THE SOUTHERN NEVADA HEALTH DISTRICT'S WEEKLY WASTEWATER SURVEILLANCE REPORT

December 4, 2025

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Contents

Definitions

Clade: A group that includes a common ancestor and all its descendants.
Dominant Variants: Versions of a virus, gene, or trait that are currently the most widespread or prevalent in a population.
Grab Sample: A single, discrete sample of wastewater collected at a specific time and location.
Liquid matrices: Refers to the fluid portion of sewage collected for testing and analysis.
Solid matrices: Water refers to the solid material (biosolids or sludge) that is separated from liquid wastewater during the treatment process.
Wastewater Scan: An organization focused on sewage, community, and network-based efforts that conducts wastewater surveillance to detect pathogens present in wastewater.
Variants of Interest (VOI): Viral variants with genetic changes that may affect transmissibility, diagnostics, or immune escape and are showing signs of increased spread.
Variant of Concern (VOC): A mutated form of a virus that demonstrates one or more of the following characteristics: increased ability to spread, greater severity of illness, reduced effectiveness of treatments, vaccines, or diagnostic tools, and the ability to evade immune protection.
Variants Under monitoring (VOM): KS.1.1, KP.3.3, LP.8.1, NB.1.8.1, KP.3, XFG
Verily: A private laboratory vendor contracted by CDC to test wastewater across the country for pathogen markers.
PMMoV (Pepper Mild Mottle Virus): It is a plant virus commonly found in human feces due to widespread consumption of pepper-containing foods.
Concentration levels: The viral concentration levels classify them into Low, Medium, and High based on tertile cutoffs from the data's distribution. It then identifies the minimum and maximum values within each group to define the range for each concentration level.

Symbols: Increasing: ↑ Decreasing: ↓ No change: →

Purpose

This report highlights the changes in wastewater concentration for selected pathogens within Clark County, Nevada. This report includes data for SARS CoV-2, Influenza (Flu) A, Influenza (Flu) B, Respiratory syncytial virus (RSV), Measles, *Candida Auris,* Rotavirus, Adenovirus group F, Hepatitis A, Parvovirus, Norovirus, and Mpox (clade II). All data was obtained from the Clark County Water Reclamation District, Flamingo Water Resource Center, City of Mesquite, Boulder City, selected Utah wastewater treatment facilities and California wastewater treatment facilities and is analyzed and reported by **Wastewater Scan** (https://www.wastewaterscan.org/en) a collaborative project led by **Stanford University, Emory University[2,3],** and **Verily[1]**, funded through philanthropic support to Stanford. and Verily laboratories (https://verily.com/). The map below visualizes the wastewater treatment facilities in Nevada. A map of wastewater treatment facilities in Nevada is provided in the appendix.

Note: The Southern Nevada Health District (SNHD) uses PMMoV microbial normalization, while the CDC and the state rely on viral-activity normalization.

Executive Summary of December 4, 2025, Report

This report summarizes the latest wastewater pathogen surveillance results for Clark County, Nevada, and surrounding regions. The analysis focuses on three key facilities, the Flamingo Water Reclamation Facility (FWRF), Mesquite Wastewater Treatment Plant, and Boulder Wastewater Treatment Plant with comparisons to selected sites in Utah and California. Surveillance was carried out by WastewaterSCAN and Verily, targeting a wide range of pathogens, including SARS-CoV-2 and its variants, seasonal respiratory viruses (Influenza A, Influenza B, RSV, Human Metapneumovirus (HMPV)), and gastrointestinal pathogens (Norovirus, Rotavirus, *Enterovirus D68*, Hepatitis A). The study also accounts for site-level differences, noting that variations in sampling and analytical methods may influence results.

Key Findings (as of December 4, 2025)
As of December 4, 2025, wastewater surveillance across Nevada, California, and Utah shows generally low activity for several key pathogens. Measles remains undetected at all sites except Provo City, Utah, which reported a positive result on December 4, the only detection since an isolated case at FWRF, Nevada, on August 1. No detections were recorded for Mpox Clade II, Mpox Clade 1b, West Nile virus, or Influenza H5, all of which remain consistently at non-detect levels. RSV activity has increased to medium across all three states, with only modest fluctuations.

In contrast, Adenovirus Group F remains elevated regionwide, with especially high concentrations at RP-1 Ontario, Hyperion, Riverside, Central Valley, and Provo. Hepatitis A shows notable activity at multiple California sites, particularly Riverside, while remaining largely absent in Nevada and Utah.

Seasonal viruses continue to show upward trends. Enterovirus D68 levels are rising at most California and Utah facilities. Rotavirus concentrations are high at both Flamingo (145.78 GC/L) and Provo (153.03), while Norovirus is surging broadly, with Provo (15,748.64) and Central Valley (13,897.26) reporting the highest regional levels.

Influenza B remains nearly undetectable except for small increases in Utah. Influenza A levels are generally medium to high but trending upward in Nevada and Utah. SARS-CoV-2 concentrations are stable or declining across most California locations, though Flamingo and Central Valley show slight increases. Sequencing data from Mesquite and Flamingo indicate decreasing viral diversity, with lineage XFG dominant since mid-September.

In summary, while high-concern pathogens remain absent, increases in Norovirus, Rotavirus, Enterovirus D68, and Adenovirus F highlight areas requiring continued vigilance.

Methodological Notes: Sampling methods varied across sites. FWRF in Nevada, all California facilities (A.K. Warren, Hyperion, RP-1, Riverside, Valley Sanitary District), and Utah facilities (Central Valley and Provo City) collected 24-hour composite solid samples analyzed by WastewaterSCAN. In contrast, Mesquite and Boulder City relied on liquid grab samples analyzed by Verily. These methodological differences likely influenced pathogen measurements.

Summary of Select Pathogen Concentrations in three wastewater treatment facilities in Neveda

- Latest data point for Flamingo Water reclamation district plant December 3, 2025
- Latest data point for City of Mesquite Wastewater Treatment Plant is December 4, 2025
- Latest data point for Boulder City Wastewater Treatment Plant December 3, 2025

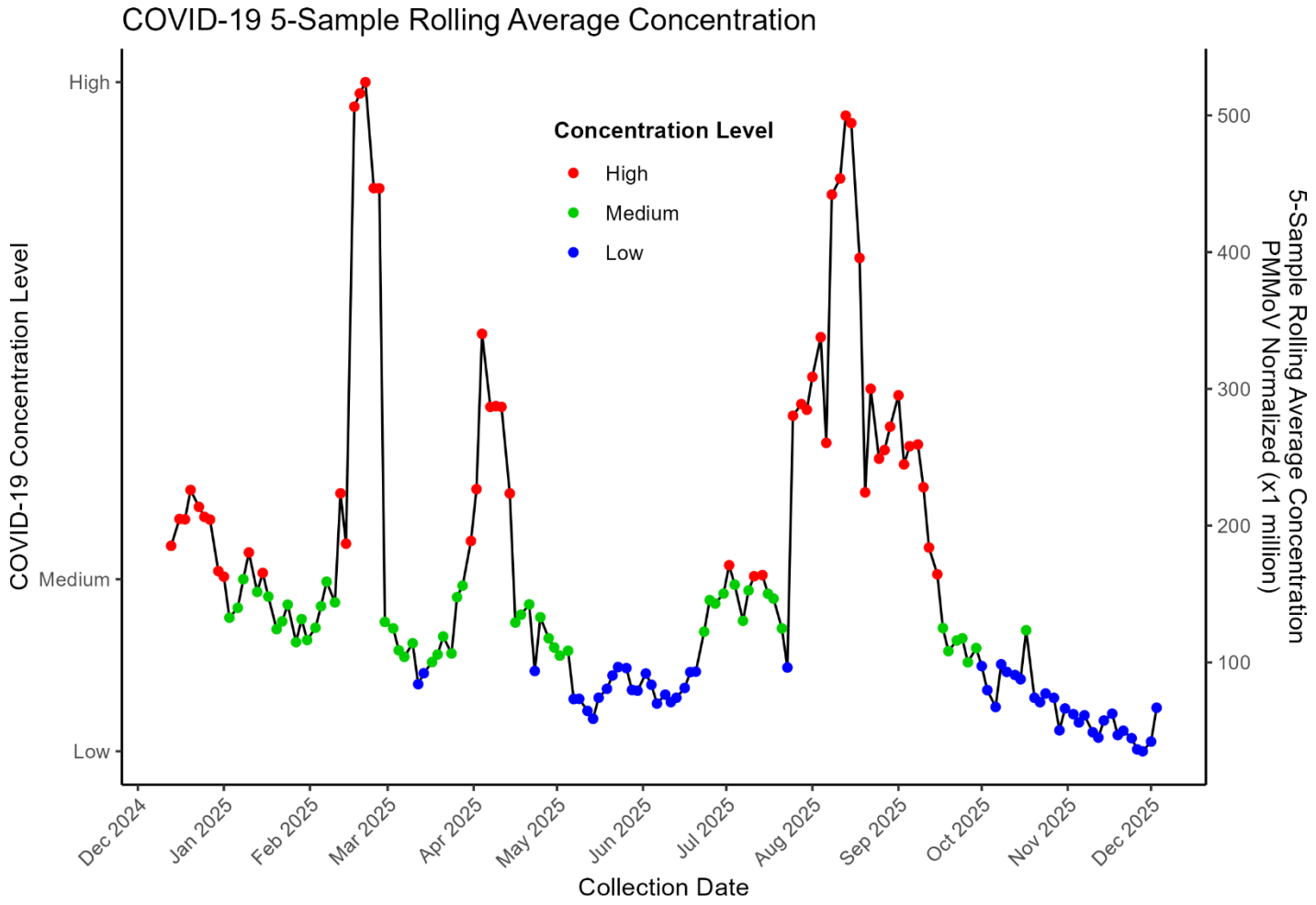
Pathogen	Concentration Level / Presence- Flamingo	Concentration Level / Presence- Boulder	Concentration Level / Presence - Mesquite
SARS-CoV-2	Low	Low	Low
Influenza A	Medium	High	Low
Influenza B	Low	Low	Low
Respiratory Syncytial virus (RSV)	Medium	Medium	Medium
Norovirus	Low	Not Tested	Not Tested
Rotavirus	Medium	Not Tested	Not Tested
Enterovirus D68	High	Not Tested	Not Tested
Hepatitis A	Low	Not Tested	Not Tested
Candida Auris	Low	Not Tested	Not Tested
Adenovirus Group F	Medium	Not Tested	Not Tested
Parvovirus	Low	Not Tested	Not Tested
Metapneumovirus	Medium	Not Tested	Not Tested
Mpox – Clade I	No Presence	No Presence	No Presence
Measles	No Presence	No Presence	No Presence
Mpox – Clade II	No Presence	No Presence	No Presence
Influenza H5	No Presence	No Presence	No Presence

