

Nevada Division of Environmental Protection

FACT SHEET (Pursuant to NAC 445A.236)

Permittee Name: North Valley Wastewater Treatment Facility
P.O. Box 218
Minden, Douglas County, Nevada 89423

Permit Number: NEV60025

Location: Douglas County, North Valley Wastewater Treatment Facility
Heybourne Road, North of Stephanie Lane
Minden, Douglas County, Nevada 89423

Latitude: 39° 03' 21.04" North
Longitude: 119° 45' 39.28" West
NVWWTf Front Entrance of Plant Office

Outfall 001

Latitude: 39° 03' 21" North
Longitude: 119° 45' 05" West

On-site Landscape Reuse Irrigation; On-site Dust Control and Construction Use

Outfall 002

Latitude: 39° 03' 36" North
Longitude: 119° 45' 33" West

SW Corner of Incline Village (IVGID) Wetlands Irrigation

Outfall 003

Latitude: 39° 03' 21" North
Longitude: 119° 45' 21" West

Approximate Center of RIBs Area

Outfall 004

Latitude: 39° 03' 21" North
Longitude: 119° 45' 11" West

Approximate Center of Effluent Holding Pond

Outfall 005

Latitude: 39° 03' 29" North
Longitude: 119° 45' 51" West

Approximate Center of Bently Kirman Tract (Irrigation)

Flow: 30-Day Average: 0.45 Million Gallons per Day (MGD) until Phase II Expansion Project is approved, constructed and operated, then 1.0 MGD.

Daily Maximum: 0.45 MGD until Phase II Expansion Project is approved, constructed and operated, then 1.0 MGD.

General:

The Douglas County, Nevada, North Valley Wastewater Treatment Facility (NVWWTF) submitted an application for modification and renewal of permit NEV60025 on March 6, 2007. Modifications requested include an increase in flow from 0.45 MGD, 30-day average and daily maximum to 1.0 MGD, 30-day average and daily maximum (Phase II expansion, includes odor control; headworks; second Biolac™ treatment pond; solids disposal; and “Wave-Ox” system for nitrification/denitrification); the addition of a pilot rapid infiltration basin (RIB) of approximately 2.59 acres (surface area; with expansion area available for three additional RIBs) for effluent disposal; the addition of a lined (HDPE, 60 mil) effluent storage basin of approximately 39.67 acres (surface area), 13.5 feet in depth and 434.2 acre feet (AF) maximum holding capacity); and two additional reuse (irrigation) sites, on-site landscape irrigation and on-site dust control and construction use, and the Bently Kirman Tract (Permit #NEV2002505; approximately 275 acres); The NVWWTF provides secondary wastewater treatment with denitrification (average total nitrogen (TN) from January 2005 to December 2006 was 6.0 mg/L (range: 2.4 to 11.0 mg/L)) using a Biolac™ Aeration System and chlorine disinfection. The Biolac™ system integrates extended aeration and mixing to optimize activated sludge treatment based on a 40 to 50-day solids retention time. An integrated clarifier provides solid/liquid separation, concentrates the settled sludge, and returns activated sludge to the front end of the aeration basin. A traveling, flocculating rake mechanism evens the sludge blanket and pushes excess sludge towards the sludge airlift suction assembly. Periodically, excess solids are wasted to a sludge storage basin instead of recirculating back to the aeration basin to maintain a consistent solids retention time.

Treated effluent decanted over a double-sided floating weir assembly is discharged from the clarifier to a chlorine contact basin for disinfection. The 15,560-gallon basin effects two (2) fluid passes to provide adequate retention time and uses a metering pump to dose sodium hypochlorite at volumes sufficient to produce a residual concentration of chlorine in the range of 0.2 to 5.1 milligrams per liter (mg/L) (average 1.9 mg/L; January 2005 to December 2006).

The IVGID and the Bently Kirman Tract irrigation areas are responsible for monitoring and maintaining groundwater quality associated with their reuse permits NEV30009 and NEV2002505, respectively.

Receiving Water Characteristics:

The receiving water body for the treated effluent is groundwater via percolation from reuse irrigation (IVGID, Bently Kirman and on-site landscape) and RIB(s). Depth to groundwater in the area ranges from 10 to 14 feet below ground surface (average 12.1

feet bgs). Groundwater flows in a Northwesterly direction, toward the Carson River which is located approximately 0.75 mile from the plant. The groundwater in the vicinity of the plant is a suitable quality as a drinking water source.

