

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(pursuant to NAC 445A.236)

Permittee Name: City of Boulder City
P.O. Box 61350
Boulder City, NV 89006-1350

Permit Number: NEV97022

Location: Boulder City Wastewater Treatment Facility
2000 Buchanan Boulevard,
Boulder City, Clark County, NV 89005
Latitude: 35° 56' 00"N, Longitude: 114° 51' 00"W

Location of Discharge Trenches:
Township 23S, Range 63E, Sections 22-26
Township 23S, Range 64E, Sections 17, 19-20

Drinking Water Protection Area / Wellhead Protection Area: The Boulder City Wastewater Treatment Facility is not within a 6000 or 3000 foot Drinking Water Protection Area around a public water supply. The facility is not within a established Wellhead Protection Area.

General: The Boulder City Wastewater Treatment Facility (BCWWTF) serves approximately 15,400 Boulder City residents. The influent is generated from 5415 domestic and commercial connections, and there are no reported industrial facilities in Boulder City, which exempts this facility from industrial pre-treatment requirements. Influent is collected at three lift stations and is delivered to the facility by the east and west interceptor lines. The flow in each 18 in. concrete interceptor line is measured with an ultrasonic flow meter. The facility's headworks consist of a comminutor channel with a manually cleaned barscreen installed in the bypass channel. Influent is split between two parallel trains of aerated treatment lagoons. Each train consists of a 112'x112' complete mix lagoon (CML), aerated by four (4) 15-HP surface aerators, and followed by five (5) partially mixed lagoons (PML), in series. Each PML is aerated by two 3-HP surface aerators. Four of the five PMLs are in use at any time, with the fifth removed from service for sludge removal. These basins are designed to store 2 ft. of sludge (O&M Manual specification). Sludge will be managed by drying in asphalt lined basins previously used as part of the treatment facility, and will ultimately be disposed of by landfilling.

Prior to disposal, the effluent is disinfected with sodium hypochlorite in a chlorine contact basin. Treated effluent is presently discharged to Outfall 001 (twin percolation trenches) and Outfall 002 (Quarry 187 LLC reuse site). Each percolation trench is approximately five feet in width and extends unfenced into the desert for approximately 1.7 mile. The trenches originate on the WWTF site but extend onto the Clark County Conservation District easement for endangered desert tortoise habitat. The two trenches flow overland, ending at the following locations:

North Limit	Latitude 35.911667°	Longitude 114.918846°
South Limit	Latitude 35.906132°	Longitude 114.919975°

During periods when Quarry 187 elects to not receive effluent, the entire effluent stream is discharged to Outfall 001. Vegetation consistent with continuous presence of water, i.e. cattails, bulrush, shrubs, small trees, algae have been observed. In practice, the vegetation has not been removed from these trenches (flow channels) except to maintain power line easements. Regular vegetation removal will be required in the permit modification, in order to maintain adequate infiltration surfaces, and to avoid excessive channel cutting in the tortoise habitat area.

The Boulder City Public Works Department has also notified the Division of their intent to supply treated effluent to the Construx Aggregate Pit (Silver State Materials Corp.). Silver State Materials must apply for and receive a reclaimed water use permit before receiving or applying any treated effluent. Currently, Construx uses potable water for dust control and gravel washing. Effluent flow to each outfall is measured via flow meter.

Receiving Water Characteristics: Outfall 001 denotes the disposal of effluent by percolation and evapotranspiration in two parallel earthen trenches. As stated, each percolation trench is approximately five feet in width and extends unfenced into the desert for approximately 1.7 miles based on the presence of phreatophytic vegetation. The groundwater quality is not monitored at these trenches since the depth to groundwater is estimated to be in the approximately 700 ft. bgs at the BCWWTP disposal site. Outfall 002 denotes an effluent reuse site at Quarry 187 LLC (formerly Impact Sand and Gravel, formerly Gornowich, Inc., permit #NEV93013). The Quarry 187 LLC facility is located approximately 3 miles west of BCWWTP. This quarry uses treated effluent for dust control and rock/sand/gravel washing. The depth to groundwater at the Quarry 187 facility is estimated in the vicinity of 275 ft. bgs. Outfall 003 denotes the Construx Aggregate Pit (upon approval and issuance of a reclaimed water use permit).

Effluent Flow and Characteristics: The design capacity of BCWWTP is 2.0 MGD. Discharge permit #NEV93013 allows the Impact Quarry to use up to 0.8 MGD of BCWWTP effluent. The following is a tabulation of Discharge Monitoring Report (DMR) data from March 2002 through June 2007.

Parameter		Permit Limit	Average	Maximum	Minimum	# of Permit Exceedances
Influent	30 Day Average Total Flow (MGD)	1.80	1.013	1.409	0.682	0
	CBOD ₅ (mg/l)					
	30 Day Average	M&R	149.4	196	116	NA
	Daily Maximum	M&R	176.3	322	141	NA
	Total Suspended Solids (mg/l)					
	30 Day Average	M&R	196.3	309	89	NA
Daily Maximum	M&R	244.1	428	104	NA	
Effluent	Flow Outfall 001 (MGD)	M&R	0.608	1.096	0.211	NA
	Flow Outfall 002 (MGD)	M&R	0.405	0.713	0.154	NA
	CBOD ₅ (mg/l)					
	30 Day Average	30	29.9	57	17	20
	Daily Maximum	45	37.7	72	22	12
	Total Suspended Solids (mg/l)					
	30 Day Average	45	33.7	68	16	6
Daily Maximum	65	42.6	86	21	4	
Fecal Coliform						
(CFU or MPN/100 ml)						

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	30 Day Geometric Avg	200	2.4	160	<2	0
	Daily Maximum	400	9.7	160000	<2	7
	pH (Standard Units)	6.0 - 9.0	8.01	8.82	6.67	0