Note: The wastewater data for Las Vegas were collected from the Flamingo Water Reclamation District Plant, where samples were analyzed on solids and sourced from Wastewater SCAN. In contrast, data for the City of Mesquite and Boulder City were analyzed on liquid samples by Verily and provided by the State Wastewater Epidemiology Team. Due to the differences in sample matrices (solids vs. liquids) and analytical methods, variations in virus concentrations between the three facilities are expected. Mesquite and Boulder sampling is conducted using grab sampling and is not performed over a 24-hour period.

SARS–CoV-2 Viral Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

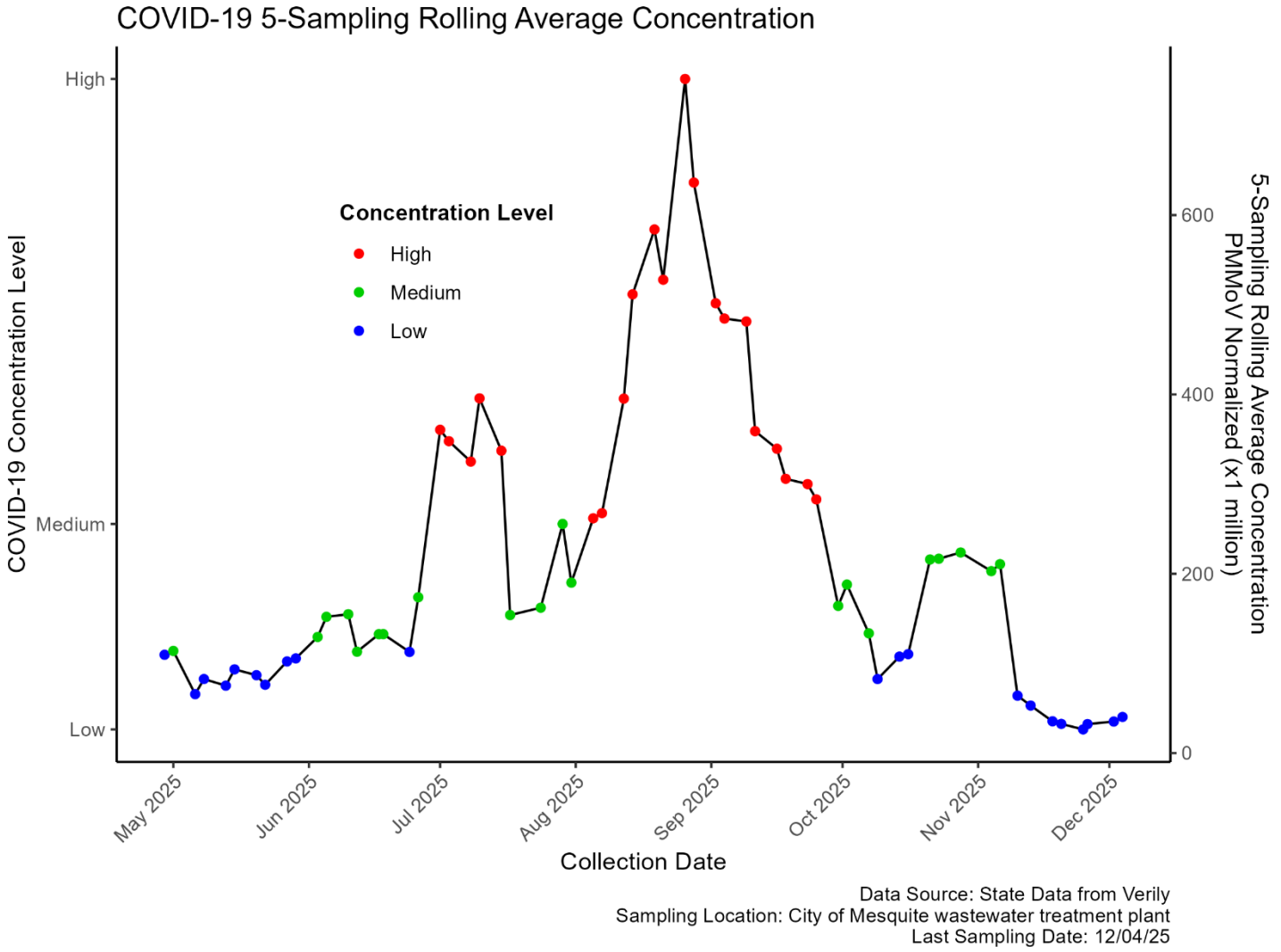
The chart displays the 5-sample rolling average of COVID-19 concentrations at the Flamingo Water Resource Center from December 2024 through November 2025. Several waves are visible, including a winter rise in early 2025, followed by a major peak in March reaching high levels. After a brief decline, another moderate increase occurred in May. The largest surge appears in September 2025, with concentrations again reaching high levels before steadily decreasing through the fall. By December 3, 2025, COVID-19 levels had dropped to low, indicating reduced viral activity.



Data Source: WastewaterScan.org
Sampling Location: Clark County Water Reclamation District, Flamingo Water Resource Center
Last Sampling Date: 12/03/25

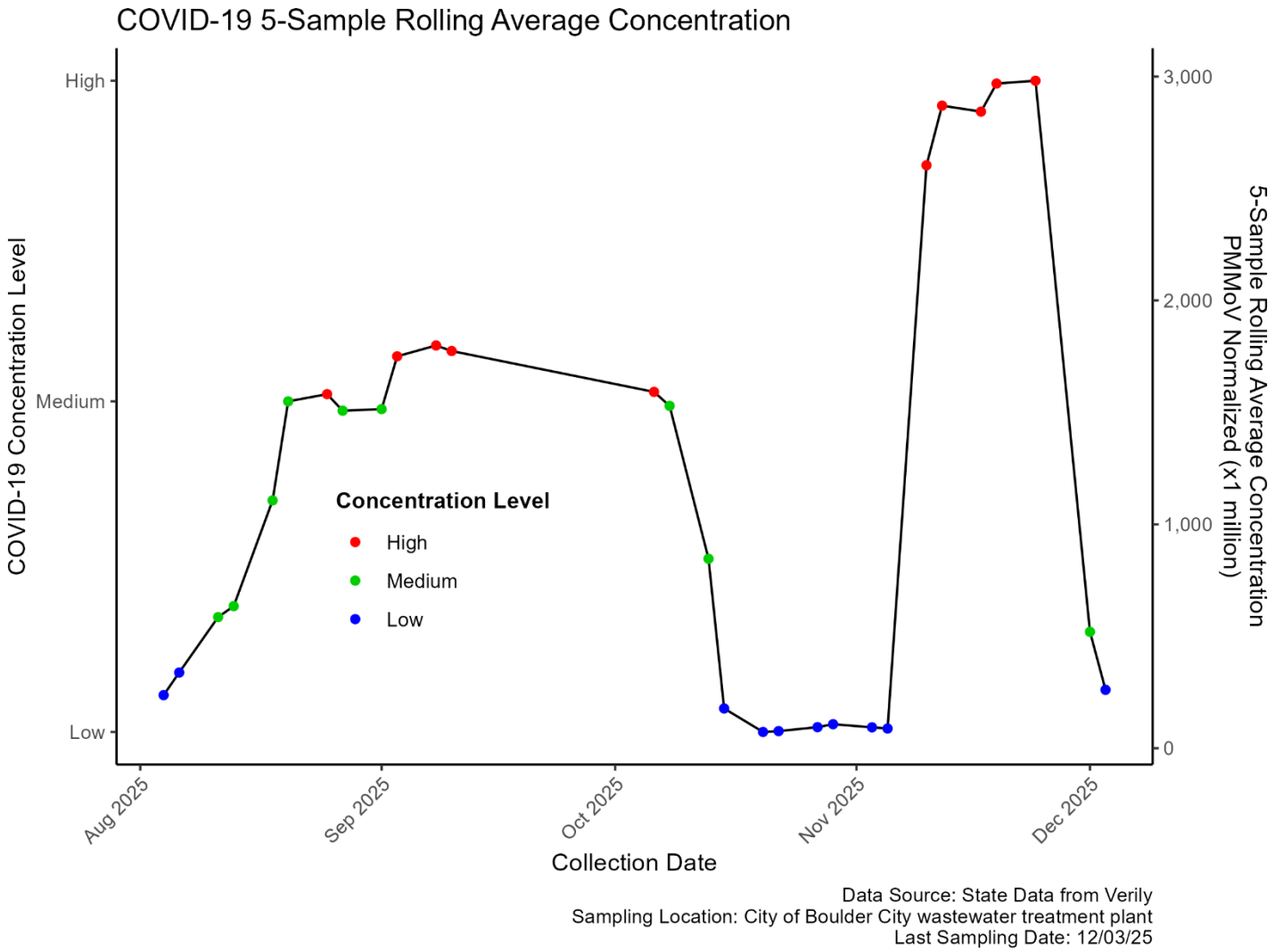
City of Mesquite Wastewater Treatment Plant