There are approximately nineteen (19) domestic and three (3) irrigation wells within a one-mile radius of the treatment works. Seventeen (17) of the domestic wells are located in a cross or upgradient direction from the treatment works, one (1) is at the treatment facility, and one (1) is downgradient of the treatment facility. The downgradient well is located in the IVGID reuse wetlands fields. The on-site well is constructed of 6⁵/₈-inch casing to a depth of approximately 136 feet below ground surface, with a 55-foot sanitary seal.

Groundwater Monitoring:

Existing monitoring wells MW-1 (downgradient of treatment facility and former on-site re-use irrigation plot) and MW-2 (downgradient of proposed RIB and effluent holding basin) and new monitoring wells (MW-4 and MW-5) shall be sampled as per Table 1 below. MW-4 shall be installed downgradient of the pilot RIB and MW-5 shall be installed east (upgradient) of the effluent holding basin. MW-4 and MW-5 shall be installed in accordance with *WTS-4; Guidance Document for Design of Groundwater Monitoring Wells*. Existing MW-3 shall be abandoned in conformance with the requirements of the Division of Water Resources.

Should site investigation activities, long-term monitoring results, and/or remedial efforts require the installation of additional monitoring wells, all additional wells shall be incorporated into the required monitoring schedule.

Groundwater wells shall be monitored according to the following parameters:

Table 1: Groundwater Monitoring Requirements

Parameter	Requirements	Sample Location	Sample Frequency	Sample Type
Depth to Groundwater (feet)	Monitor & Report	MW-1, MW-2, MW-4 & MW-5	Quarterly	Field Measurement
Groundwater Elevation (feet above msl)	Monitor & Report	MW-1, MW-2, MW-4 & MW-5	Quarterly	Calculate
Electrical Conductivity (µmhos or µSiemens/cm)	Monitor & Report	MW-1, MW-2, MW-4 & MW-5	Quarterly	Discrete
Nitrate as N (mg/L)	Monitor & Report	MW-1, MW-2, MW-4 & MW-5	Quarterly	Discrete
Total Nitrogen ¹ (TN) as N (mg/L)	10.0	MW-1, MW-2, MW-4 & MW-5	Quarterly	Discrete
Total Phosphorous as P (mg/L)	Monitor & Report	MW-1, MW-2, MW-4 & MW-5	Quarterly	Discrete
Chlorides (mg/L)	Monitor & Report	MW-1, MW-2, MW-4	Quarterly	Discrete

		& MW-5		
Total Dissolved Solids (TDS, mg/L)	Monitor & Report	MW-1, MW-2, MW-4 & MW-5	Quarterly	Discrete

msl: mean sea level (above)
 mg/L: milligram per liter
 as N: as Nitrogen
 as P: as Phosphorous

¹: If the TN as N concentrations measured in the groundwater increase as a result of effluent storage and disposal to:

- i. 7.0 mg/L, the Permittee shall revise the O&M Manual to provide management practices which will reduce the nitrogen content of the effluent.
- ii. 9.0 mg/L, the Permittee shall execute all corrective action necessary to ensure no further degradation of groundwater.
- iii. 10.0 mg/L, the Permittee shall discontinue the discharge of wastewater effluent to groundwater, unless otherwise authorized by the Division.

It shall be the responsibility of the Permittee to determine the cause of the increase in TN measurements.

Groundwater monitoring wells (MW-1, MW-2 & MW-3) have yielded the results in Table 2 below:

Table 2: Groundwater Monitoring Results¹

Parameter	Depth to Groundwater (feet)	Conductivity (µmhos/cm)	Nitrate as N (mg/L)	TN as N (mg/L)	Chloride (mg/L)	TDS (mg/L)
MW-1	9.9	2163	7.8	8.0 ²	51.8	2013
MW-2	12.7	1675	1.2	1.4	58.1	1525
MW-3	13.7	1638	1.1	1.4	43.8	1450

¹: January 2005 to December 2006

²: The 8.0 mg/L average TN may be due to a number of factors which have been corrected, including leaking equipment/storage ponds; improper re-use of nitrified effluent upgradient of MW-1; and poor operation and maintenance. This reading is expected to lower with time.

Effluent Characteristics:

Flow¹ (30-day average): 0.28 MGD
 CBOD₅²(30-day average): 11 mg/L
 TSS² (30-day average): 8 mg/L
 TSS² (maximum): 22 mg/L
 pH² (30-day average): 7.64 S.U.
 Nitrate as N² (30-day average): 3.3 mg/L
 Total Nitrogen as N² (30-day average): 6.0 mg/L

Chlorine Residual² (30-day average): 1.9 mg/L

¹: October 2005 to December 2006

²: January 2005 to December 2006:

Effluent Limitations and Special Conditions:

Effluent Discharge Limitations: During the period beginning on the effective date of this permit and lasting until the permit expires, the Permittee is authorized to discharge treated effluent to:

- Outfall 001: The NVWWTP reuse landscape irrigation areas, and on-site dust control and construction use;
- Outfall 002: The IVGID Wetlands;
- Outfall 003: The RIB(s);
- Outfall 004: The lined holding basin; and
- Outfall 005: The Bently Kirman Tract irrigation.