Since June 2007, BCWWTF has been operating under temporary permits covering construction of the new facility and discharge during the transition period. DMR data submitted from July 2007 through June 2008 indicated the following:

	Parameter	Permit Limit	Average	Maximum	Minimum	# of Permit Exceedances
Influent	30 Day Average Total Flow (MGD)	1.4	1.170	1.513	0.934	1
	CBOD ₅ (mg/l)					
	30 Day Average	M&R	152.8	175	128	NA
	Daily Maximum	M&R	174.1	206	137	NA
	Total Suspended Solids (mg/l)					
	30 Day Average	M&R	208.9	230	183	NA
	Daily Maximum	M&R	238.3	284	204	NA
Effluent	Flow Outfall 001 (MGD)	M&R	0.977	1.269	0.754	NA
	Flow Outfall 002 (MGD)	M&R	0.192	0.316	0.068	NA
	CBOD ₅ (mg/l)					
	30 Day Average	30	18.2	43	<2	3
	Daily Maximum	45	24.3	51	2	1
	Total Suspended Solids (mg/l)					
	30 Day Average	45	32.4	55	11	3
	Daily Maximum	65	45.0	75	12	3
	Fecal Coliform (CFU or MPN/100 ml)					
	30 Day Geometric Avg	23	3.83	83	<2	1
Daily Maximum	240	12.89	800	<2	1	
	pH (Standard Units)	6.0 - 9.0	7.79	8.41	7.47	0

Proposed Effluent Limitations and Special Conditions:

Table 1: Facility Discharge Limitations

PARAMETER		DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
		30-Day Average	Daily Maximum	Measurement Frequency	Sample Type
Influent	Flow, MGD	1.4	2.0	Continuous	Flow Meter
	CBOD ₅ , mg/L	Monitor & Report		Weekly	Composite
	TSS, mg/L	Monitor & Report		Weekly	Composite
Effluent	CBOD ₅ , mg/L	30	45	Weekly	Composite
	TSS, mg/L	45	65	Weekly	Composite
	CBOD ₅ Removal, Percent	≥ 85	---	Weekly	Calculate
	TSS Removal, Percent	≥ 85	---	Weekly	Calculate
	Flow, MGD (Outfall 001) ¹	Monitor & Report		Continuous	Flow Meter
	Flow, MGD (Outfall 002) ²	Monitor & Report		Continuous	Flow Meter
	Flow, MGD (Outfall to 003) ³	Monitor & Report		Continuous	Flow Meter

Fecal Coliform, cfu or mpn/100 ml	23	240	Weekly	Discrete
Priority Pollutant Metals, mg/L ⁴	Monitor & Report		Annually (4 th Quarter)	Discrete
pH, Standard Units	Between 6.0 – 9.0		Weekly	Discrete

1. Two earthen percolation channels.
2. Quarry 187 LLC (#NEV93013).
3. Construx Aggregate Pit (Silver State Materials – upon issuance of a reclaimed water use permit).
4. The thirteen (13) priority pollutant metals in Appendix A to 40 CFR, Part 423 are: Sb, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Tl, and Zn. Detection limits shall be in accordance with Municipal or Domestic Supply Standards listed in NAC445A.144.

Schedule of Compliance: The Permittee shall submit the following items to review and approval to the attention of:

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

Rationale for Permit Requirements: The proposed monitoring requirements are consistent with the current permit requirements, with the following exceptions:

- *CBOD₅ vs. BOD₅:* Boulder City WWTF operates aerated treatment lagoons where nitrification of ammonia may not be complete (i.e., incomplete conversion of ammonia (NH₃) in lagoons to nitrate (NO₃)). For lagoon (pond) treatment systems, the Division recommends that Carbonaceous Biochemical Oxygen Demand (CBOD₅ or Inhibited BOD) be reported in place of 5-day Biochemical Oxygen Demand (BOD₅). The Division has set the permit limits for CBOD₅ at 25 and 40 mg/l for the 30-Day Average and Daily Maximum, respectively, based on 40CFR § 133.105, “Treatment equivalent to secondary treatment”.
- *TSS:* For lagoon (pond) treatment systems, particularly in areas of warm climactic conditions, algae growth regularly causes exceedance of the secondary treatment standards for Total Suspended Solids of 30 mg/L and 45 mg/L for the 30-Day Average and Daily Maximum, respectively. For this facility, the Division requires that Total Suspended Solids meet 30-Day Average and Daily Maximum limits of 45mg/L and 65 mg/L, respectively. Because Nevada Administrative Code requires that those water intended for beneficial reuse meet secondary treatment standards, these limits are based on 40CFR § 133.105, “Treatment equivalent to secondary treatment”.
- *Fecal Coliform:* Treated effluent is discharged to the infiltration trenches for percolation into the soil. Reuse of effluent for dust control and gravel washing requires the Permittee to disinfect effluent to levels proscribed in Nevada Administrative Code (NAC) 445A.2766 for Category C effluent reuse.
- *Metals Analysis:* BCWWTP tests its effluent annually for 10 priority pollutant metals as a check on the presence/absence of industrial contaminant indicators. The Division recognizes 13 metals as priority pollutant metals and proposes that BCWWTP sample its effluent annually for the 13 priority pollutant metals identified as: antimony (Sb), arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni), selenium (Se), silver (Ag), thallium (Tl), and zinc (Zn).

Procedures for Public Comment: The Notice of the Division's intent to issue (renew) a discharge permit to the BCWWTP, subject to the conditions contained within the permit is being sent to the **Las Vegas Review-Journal** and the **Boulder City 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 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 22, 2009 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 discharge permit for a period of five (5) years.

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