characteristics:**

Water quality parameters and flow measurements of the effluent produced between November 2008 and March 2009 (including start-up operations) under Permit NEV2007500 are listed below:

	<b>Parameter</b>	<b>Permit Limit</b>	<b>Average</b>	<b>Maximum</b>	<b>Minimum</b>
Influent	Flow (MDG)				
	30-Day Average	M & R	0.0386	0.045	0.034
	Daily Maximum	M & R	0.0578	0.067	0.045
	BOD5 (mg/l)				
	30-Day Average	M & R	470	940	260
	Daily Maximum				
Effluent	TSS (mg/l)				
	30-Day Average	M & R	1371.2	5200	86
	Daily Maximum				
	Flow (MDG)				
	30-Day Average	0.60	0.039	0.042	0.036
	Daily Maximum	0.90	0.053	0.066	0.043
	BOD5 (mg/l)				
	30-Day Average	30	NR	NR	NR
	Daily Maximum	45	2.4	4	>2
	TSS (mg/l)				
	30-Day Average	30	NR	NR	NR
	Daily Maximum	45	2.2	<5	<2
	pH ( Standard Units)	6.0-9.0	7.762	7.92	7.55
	Fecal Coliform (cfu/100 ml)				
30-Day Average	2.2	NR	NR	NR	
Daily Maximum	23	<2	<2	<2	
Nitrate as N (mg/l)	M & R	2.66	6.2	1.3	
Ammonia as N (mg/l)	M & R	0.33	0.7	<0.1	
Total Nitrogen as N (mg/l)	M & R	3.74	6.2	2	

### **Receiving Water Characteristics:**

The receiving water is Stillwater National Wildlife Refuge via the Newlands Reclamation Project. The portion of the Carson River receiving treated effluent from this discharge is listed as a Class C water in Nevada Administrative Code (NAC) 445A.126. Parts of the Stillwater Marsh are specified as Class C and Class D waters under the NAC 445A.126 and 445A.127.

Under Section 206(a)(1) if Public Law 101-618, the United States Secretary of the Interior has been directed to acquire by purchase or other means, enough water and water rights to sustain, on

a long-term average, approximately 25,000 acres of primary wetland in the Stillwater National Wildlife Refuge (Stillwater NWR), Carson Lake and Pasture (Carson Lake), and Fallon Paiute-Shoshone Indian Reservation wetlands (Tribal Wetlands). To that end, the Department of the Interior is actively acquiring water rights to the approximately 125,000 Acre-feet (AF) that are required on an annual average to maintain the wetlands. The Department of the Interior has determined that effluent from wastewater treatment plants is appropriate for this purpose. To date, the acquisition has included treated effluent from both the U.S. Navy Naval Air Station (NAS) Fallon and the City of Fallon wastewater treatment plant, which discharge to portions of the Newlands Reclamation Project under Nevada Division of Environmental Protection National Pollutant Discharge Elimination System (NPDES) Permits NV00110001 and NV0020061, respectively. The United States Fish and Wildlife Service (USFWS) as agent for the Department of Interior seeks to acquire the water rights for the reuse of treated effluent from the Moody Lane wastewater treatment facility to help sustain the primary wetlands listed above.

**Proposed Effluent Limitations and Special Conditions:**

The following are the proposed effluent limitations and monitoring requirements:

- i. Influent to the treatment plant;
- ii. Discharge from the treatment plant to Wade Drain, Outfall 004;

The discharge shall be limited and monitored by the Permittee as specified below:

**Table I.1: Effluent Limitations**

PARAMETER		DISCHARGE LIMITATION		MONITORING REQUIREMENTS	
		30-Day Average	Daily Maximum	Measurement Frequency	Sample Type
Influent	Flow (MGD)	M & R	M & R	Continuous	Meter
	BOD5 (mg/l)	M & R	M & R	Monthly	Composite
	Total Suspended Solids (mg/l)	M & R	M & R	Monthly	Composite
Effluent	Flow (MGD)	0.499	M & R	Continuous	Meter
	BOD <sub>5</sub> (mg/l)	30	45	Monthly	Composite
	Total Suspended Solids (mg/l)	30	45	Monthly	Composite
	BOD <sub>5</sub> and TSS Removal (%)	≥85	≥85	Monthly	Calculate
	Total Dissolved Solids (mg/l)	M & R	500	Monthly	Discrete
	pH (Standard Units)	---	6.5 to 9.0	Monthly	Discrete
	Fecal Coliform (cfu or mpn/100 ml)	200	400	Monthly	Discrete
	Dissolved Oxygen (mg/l)	M & R	≥5.0	Monthly	Discrete
	Temperature (°C)	M & R	34	Monthly	Discrete
	Total Nitrogen as N (mg/l)	10	M & R	Monthly	Composite
	Total Ammonia as N (mg/l) (Calculate and report limits with analytical results)	Footnote (1)	Footnote (2)	Monthly	Composite
	Nitrate as N (mg/l)	M & R	M & R	Monthly	Composite
Total Phosphorus as P (mg/l)	M & R	0.33	Monthly	Composite	

**Notes:**

mg/L: Milligrams per liter

MGD: Million gallons per day.  
 ° C: Degrees Celsius  
 -N: As nitrogen  
 -P: As phosphorus  
 ≤: Less than or equal to  
 ≥: Greater than or equal to  
 cfu/ 100mL: Colony forming units per 100 milliliters

(1) The chronic criteria of water quality with regard to the concentration of total ammonia, for waters where fish may be present in early life stages, are subject to the following:

- (a) The facility discharge Monthly chronic concentration of total ammonia, in milligrams of nitrogen per liter, shall be calculated by the NAC 445A.118 Table 2 chronic concentration formula for the 30-Day average for each discharge sample event as follows:

$$\left[ \frac{0.0577}{1 + 10^{7.688 - pH}} \right] + \left[ \frac{2.487}{1 + 10^{pH - 7.688}} \right] \times \text{MIN} [2.85, 1.45 \times 10^{0.028 \times (25 - T)}]$$

where : MIN = lesser of comma separated values; T = temp. Celsius deg.; x = multiply

- (b) The concentration of total ammonia, in milligrams of nitrogen per liter, expressed as a 30-day average must not exceed the applicable chronic criterion as calculated more than once every 3 years on average, and the highest 4-day average within the 30-day period must not exceed 2.5 times the applicable chronic criterion.