The chart shows COVID-19 concentrations at the Mesquite wastewater treatment plant from May to November 2025. Levels began low in May and early June, gradually rising into medium by late June. A strong upward trend followed in July and August, leading to a major peak in early September, with concentrations reaching high levels. After the September surge, levels declined steadily through October. A smaller secondary rise occurred in November, reaching medium levels before dropping again. By the last sampling date, December 4, 2025, concentrations had returned to low, indicating decreasing recent transmission.



Boulder City Wastewater Treatment Plant

The chart shows COVID-19 concentrations at the Boulder City wastewater treatment plant from August to December 3, 2025. COVID-19 concentrations at the Boulder City wastewater treatment plant fluctuated significantly from August to December 3, 2025. Levels rose from low in early August to medium and then high by early September, remaining elevated through mid-September before gradually declining. By October, concentrations dropped sharply to low and stayed minimal through early November. A major spike occurred in mid-November, with levels returning to the high range and reaching the chart's peak value. Following the surge, concentrations fell again by early December. Despite this decline, the December 3 sample still indicates notable viral activity in the community.



SARS-CoV-2 Concentrations Interpretation

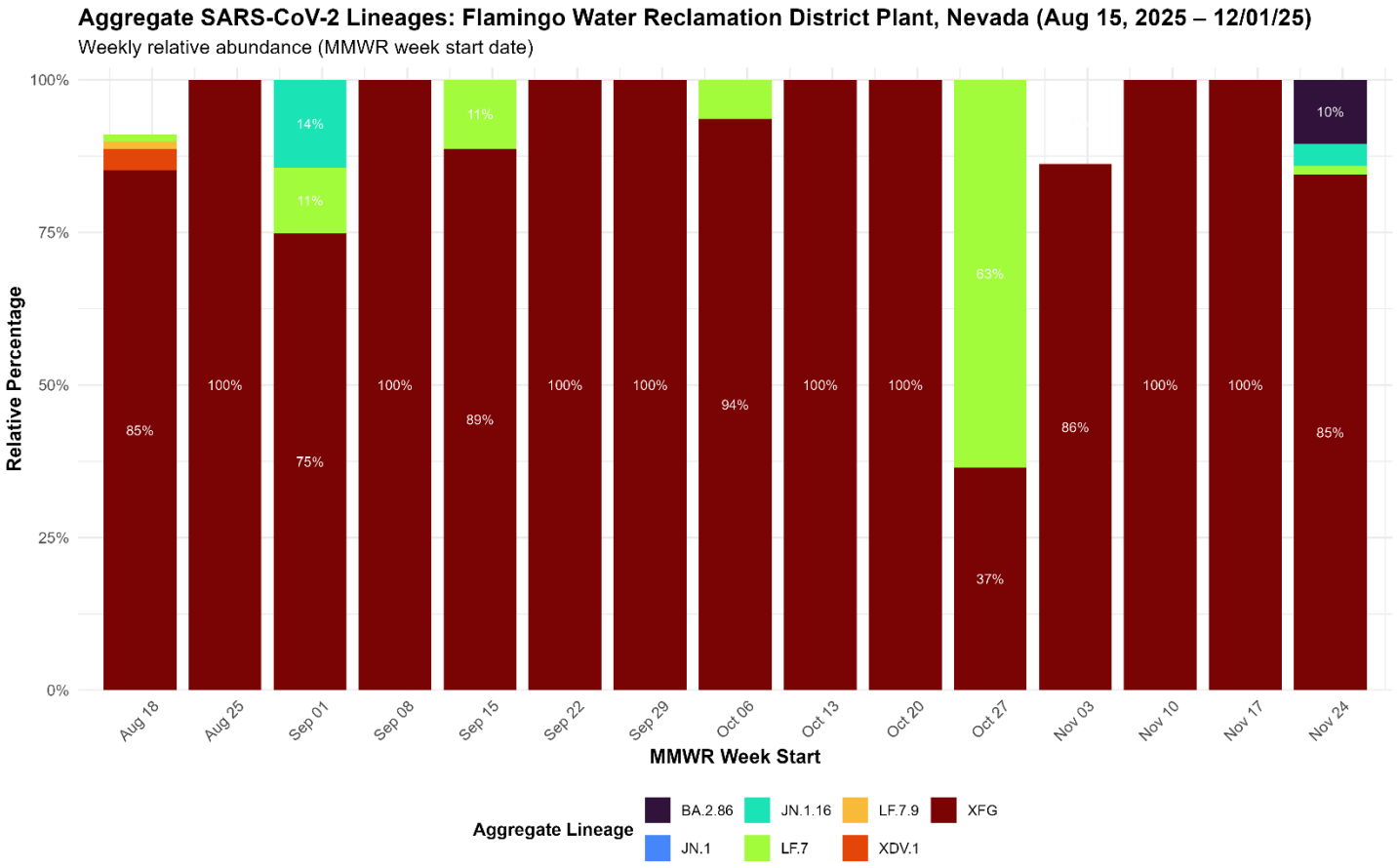
As of December 4, 2025, SARS-CoV-2 levels in wastewater across Nevada, California, and Utah remain low to moderate with mixed trends. Nevada shows increases at Flamingo (66.82 GC/L) but declines at Mesquite (40.28 GC/L) and Boulder City (261.01 GC/L). California sites are uniformly declining, ranging from 3.30–12.82 GC/L. Utah shows an increase at Central Valley (37.86 GC/L) and a decline at Provo (68.48 GC/L), reflecting mostly stable to decreasing regional activity.

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	66.82	↑	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	40.28	↓	December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	261.01	↓	December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	6.77	↓	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	3.30	↓	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	37.86	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	68.48	↓	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	12.82	↓	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	9.87	↓	December 3 2025
Valley Sanitary District	Indio, CA	Current	9.89	↓	December 3 2025

SARS-CoV-2 Variants Circulating

Flamingo Water Reclamation District Plant

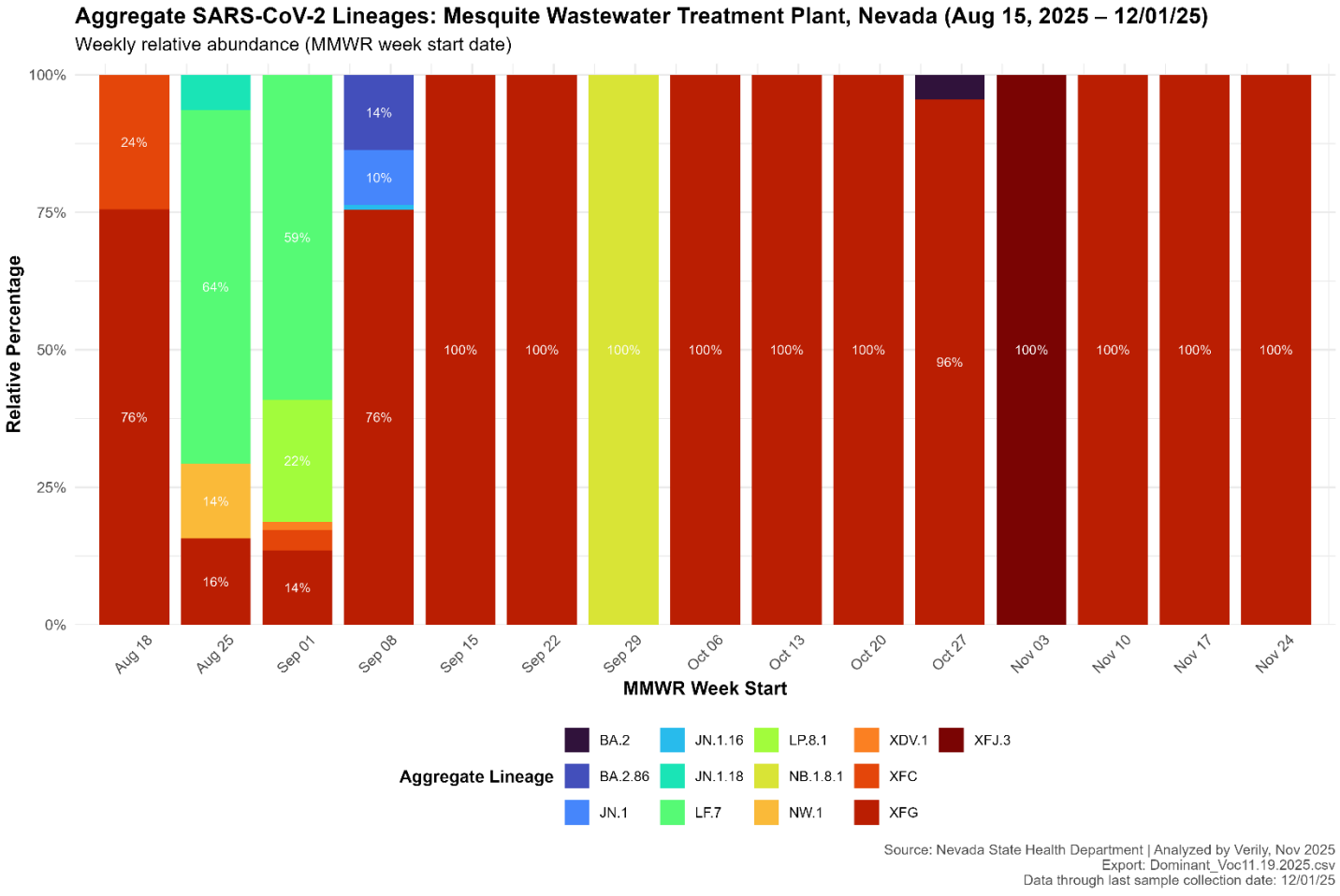
The chart shows weekly changes in viral composition from August 15 to December 1, 2025, SARS-CoV-2 lineages at Flamingo Water Reclamation District Plant were dominated by XFG, consistently accounting for 85–100% of detections most weeks. Minor diversity appeared briefly: BA.2.86, JN.1.16, LF.7, and XDV.1 surfaced in August and September, with LF.7 peaking at 63% in late October. November returned to near-total XFG dominance, except for a small BA 2.86 presence (10%) on November 24. Overall, lineage diversity was minimal, with XFG prevailing throughout the monitoring period.