Confirmation samples or discharge parameter measurements shall be collected at:

- Influent: At the intake of the Parshall flume for flow measurements and at the influent pump station wet well for laboratory samples.
- Effluent: After the chlorine contact chamber overflow weir and prior to the effluent wetwell.
- Outfall 001: After the chlorine contact tank and prior to discharge to the reuse landscape irrigation areas or dust control and construction use areas.
- Outfall 002: After the chlorine contact tank and prior to discharge to the IVGID Wetlands.
- Outfall 003: After the chlorine contact tank and prior to discharge to the RIB(s).
- Outfall 004: After the chlorine contact tank and prior to discharge to the lined holding basin.
- Outfall 005: After the chlorine contact tank and prior to discharge to the Bently Kirman Tract irrigation.

The discharge shall be limited and monitored by the Permittee as specified below in Table 3:

Table 3: Effluent Limitations

Parameters	Monitoring Location	Discharge Limitations			Monitoring Requirements	
		30-Day Average	Daily Maximum	Monthly Total	Measurement Frequency	Sample Type
Influent Flow Rate (MGD)	Influent	0.45 ¹ 1.0	0.45 ¹ 1.0	----	Continuous	Flow Meter

CBOD ₅ (mg/L)	Influent	Monitor & Report			Monthly	Composite
CBOD ₅ (mg/L)	Effluent	30	45	----	Monthly	Composite
CBOD ₅ Treatment Efficiency	----	85%	----	----	Monthly	Calculation
Total Suspended Solids (mg/L)	Influent	Monitor & Report			Monthly	Composite
Total Suspended Solids (mg/L)	Effluent	30	45	----	Monthly	Composite
Total Suspended Solids Treatment Efficiency	----	85%	----	----	Monthly	Calculation
Fecal Coliform (CFU/100 mL)	Effluent	2.2/100	23/100	----	Monthly	Discrete
pH (SU)	Effluent	6.0 to 9.0			Monthly	Discrete
Total Nitrogen as N (mg/L)	Effluent	10.0			Monthly	Composite
Nitrate as N (mg/L)	Effluent	Monitor & Report			Monthly	Composite
Priority Pollutants ²	Effluent	Monitor & Report			Biennially – Even Years	Discrete
Flow (gallons)	Outfall 003 Outfall 004	----	----	Monitor & Report	Monthly	Flow Meter
Irrigation Volume (gallons)	Outfall 001 Outfall 002 Outfall 005	----	----	Monitor & Report	Monthly	Flow Meter
Annual Application Volume (AF)/year	Outfall 001 Outfall 002 Outfall 005	Monitor & Report ³			Cummulative	Flow Meter

MGD Million gallons per day
 CBOD₅ 5-day carbonaceous biochemical oxygen demand
 CFU/100 mL Colony forming units per milliliter
 SU Standard Units
 mg/L Milligrams per liter
 as N As nitrogen

- ¹: 30-day average and maximum flow shall remain at 0.45 MGD until Phase II Project is approved, construction completed and in operation, then 1.0 MGD.
- ²: Priority Pollutants listed in Attachment A. Sample to be analyzed during the 4th quarter of even years and reported in the 4th Quarter Annual Report.
- ³: Acre-Feet (AF x 3.069 ≅ 1 Million Gallons). Volume determined for/from Consumptive Use Balance.

Rationale for Effluent Discharge Limitations:

The rationale for the proposed monitoring conditions is as follows:

- *Flow*: 0.45/0.45 MGD - The current treatment system is approved by the Division for an operating capacity of 0.45 MGD.

Flow: 1.0/1.0 MGD – The Phase II Expansion Project will increase operating capacity to 1.0 MGD, when completed.

