



FACTSHEET
(pursuant to NAC 445A.236)

Permittee Name: VIRGIN VALLEY WATER DISTRICT

500 RIVERSIDE ROAD
MESQUITE, NV 89027

Permit Number: NS2004510

Permit Type: GROUNDWATER DISCHARGE

Designation: GROUNDWATER

New/Existing: EXISTING

Location: VIRGIN VALLEY ARSENIC TREATMENT PLANT # 32, LINCOLN
MESQUITE HEIGHTS ROAD, MESQUITE, NV 89027
LATITUDE: 36.893333, LONGITUDE: -114.088056
TOWNSHIP: 12 S, RANGE: 71 E, SECTION: 17

Outfall / Well Num	Outfall / Well Name	Location Type	Well Log Num	Latitude	Longitude	Receiving Water
001	FILTER BACKWASH	External Outfall		36.8910	-114.0880	GROUNDWATER

Permit History/Description of Proposed Action

The Permittee, Virgin Valley Water District (VVWD), has applied for the renewal of groundwater discharge permit NS2004510 for the Arsenic Removal Plant (ARP) #32 is located approximately six miles north of Mesquite, on Mesquite Heights Road, in Lincoln County, Nevada.

This permit was first issued on January 1, 2012. The most recent permit was issued on August 1, 2018, and expired on July 31, 2023; the permit has been administratively continued since.

Facility Overview

The VVWD Arsenic Removal Plant #32 receives water from two District wells (one adjacent to the plant and one near the landfill) and is designed to remove arsenic from the groundwater to obtain compliance with federal and state drinking water standards. The treatment mechanism is a coagulation/filtration removal process with associated chemical addition, pressurized filtration vessels, backwash recovery, sludge disposal, and discharge water quality analysis equipment. This process produces water that should meet/exceed the treatment requirements of federal and state drinking water standards. The treated water is either pumped directly into the distribution system or feeds into adjacent storage tanks. The waste sludge generated by the treatment process is discharged to on-site partitioned, concrete-lined drying ponds.

The Plant's Operation and Maintenance Manual (O & M) was last reviewed and approved by the Division on February 29, 2019. The Technical, Compliance, and Enforcement (TCE) Branch of the Bureau of Water Pollution Control requires O & M's be updated every two (2) permit cycles which equates to every ten (10) years; therefore, an updated O & M will need to be submitted to the Division for review and approval by February 28, 2029. The O & M's shall follow guidance document, WTS-2 Minimum Information for an Operations and Maintenance (O & M) Manual for Wastewater Treatment Plant.

Outfall Summary

Outfall 001 – This outfall is for the discharge of finished plant effluent water for the backwashing of a granular iron media-based arsenic removal system.

Effluent Characterization

Nevada State Network Discharge Monitoring Report (NetDMR) data, as reported from the years July 2019 to June 2024, was reviewed as part of this permit renewal process. The long-term average discharge flow rate for Outfall 001 was 7,068 gallons per day (GPD). The daily maximum discharge flow rate for Outfall 001 is limited to 12,000 GPD. There were no reported exceedances for this limit.

The VVWD Arsenic Removal Plant is utilizing finished plant effluent water, that is treated to a level which does not cause the groundwater quality to degrade below drinking water standards, for backwashing processes at the plant.

The Plant had sixty (60) instances of discharge during the July 2019 to July 2024 reporting period. The averaged discharge characteristics were as follows:

Arsenic (mg/L): 0.25

Iron, Total (mg/L): 9.11

Sludge: One quarterly occurrence, over the past five years reported, being of 82.71 tons (January 2022-March 2022).

Total Dissolved Solids (TDS) (mg/L): 906

Pollutants of Concern

Pollutants of concern are any pollutants or parameters that are believed to be present in the discharge and could affect or alter the physical, chemical, or biological condition of the receiving water. Common pollutants of concern for finish plant effluent water are Arsenic, Iron, and TDS (total dissolved solids).

Receiving Water

None, as the Plant discharges into two drying beds, constructed with concrete liners, to eliminate possibility of effluent entering groundwater. In the event of leakage, or other spillage to ground, the effluent will be received by the groundwaters of the State. Depth to groundwater is approximately 700 feet below ground surface.

Compliance History

The facility was in substantial compliance during the July 2019 to July 2024 reporting period.

Proposed Effluent Limitations

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

Ponds / Rapid Infiltration Basins for Sample Location 001 (External Outfall) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Daily Maximum	<= 12000 Gallons per Day (gal/d)		Effluent Gross ^[1]	001	Once Per Batch ^[2]	METER
Flow rate	30 Day Average	M&R Gallons per Day (gal/d)		Effluent Gross ^[1]	001	Once Per Batch	METER

Notes (Ponds / Rapid Infiltration Basins):

1. Backwash recovery basin discharge flow rate.
2. Should discharging continue for more than one day, then meter readings should be recorded daily.