Source: Nevada State Health Department | Analyzed by Verily, Nov 2025
Export: Dominant_Voc11.19.2025.csv
Data through last sample collection date: 12/01/25

Mesquite Wastewater Treatment Plant

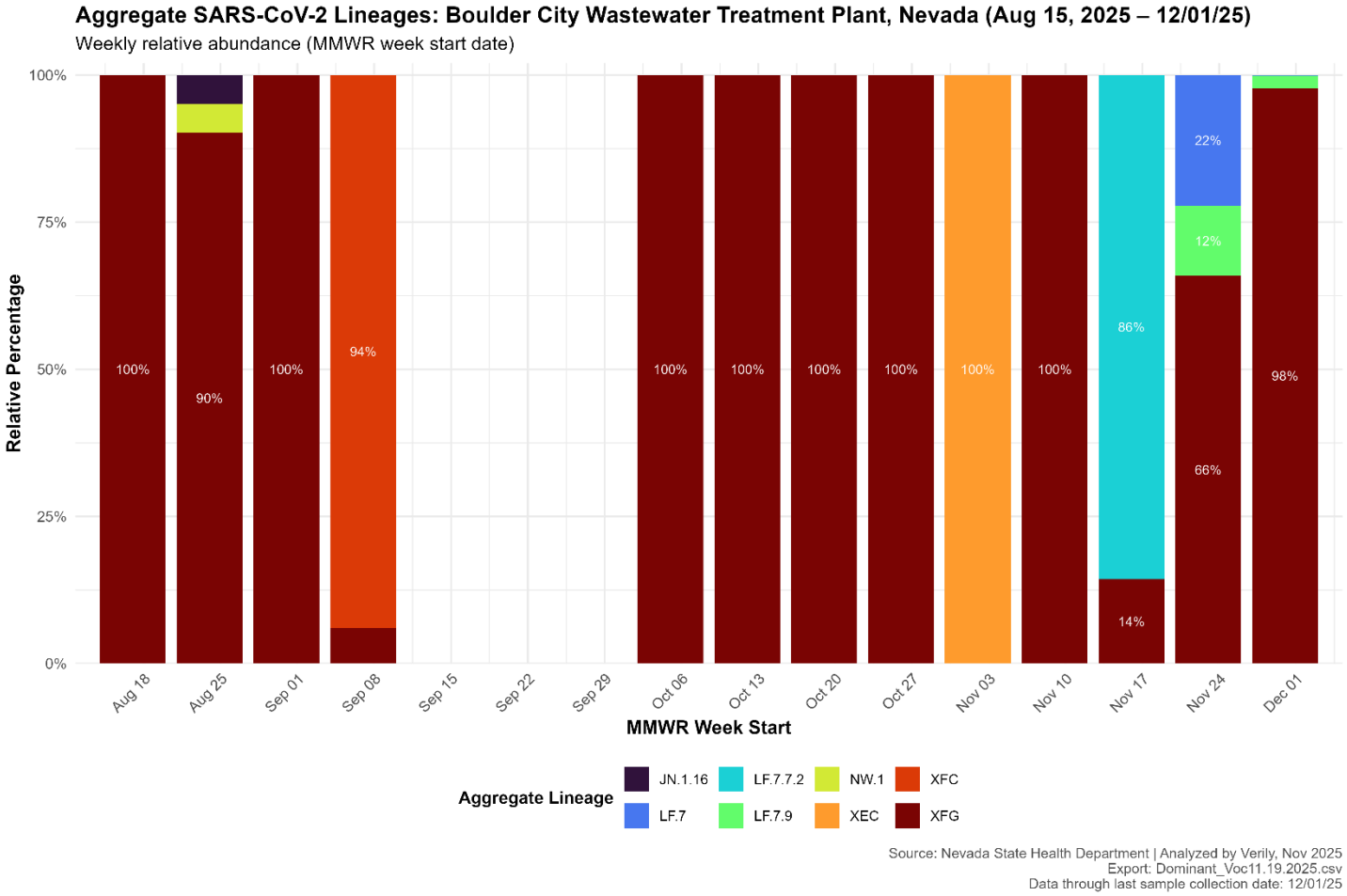
The chart illustrates the SARS-CoV-2 lineage groups detected in Mesquite wastewater from August 17 to November 24. Early weeks showed notable diversity: XFG dominated at 76% on August 17, with XDV.1 at 24%. By August 25, LF.7 surged to 64%, while XFG dropped to 16%. On September 1, LF.7 held 59%, LP 8.1 reached 22%, and XFG fell to 14%. Minor lineages such as BA.2.86 and JN.1.16 appeared briefly in early September. From mid-September onward, XFG became dominant, reaching 100% most weeks and maintaining near-total prevalence through November, except for NB.1.8.1 at 100% on September 29 and XFJ.3 briefly in early November. XFG remained 100% from November 10 to November 24



Source: Nevada State Health Department | Analyzed by Verily, Nov 2025
Export: Dominant_Voc11.19.2025.csv
Data through last sample collection date: 12/01/25

Boulder City Wastewater Treatment Plant

The chart illustrates SARS-CoV-2 lineage groups detected in Boulder City wastewater from August 17 to December 1, 2025. Early weeks showed minor diversity with JN.1.16 and NW.1 appearing briefly alongside XFG dominance. On September 8, XFC surged to 94%, temporarily replacing XFG. From mid-September through early November, XFG maintained complete dominance at 100%. On November 3, XEC briefly rose to 100%. Late November introduced variability: LF.7.7.2 reached 86% on November 17, while XFG dropped to 14%. Additional lineages LF.7.9 (12%) and LF.7 (22%) appeared before XFG rebounded to 98% by December 1. Overall, XFG remained the primary lineage with short-lived shifts in September and November.