- *5-Day Carbonaceous Biochemical Oxygen Demand (CBOD₅):* 30 mg/L 30-day average and 45 mg/L daily maximum. The 30-day average limitation is based on “secondary treatment standards” cited under Nevada Administrative Code (NAC) 445A.275. The daily maximum limitation of 45 mg/L has been set to meet the secondary treatment standard sufficiently protective of groundwater of the State. A minimum treatment efficiency of 85% is required between the influent and effluent concentration per NAC 445A.275.
- *Total Suspended Solids (TSS):* 30 mg/L 30-day average and 45 mg/L daily maximum. These limitations are based on secondary treatment standards required under NAC445A.275. A minimum treatment efficiency of 85% is required between the influent and effluent concentration per NAC 445A.275.
- *Fecal Coliform:* 23 colony forming units (cfu)/100 mL 30-day average and 240 cfu/100 mL daily maximum are the required limitations for irrigation in areas where public access to the site is controlled (NAC 445A.2766; Reuse category C: Approved uses). A 100-foot buffer zone around the area irrigated is required per NAC 445A.276.
- *pH:* 6.0-9.0 standard units. This limitation is based on reuse requirements and secondary treatment standards per NAC 445A.275.
- *Total Nitrogen as Nitrogen:* 10.0 mg/L. This limit is set to be protective of the groundwater of the State in order to prevent degradation of the groundwater.
- *Nitrate as Nitrogen:* Monitor and Report. This reporting requirement is included to evaluate the proportional distribution of nitrogen compounds in the treated effluent discharge and to assess the potential for direct impact to the shallow aquifer environment.
- *Priority Pollutants:* A biennial monitoring requirement for priority pollutants has been added to routinely confirm the absence of industrial pollutants in the treated discharge and to provide sentinel data regarding the chemical quality of the discharge.
- *Irrigation Volume:* Monitor and Report. This reporting requirement is included to verify the total amount of treated effluent discharged for reuse on irrigation areas.
- *AF/year:* AF/year is monitored to demonstrate compliance with the EMP and O&M Manual.

Schedule of Compliance:

The Permittee shall implement and comply with the provisions of the permit upon issuance and observe the following schedule of compliance, after approval by the

Administrator, including in said implementation and compliance, any additions or modifications the Administrator may make in approving the schedule of compliance:

- **At least 30 days prior to the startup of the effluent holding basin**, the Permittee shall notify both the Compliance Coordinator and the Technical Services Branch (TSB) of the Bureau of Water Pollution Control of the Permittee's intent to activate the effluent holding basin. The TSB shall approve the effluent holding basin prior to activation.
- **Within 14 days of the activation of the effluent holding basin**, the Permittee shall notify the Compliance Branch of the Bureau of Water Pollution Control of such activation.
- **Within 90 days of the completion of the effluent pond**, the Permittee shall submit an updated O&M Manual prepared in accordance with guidance document *WTS-2: Minimum Information Required for an Operations and Maintenance Manual*.
 - i. The updated O&M Manual must be stamped by a Professional Engineer licensed in the State of Nevada;
 - ii. The updated O&M Manual must include provisions for the removal of weeds and woody species from pond berms and for the removal of burrowing animals;
 - iv. The updated O&M Manual must include provisions for vector attraction controls, **including mosquitoes**;
 - v. The updated O&M Manual must include provisions for odor controls from the facility, **including the effluent holding basin**, irrigation plots, evaporation/percolation area(s), or facility discharges; and
 - vi. Septage handling and management procedures shall be described and defined in the O&M Manual.
- **Within 90 days of the permit issue date (Month XX, 2007)**, the Permittee shall submit an Effluent Management Plan (EMP) for on-site landscape irrigation reuse and treated effluent use for on-site dust control and construction activities. The EMP shall be prepared in accordance with *WTS-1B: General Criteria for Preparing an Effluent Management Plan*. The EMP must be approved by the Division prior to discharge for on-site landscape irrigation, and on-site dust control and construction use. The EMP shall also include:
 - i. A section detailing a sampling and analysis program for groundwater monitoring activities.

- ii. A copy of the document prepared notifying affected facility personnel of the possible hazards and proper hygiene of working with and around reclaimed water.
- **At least 30 days prior to the startup of the Phase II Project**, the Permittee shall notify both the Compliance Coordinator and the Technical Services Branch (TSB) of the Bureau of Water Pollution Control of the Permittee's intent to activate the Phase II Project. The TSB shall approve the Phase II project prior to activation.
 - **Within 14 days** of the activation of the Phase II Project, the Permittee shall notify the Compliance Branch of the Bureau of Water Pollution Control of such activation.
 - New monitoring wells shall be installed and operational prior to the upstart and use of the proposed RIB, effluent holding basin and on-site re-use irrigation areas, and on-site dust control and construction use.

Proposed Determination:

The Division has made the tentative determination to issue (renew with modifications) the proposed permit for a 5-year period.