**Measurement frequency** of once per 30-day (Monthly) is an acceptable indicator for evaluating total ammonia chronic criterion and may be used in reporting to demonstrate compliance of discharge event calculated limit. However, if a sample analysis exceeds the allowed calculated chronic limit in part (a), the **measurement frequency** must be increased to a minimum of 4 consecutive days within the 30-day period so that chronic criterion part (b) can be applied for determining permit compliance.

(2) The acute criteria for water quality with regard to the concentration of total ammonia are subject to the following:

- (a) The facility discharge Daily Maximum acute concentration of total ammonia, in milligrams of nitrogen per liter, for **warm water fisheries** shall be calculated by the NAC 445A.118 Table 1 acute concentration formula for the 1-hour average for each sample event as follows:

$$\left[ \frac{0.411}{1 + 10^{7.204 - pH}} \right] + \left[ \frac{58.4}{1 + 10^{pH - 7.204}} \right]$$

- (b) The concentration of total ammonia, in milligrams of nitrogen per liter, must not exceed the applicable acute criterion as calculated more than once every 3 years on average.

**Measurement frequency** for evaluating total ammonia acute criterion as daily maximum shall utilize the same **measurement frequency** required for that of evaluating the chronic criteria of water quality defined in (1) above. The total ammonia concentration determined by laboratory analysis for each sample event shall be compared to the same event's calculated acute criterion limit.

For each sample event, formula terms contained in 1 and 2 above shall have the following meaning: **pH and Temperature are field measurements of facility discharge** taken at the same time and location as the water sample destined for the laboratory analysis of ammonia.

### **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. The Permittee shall submit reports illustrating compliance or noncompliance with specified compliance dates within 14 days of any respective, scheduled compliance date.
- c. **By January 1, 2010**, the Permittee shall submit any updates to the Division approved Operations and Maintenance (O&M) Manual. Any updates, other

than contact list revisions, etc., must be stamped by a professional engineer registered in the State of Nevada.

**Rationale for Permit Requirements:**

The permit limitations are based on the following rationale:

**Flow:** Flow limit is set at the level requested by the applicant. Currently, the residential density is much less than ultimate build-out flow rates of 0.6 and 0.9 MGD for the 30-Day Average and Daily Maximum, respectively, so the Permittee has requested the lower flow limits.

**BOD<sub>5</sub> and TSS:** Effluent BOD<sub>5</sub> and TSS limits are set at 30 and 45 mg/l for the 30-Day Average and Daily Maximum, respectively. These limits are the secondary treatment standards listed in NAC 445A.275 and 40 CFR § 133.102.

**Total Dissolved Solids:** NAC 445A.126 lists the Class C standard for Total Dissolved Solids (TDS) as 500 mg/L, or 1/3 above the characteristic natural conditions, whichever is less.

**pH:** According to NAC 445A.126 Class C waters: Description; beneficial uses; quality standards, minimum and maximum pH limits for Class C waters are set at 6.5 and 9.0 Standard Units, respectively.

**Fecal Coliform Limit:** The 30-Day average and Daily Maximum Fecal Coliform limits for Class C waters listed in NAC 445A.126 are 200 and 400 colony forming units (cfu)/100 ml, respectively.

**Dissolved Oxygen:** The dissolved oxygen limit is the water quality standard for Class C waters of the State of Nevada without trout, as listed in NAC 445A.126.

**Temperature:** NAC 445A.126 lists the maximum temperature of Class C waters without trout as 34 °C.

**Total Nitrogen as N:** There is no Total Nitrogen limit set for Class C waters of the State of Nevada. However, because this facility may also discharge under Permit NEV2007500, the Total Nitrogen as N limit listed in that permit has been retained to avoid confusion.

**Total Ammonia:** NAC 445A.118 lists the acute and chronic Total Ammonia limits for surface waters of the State of Nevada. Per NAC 445A.119, these limits apply to “all natural streams and lakes, reservoirs or impoundments on natural streams”. Because the ultimate disposition of the treated effluent is to natural waters (i.e. the Carson River and the Stillwater Marsh), where it is reasonably expected that freshwater fish in early life stages will be present, the appropriate limits listed in NAC 445A.118 apply.

**Total Phosphorus as P:** NAC 445A.126 lists the Total Phosphorus limit for Class C waters as 0.33 mg/L.

### **Procedures for Public Comment**

The Notice of the Division's intent to issue an NPDES permit authorizing this facility to discharge to the Stillwater National Wildlife Refuge for a five-year period, subject to the conditions contained within the permit, is being sent to the **Reno Gazette Journal** and the **Lahontan Valley 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 thirty (30) days following the date of publication of the 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, emails or hand delivered items) to the Division is **October 5, 2009 by 5:00 P.M.**

A public hearing on the proposed determination can be requested by the applicant, any affected State or 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 the proposed NPDES discharge permit for a period of five (5) years.

Prepared by: Janine Hartley, P.E.  
Draft: July, 2009