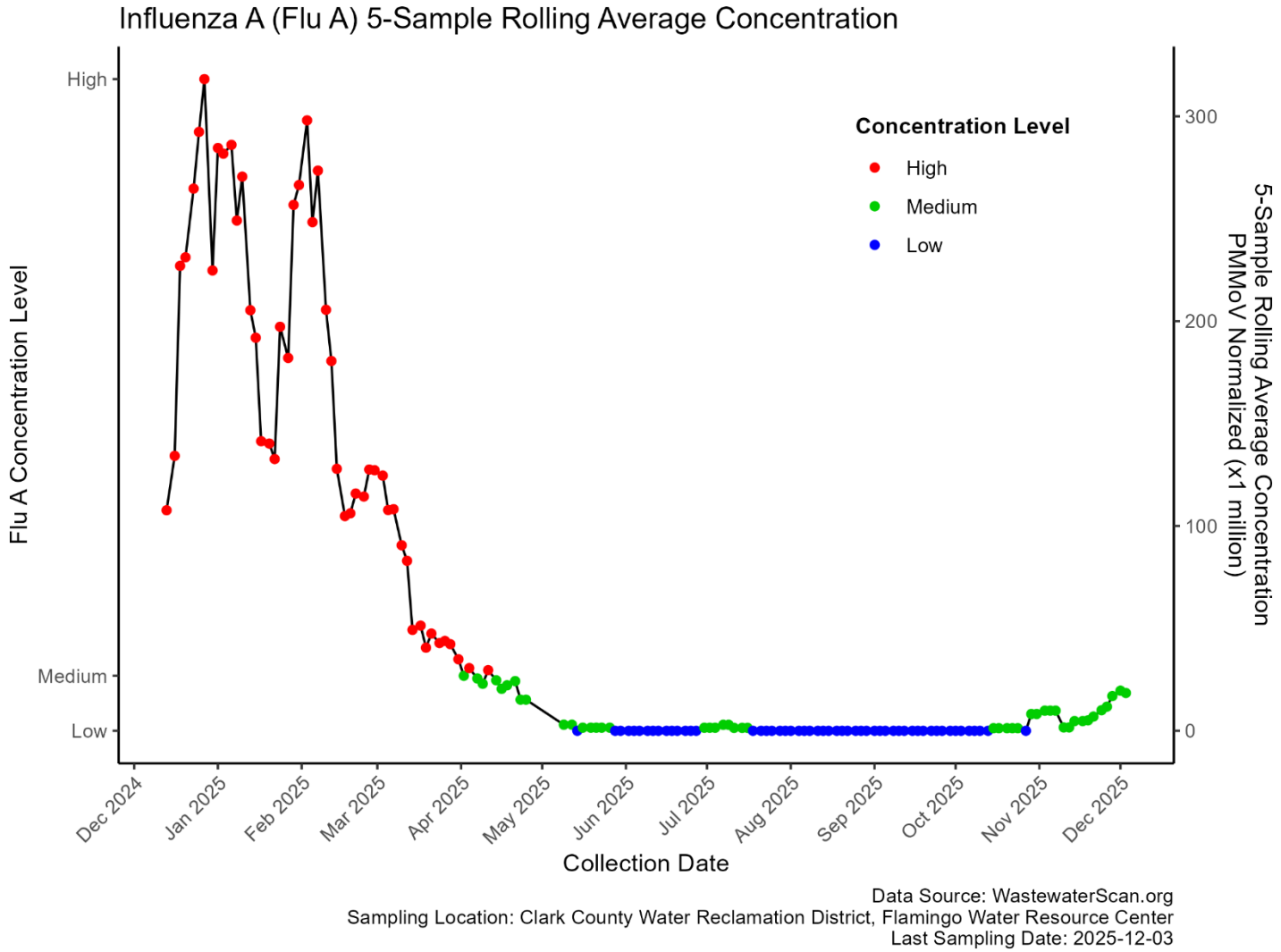


Note: Data for the weeks of September 15, 22, and 29, 2025, were missing and are not represented in the dataset.

Influenza A Viral Concentration Trends in Clark County

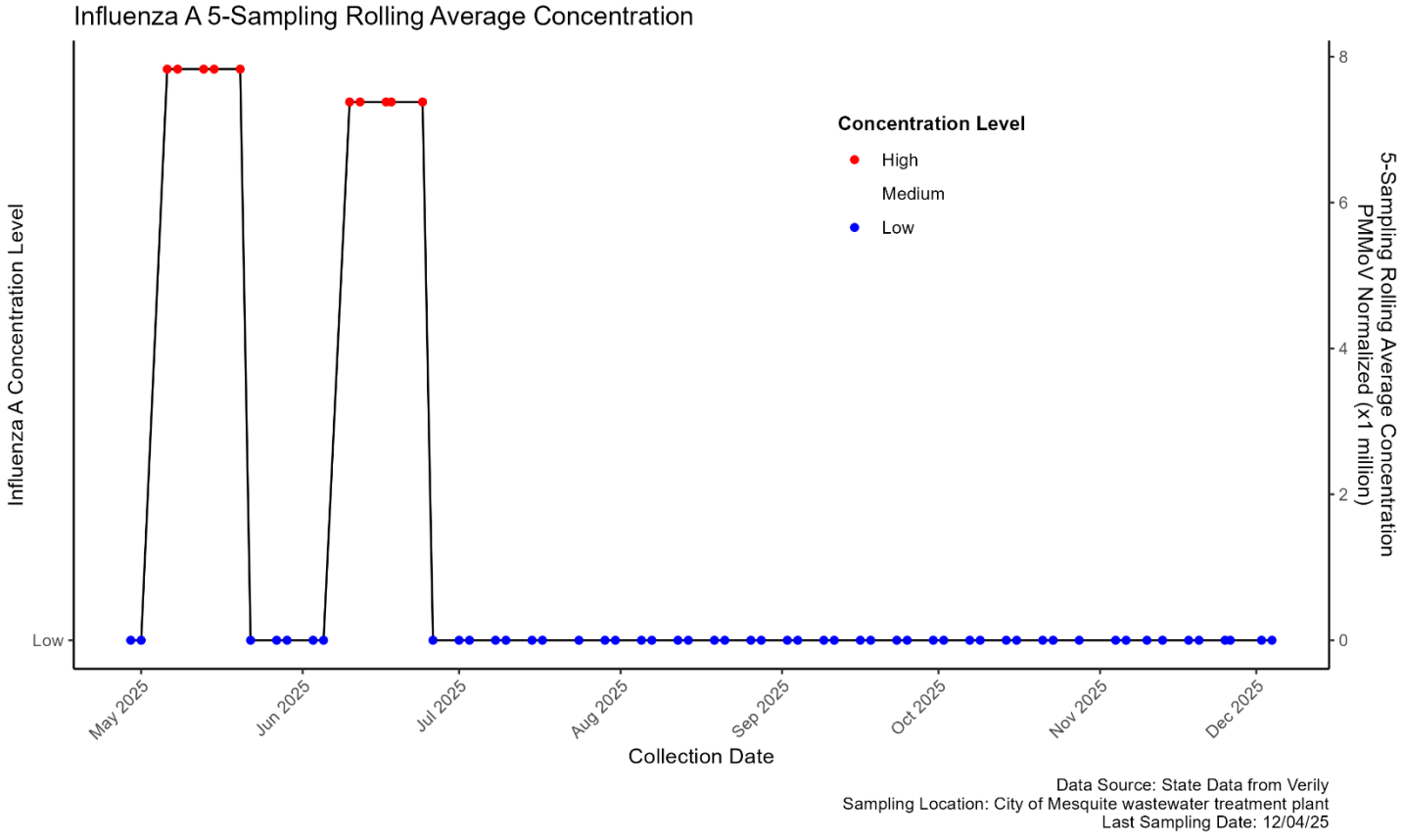
Flamingo Water Reclamation District Plant

The chart shows Influenza A (Flu A) concentrations in wastewater at the Flamingo Water Reclamation District, Clark County, from December 2024 to December 3, 2025, using 5-sample rolling averages. Levels were high from December through March, with multiple peaks exceeding 300 normalized units. Concentrations declined in April to medium levels and dropped to low by May. From June through October, Flu A remained consistently low with minimal variation. In November, levels increased slightly, reaching medium concentrations.



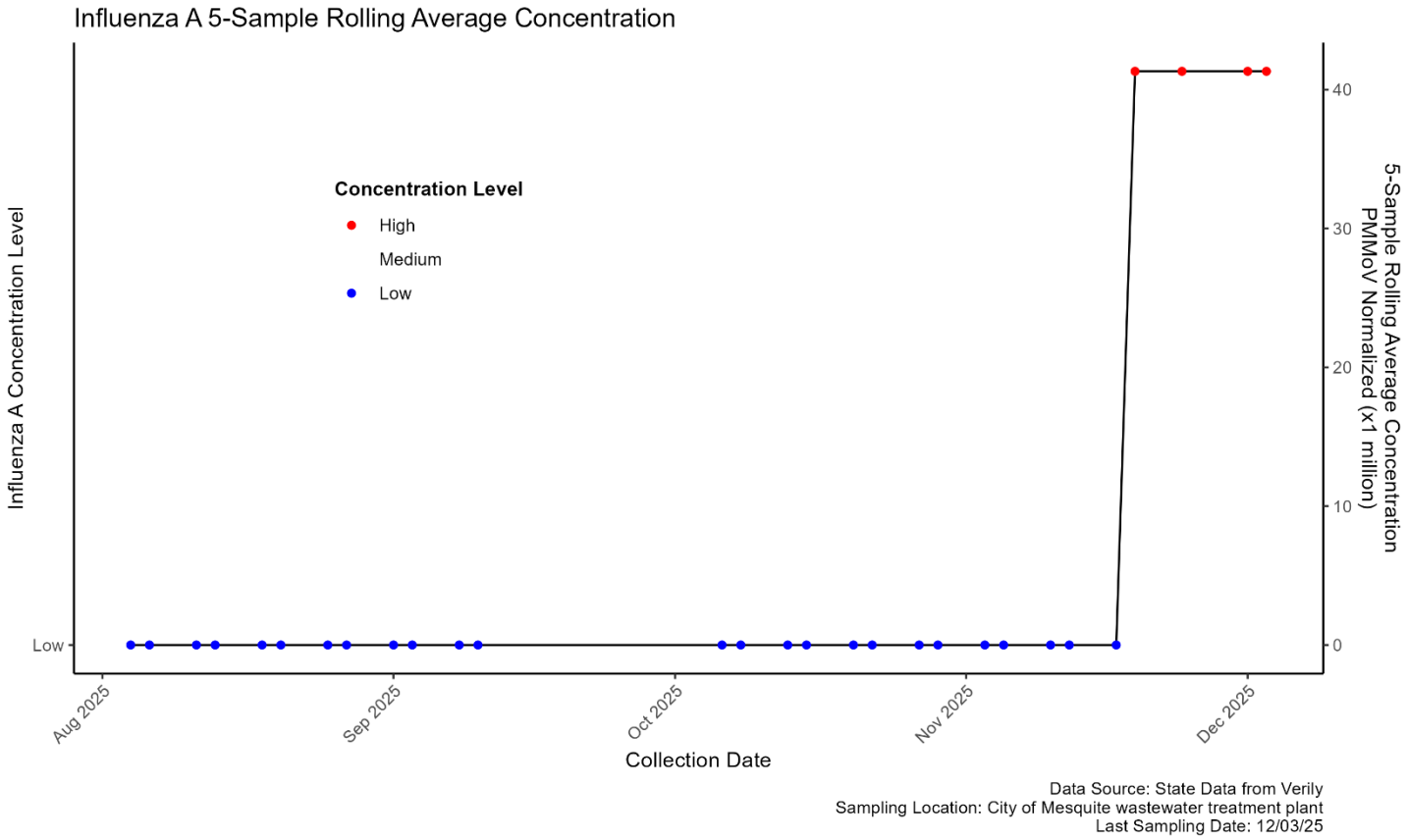
City of Mesquite Wastewater Treatment Plant