Procedures for Public Comment:

Notice of the Division's intent to issue a permit authorizing the facility to discharge to ground water of the State of Nevada, subject to the conditions contained within the permit, is being sent to the **Nevada Appeal** for publication. Notice is also 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 30 days following the date of the public notice, and must be postmarked, faxed, or e-mailed by 5:00 p.m. on **July 28, 2007**.

The Administrator has determined that a significant degree of public interest in the proposed permit has been expressed and that a public hearing will be held on Wednesday August 1, 2007 at 1:30 P.M. The public hearing will be held at the following location:

Legislative Building
401 South Carson Street
Room 3138
Carson City, Nevada 89701

All public hearings will 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: James T. Hogan
June 25, 2007
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ATTACHMENT A
 PRIORITY POLLUTANTS

BASE NEUTRAL EXTRACTIBLES	VOLATILE		ACID		
	<i>Organics</i>	<i>Pesticides</i>	<i>Extractibles</i>	<i>Metals</i>	<i>Dioxins</i>
Acenaphthene	Acrolein	Aldrin	2,4,6-Trichlorophenol	Antimony	TCDD
Benzidine	Acrylonitrile	Dieldrin	4-Chloro-3-methylphenol	Arsenic	
1,2,4-Trichlorobenzene	Benzene	Chlordane (Technical)	2-Chlorophenol	Beryllium	
Hexachlorobenzene	Carbon tetrachloride	4,4'-DDT	2,4-Dichlorophenol	Cadmium	Other
Hexachloroethane	Chlorobenzene	4,4'-DDE	2,4-Dimethylphenol	Chromium	
Bis(2-chloroethyl) ether	1,2-Dichloroethane	4,4'-DDD	2-Nitrophenol	Copper	Cyanide
2-Chloronaphthalene	1,1,1-Trichloroethane	Endosulfan I	4-Nitrophenol	Lead	Asbestos
1,2-Dichlorobenzene	1,1-Dichloroethane	Endosulfan II	2,4-Dinitrophenol	Mercury	
1,3-Dichlorobenzene	1,1,2-Trichloroethane	Endosulfan sulfate	2-Methyl-4,6-dinitrophenol	Nickel	
1,4-Dichlorobenzene	1,1,2,2-Tetrachloroethane	Endrin	Pentachlorophenol	Selenium	
3,3'-Dichlorobenzidine	Chloroethane	Endrin aldehyde	Phenol	Silver	
2,4-Dinitrotoluene	2-Chloroethylvinylether	Heptachlor		Thallium	
2,6-Dinitrotoluene	Chloroform	Heptachlor epoxide		Zinc	
1,2-Diphenylhydrazine	1,1-Dichloroethene	Alpha-BHC			
Fluoranthene	Trans-1,2-Dichloroethene	Beta-BHC			
4-Chlorophenyl phenyl ether	1,2-Dichloropropane	Gamma-BHC (Lindane)			
4-Bromophenyl phenyl ether	1,3-Dichloropropane	Delta-BHC			
Bis(2-Chloroisopropyl) ether	Ethylbenzene	PCB 1016			
Bis(2-Chloroethoxy) methane	Dichloromethane	PCB 1221			
Hexachlorobutadiene	Chloromethane	PCB 1232			
Hexachlorocyclopentadiene	Bromomethane	PCB 1242			
Isophorone	Bromoform	PCB 1248			
Naphthalene	Bromodichloromethane	PCB 1254			
Nitrobenzene	Dibromochloromethane	PCB 1260			
N-Nitrosodimethylamine	Tetrachloroethene	Toxaphene			
N-Nitrosodiphenylamine	Toluene				
N-Nitrosodi-n-propylamine	Trichloroethene				
Bis(2-ethylhexyl) phthalate	Vinyl chloride				
n-Butyl benzyl phthalate					
Di-n-butyl phthalate					
Di-n-octyl phthalate					
Diethyl phthalate					
Dimethyl phthalate					
Benzo(a)anthracene					
Benzo(a)pyrene					
Benzo(b)fluoranthene					
Benzo(k)fluoranthene					
Chrysene					
Acenaphthylene					
Anthracene					
Benzo(g,h,i)perylene					
Fluorene					
Phenanthrene					
Dibenzo(a,h)anthracene					
Indeno(1,2,3-cd)pyrene					
Pyrene					
			Note:		Priority Pollutants to be analyzed using Environmental Protection Agency (EPA) Methods 200 Series, 353.3, 420.2, 624,625, 608, and/or an appropriate combination of these methods to verify compliance with permit-specified effluent discharge limitations.