Ponds / Rapid Infiltration Basins for Sample Location 001 (External Outfall) To Be Reported Quarterly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Solids, total dissolved	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross ^[1]	001	Quarterly	DISCRT
Iron, total (as Fe)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross ^[1]	001	Quarterly	DISCRT
Arsenic, total (as As)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross ^[1]	001	Quarterly	DISCRT
Sludge weight, wet ^[2]	Daily Maximum	M&R Tons (ton)		See Footnote ^[3]	001	Quarterly	CALCTD

Notes (Ponds / Rapid Infiltration Basins):

1. Discharge from the backwash recovery basin to the drying bed.
2. Sludge removed, tons.
3. Within the partitioned, concrete-lined drying bed.

Summary of Changes From Previous Permit

Not Applicable - No changes from previous permit

Technology Based Effluent Limitations

Technology based effluent limitations are not applicable to this permit.

Water Quality Based Effluent Limitations

Water quality based effluent limitations are not applicable to this permit.

Proposed Water Quality Based Effluent Limits (monthly/weekly/daily)

Water quality based effluent limitations are not applicable to this permit.

Rationale for Permit Requirements

Monitoring is required to gain information on supernatant quality should a catastrophic leak in the drying bed occur.

Anti-backsliding

None of the proposed permit limits were changed to a less restrictive limit compared to those in the previous permit.

Antidegradation

The Division has developed an antidegradation regulation that is applied on a statewide basis, and which meets the statutory requirements of Nevada’s water pollution control law found at Nevada Revised Statute (NRS) 445A.520 and NRS 445A.565 and is consistent with the federal antidegradation policy found at Title 40 in the Code of Federal Regulations (CFR) § 131.12. The objective of the Division’s antidegradation regulation is to prevent degradation of Nevada’s surface waters and maintain the unique attributes and

special characteristics and water quality associated with high-quality waters.

As this permit is for discharges to groundwater, and not surface water, the new antidegradation rule is not applicable.

Special Conditions

See Special Conditions/Approval table below:

SA – Special Approvals / Conditions Table

Item #	Description
1	The Permittee is required to continue to submit their Discharge Monitoring Reports (DMRs) through the Bureau of Water Pollution Control's Nevada NetDMR system.

Discharges From Future Outfalls/ Planned Facility Changes

The Permittee does not anticipate discharges from any future outfalls or any others changes to the facility.

Corrective Action Sites

There are no active Bureau of Corrective Actions sites located within a one-mile radius of the discharge location.

Wellhead Protection Program

The direction of groundwater flow, in the vicinity of the discharge facility, is to the south southeast. The discharge point is within the Virgin Valley Water District Public Water System (PWS NV0000167) Drinking Water Protection Area (DWPA) for Well 32 (W12). The discharge facility is located approximately 800 feet south southeast and down gradient of W12. The next closest PWS well is Well 33 (W14) located 6,060 feet east northeast of and cross gradient to the discharge facility. The discharge facility is not within any PWS Well Head Protection Areas (WHPAs). W12 is screened within a confined aquifer. The top of the screen is at 1,200 feet below ground surface (bgs) and the sanitary seal depth is 793 feet. The static water level in W12 is 717 feet, bgs. The discharge facility will probably not affect W12 because of the confined nature of the aquifer and proper well construction. Other PWS wells will not be affected because of the distances to these sources and the direction of groundwater flow.

Schedule of Compliance:

SOC – Schedule of Compliance Table

Item #	Description	Due Date
1	The Permittee shall submit two copies (one hard copy and one electronic copy) of an updated Operations and Maintenance (O&M) Manual for review and approval by the Division. The O & M Manual shall follow guidance document, WTS-2 Minimum Information Required for an Operation and Maintenance Manual for a Wastewater Treatment Plant.	2/28/2029

Deliverable Schedule:

DLV– Deliverable Schedule for Reports, Plans, and Other Submittals

Item #	Description	Interval	First Scheduled Due Date
1	Quarterly DMRs	Quarterly	4/28/2025
2	Annual Report	Annually	1/1/2025

Procedures for Public Comment:

The Notice of the Division's intent to issue a permit authorizing the facility to discharge to groundwater of the State of Nevada subject to the conditions contained within the permit, is being mailed to interested persons on our mailing list and will be posted on our website at <https://ndep.nv.gov/posts>. Anyone wishing to comment on the proposed permit can do so in writing until 5:00 P.M. **11/16/2024**, a period of 30 days following the date of the public notice. 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, the Regional Administrator of EPA Region IX 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 determined 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/re-issue the proposed 5-year permit.

Prepared by: **Melissa Marr**
 Date: **10/11/2024**
 Title: **Staff II Engineer**