The chart shows Influenza A concentrations in wastewater from the City of Mesquite, NV, between May and December 4, 2025, based on a 5-sample rolling average normalized to PMMoV. Levels were mostly low (blue) throughout the monitoring period, with two brief high spikes (red) in May and June. These peaks quickly subsided, returning concentrations to low levels by early July. From July through October, values remained consistently low, with no medium-level signals detected. The most recent sample, collected on December 4, 2025, confirms that Influenza A activity in wastewater is currently minimal following earlier isolated surges.



Boulder City Wastewater Treatment Plant

The chart shows Influenza A concentrations in wastewater at the City of Mesquite treatment plant from August through December 3, 2025, using 5-sample rolling averages. Levels remained consistently low from August to mid-November, with minimal variation. However, in late November, concentrations spiked sharply to high levels, reaching approximately 40 normalized units. This indicates a sudden and significant increase after months of low activity. The most recent sample was collected on December 3, 2025.



Interpretation of Influenza A Concentrations

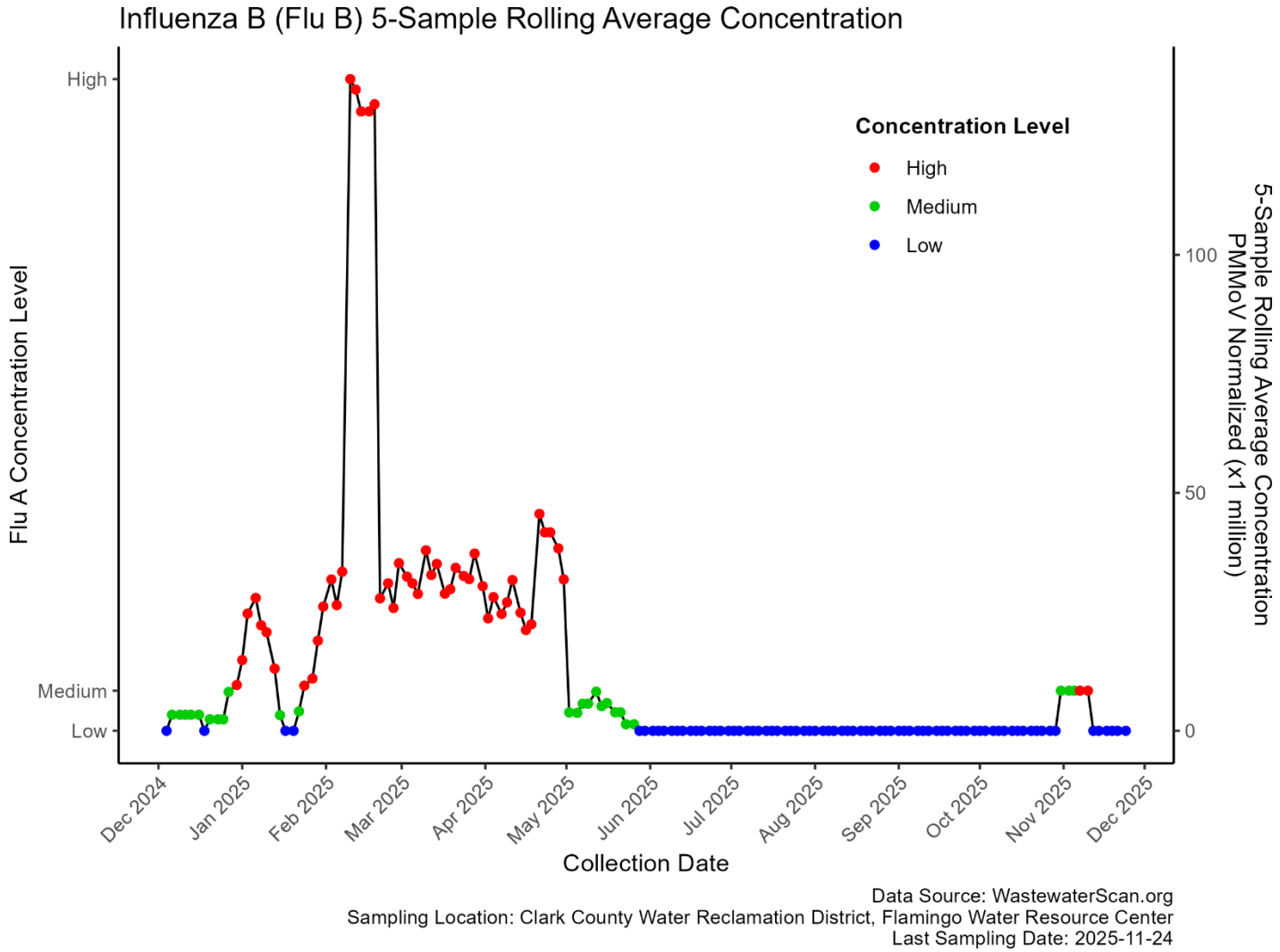
As of December 4, 2025, Influenza A concentrations in wastewater across Nevada, California, and Utah show mostly low to moderate activity with some localized increases. Flamingo (Las Vegas) reports 18.45 GC/L (↑), Boulder City shows the highest level at 41.32 GC/L (→), and Mesquite remains at 0.00 (→). California sites vary: Hyperion (26.40 →), A.K. Warren (2.34 ↑), RP-1 Ontario (3.22 ↑), and Riverside (4.84 ↑). Utah facilities indicate rising trends: Central Valley (20.16 ↑) and Provo (24.63 ↑). Valley Sanitary District reports 0.00 (→).

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	18.45	↑	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	0.00	→	December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	41.32	→	December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	2.34	↑	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	26.40	→	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	20.16	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	24.63	↑	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	3.22	↑	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	4.84	↑	December 3 2025
Valley Sanitary District	Indio, CA	Current	0.00	→	December 3 2025

Influenza B Viral Concentration Trends in Clark County

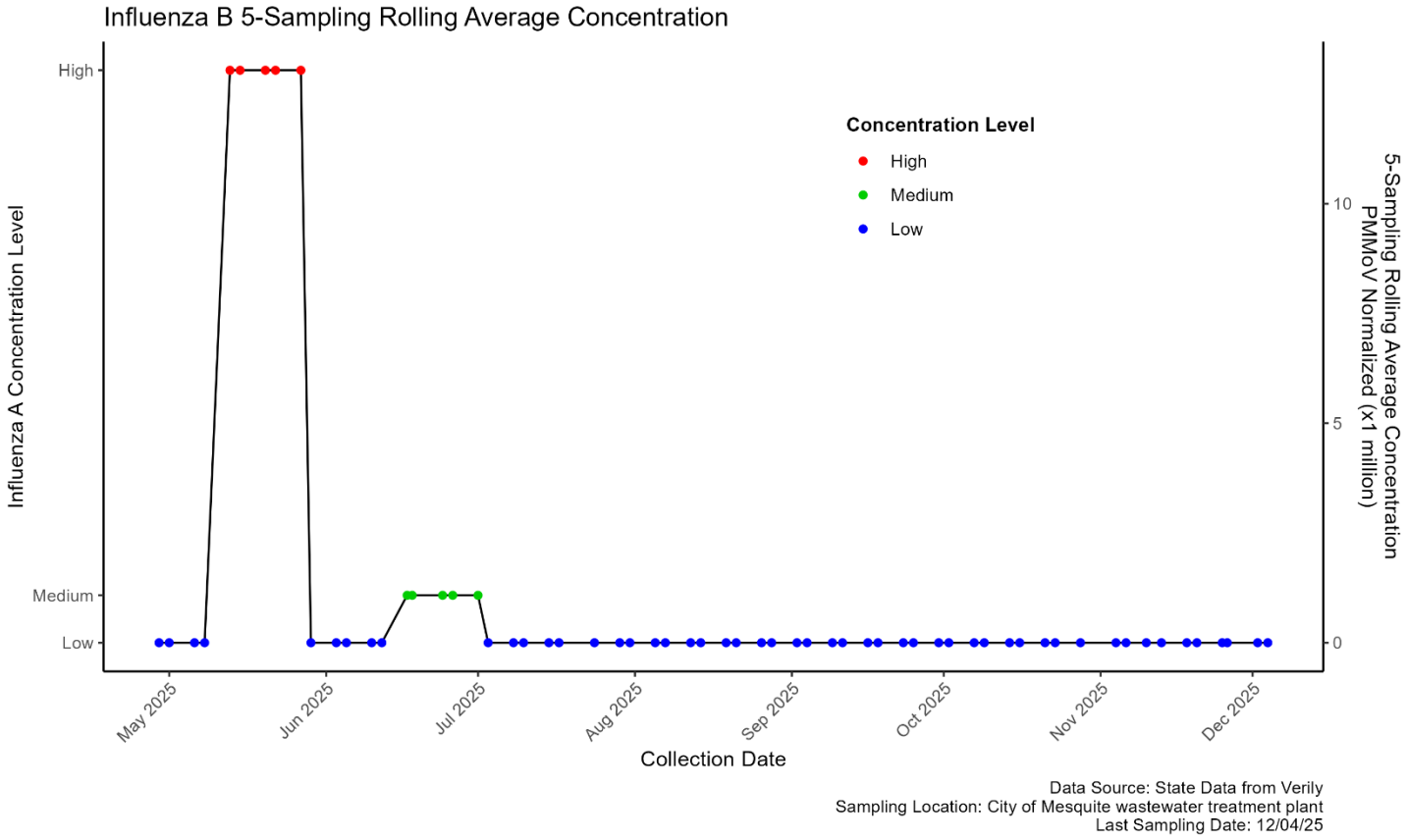
Flamingo Water Reclamation District Plant

The chart shows Influenza B (Flu B) concentrations in wastewater at the Flamingo Water Reclamation District from December 2024 to November 24, 2025, using 5-sample rolling averages. Levels were medium in December, rose to high in January, and peaked in February and March. Concentrations declined to medium in April and May, then dropped to low by June, remaining stable through October. A slight increase to medium occurred in late November, indicating a minor resurgence.



City of Mesquite Wastewater Treatment Plant

The chart shows Influenza B concentrations in wastewater at the City of Mesquite treatment plant from May to December 4, 2025, using 5-sample rolling averages. Levels were low in early May, spiked to high at the end of May, then dropped to low by mid-June. A smaller high-level increase occurred in mid-June and July before returning to low. From July through November, levels remained consistently low. Overall, the data indicates two brief summer surges and prolonged low activity.



Interpretation of Influenza B Concentrations

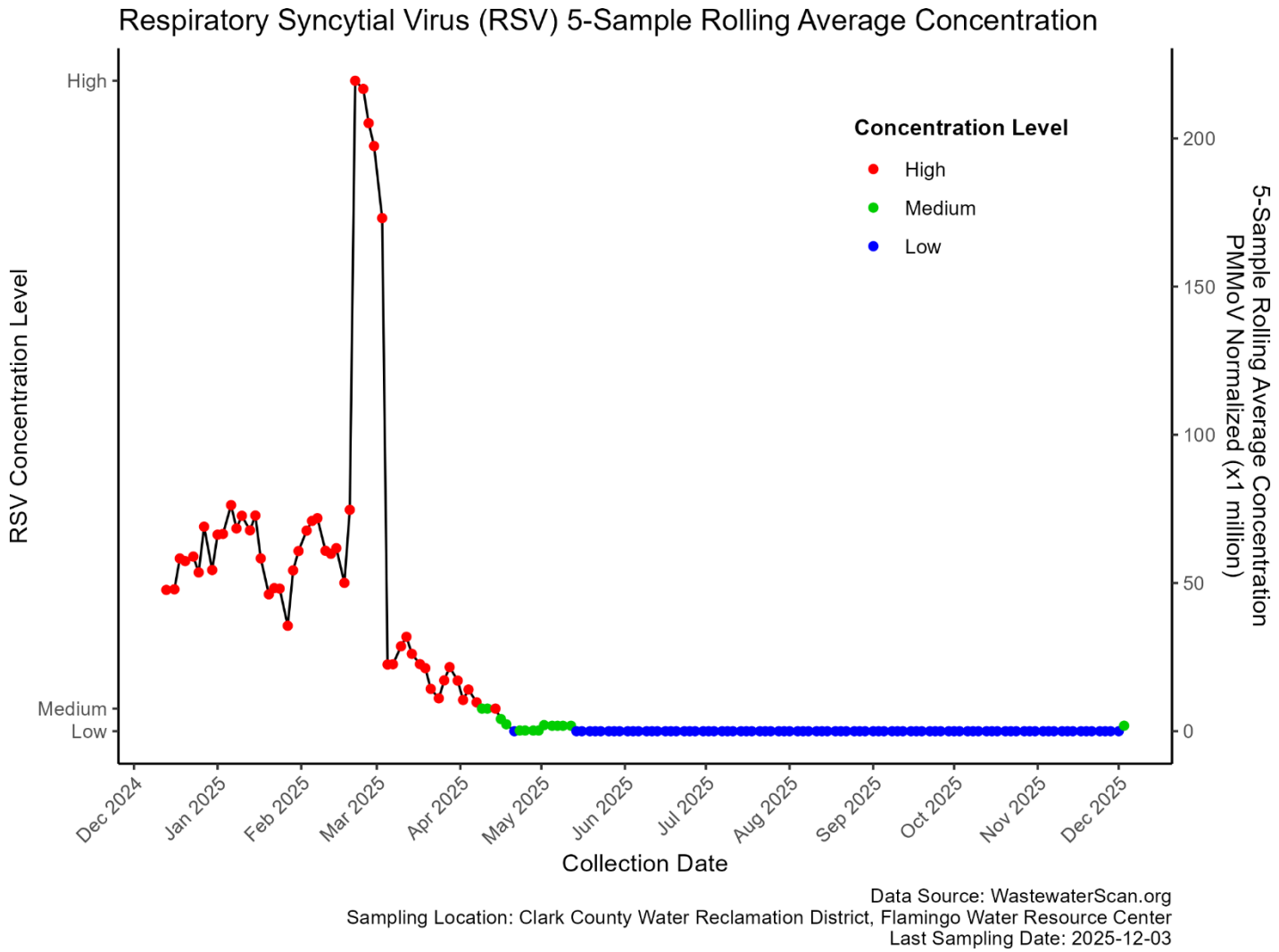
As of December 4, 2025, Influenza B remains nearly undetectable across most monitored wastewater facilities in Nevada and California, including Flamingo, Mesquite, Boulder City, A.K. Warren, Hyperion, RP-1 Ontario, Riverside, and Valley Sanitary District—all reporting 0.00 GC/L with stable trends (→). In contrast, Utah sites show slight increases, with Central Valley at 2.98 GC/L and Provo at 17.44 GC/L, indicating minor upward movement. Overall, regional Influenza B activity is minimal.

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	0.00	→	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	0.00	→	December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	0.00	→	December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	0.00	→	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	0.00	→	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	2.98	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	17.44	↑	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	0.00	→	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	0.00	→	December 3 2025
Valley Sanitary District	Indio, CA	Current	0.00	→	December 3 2025

Respiratory Syncytial Virus (RSV) Viral Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

The chart shows Respiratory Syncytial Virus (RSV) concentrations in wastewater at the Flamingo Water Reclamation District from December 2024 to December 3, 2025, using 5-sample rolling averages. Levels were high in December and remained elevated through January and February, with a sharp peak in March exceeding 200 normalized units. Concentrations declined in April to medium levels and dropped to low by May. From June through November, RSV levels stayed consistently low with no significant variation. Overall, the data reflects a strong winter surge, rapid spring decline, and prolonged low activity during summer and fall. The latest sample was collected December 3, 2025.



Respiratory Syncytial Virus (RSV) Concentrations Interpretation

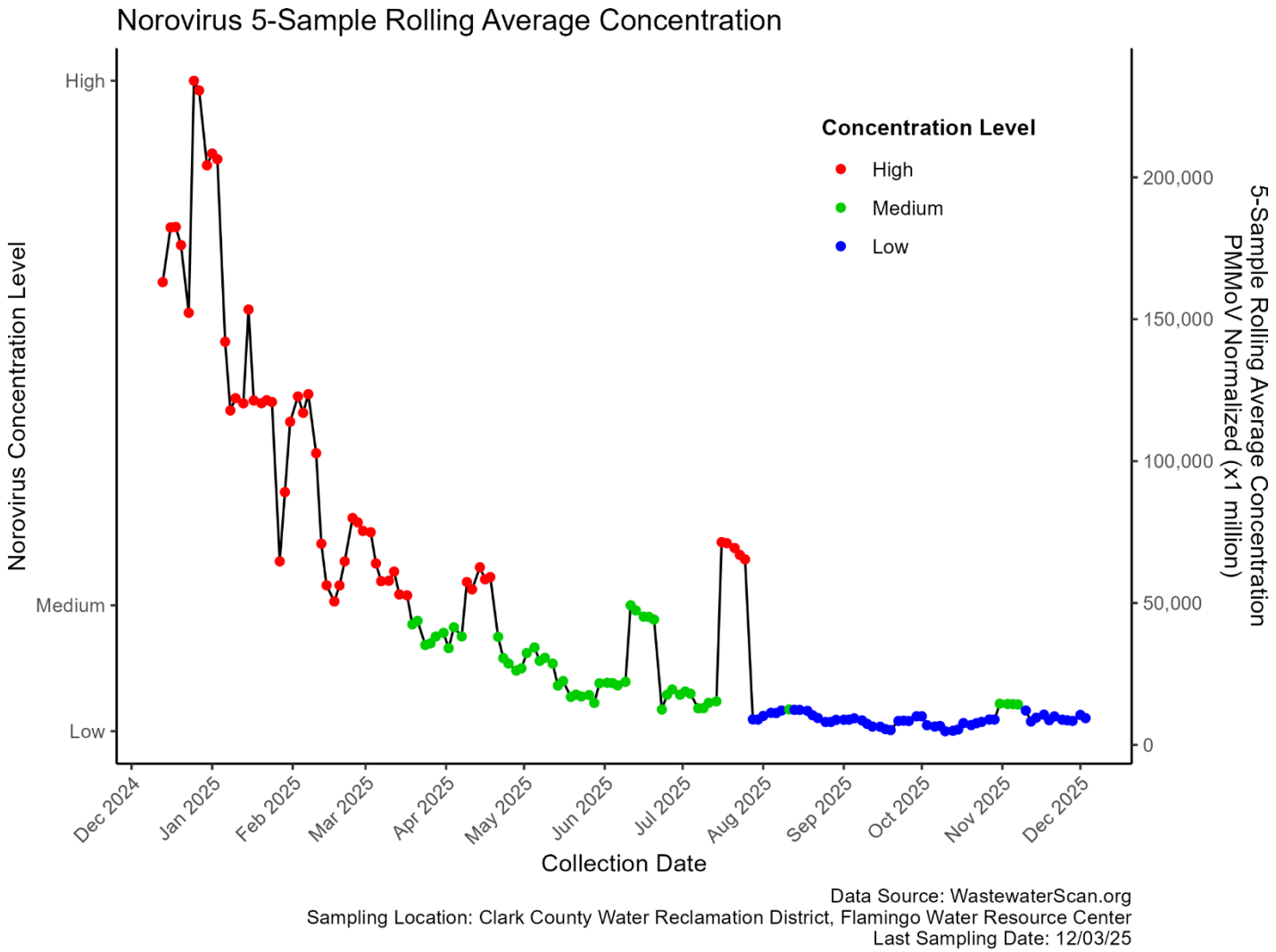
As of December 4, 2025, RSV concentrations in wastewater remain low across Nevada, California, and Utah, with slight increases at some sites. Nevada reports 1.85 GC/L at Flamingo (↑), 5.48 at Mesquite (↑), and 11.27 at Boulder City (↑). In California, Hyperion shows 6.89 (↑) while A.K. Warren remains steady at 0.92 (→). Utah facilities report 1.88 at Central Valley (↑) and 0.58 at Provo (→). Other California plants, including Valley Sanitary District, remain minimal at 0.00 (→).

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	1.85	↑	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	5.48	↑	December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	11.27	↑	December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	0.92	→	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	6.89	↑	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	1.88	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	0.58	→	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	0.46	↑	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	0.56	↑	December 3 2025
Valley Sanitary District	Indio, CA	Current	0.00	→	December 3 2025

Norovirus Viral Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

The chart shows Norovirus concentrations in wastewater at the Flamingo Water Reclamation District from December 2024 to December 3, 2025, using 5-sample rolling averages. Levels were high in December and January, with multiple peaks exceeding 200,000 normalized units. Concentrations gradually declined through February and March, shifting to medium levels by April and May. From June onward, levels dropped to low, except for a brief high spike in August. September through November remained consistently low with minimal variation. Overall, the data indicates a strong winter surge, gradual spring decline, and sustained low activity through summer and fall. Last sample: December 3, 2025.



Interpretation of Norovirus Concentrations

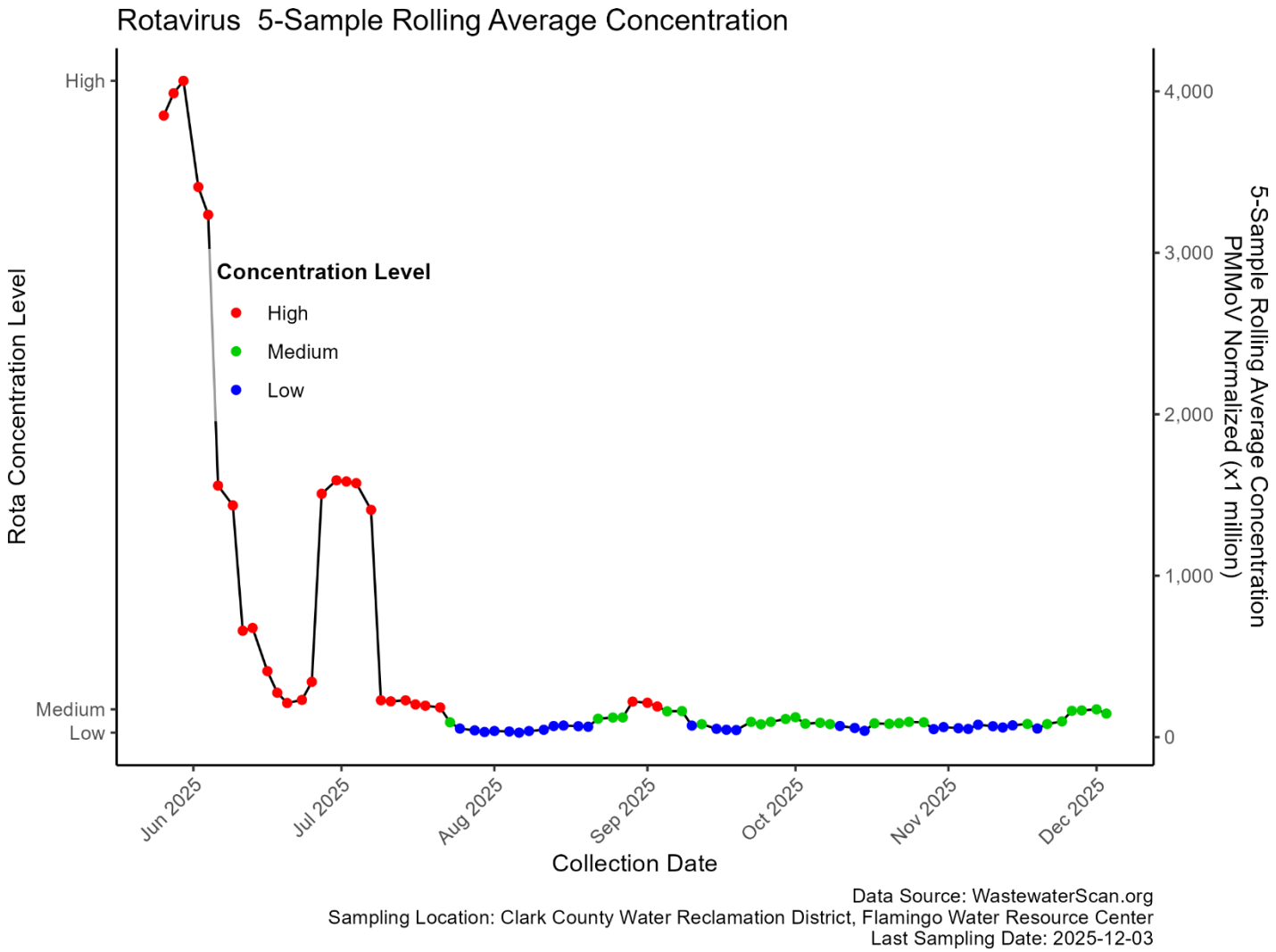
As of December 4, 2025, Norovirus concentrations in wastewater show mixed activity across Nevada, California, and Utah. Flamingo Water Resource Center (Las Vegas) reports 8,914.28 GC/L with a downward trend, while Mesquite and Boulder City were not tested. California sites indicate rising levels: A.K. Warren (5,558.33 ↑), Hyperion (10,215.86 ↑), RP-1 Ontario (9,641.56 ↑), Riverside (7,375.16 ↑), and Valley Sanitary District (4,103.42 ↑). Utah facilities also show increases: Central Valley (13,897.26 ↑) and Provo (15,748.64 ↑). Overall, most sites exhibit upward trends, signaling heightened Norovirus activity regionwide.

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	8,914.28	↓	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Not Tested		December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Not Tested		December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	5,558.33	↑	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	10,215.86	↑	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	13,897.26	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	15,748.64	↑	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	9,641.56	↑	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	7,375.16	↑	December 3 2025
Valley Sanitary District	Indio, CA	Current	4,103.42	↑	December 3 2025

Rotavirus Viral Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

The chart shows Rotavirus concentrations in wastewater at the Flamingo Water Reclamation District from December 2024 to December 3, 2025, using 5-sample rolling averages. Levels began low in December and steadily increased through winter and spring, reaching a sharp peak in June at high concentrations exceeding 4,000 normalized units. After June, concentrations dropped quickly to medium and then low by July, with a brief resurgence in mid-July. From August through October, levels remained mostly low with minor fluctuations, including small medium-level increases. In November, concentrations rose again to medium levels, indicating a slight late-year uptick. Last sample: December 3, 2025.



Interpretation of Rotavirus Concentrations

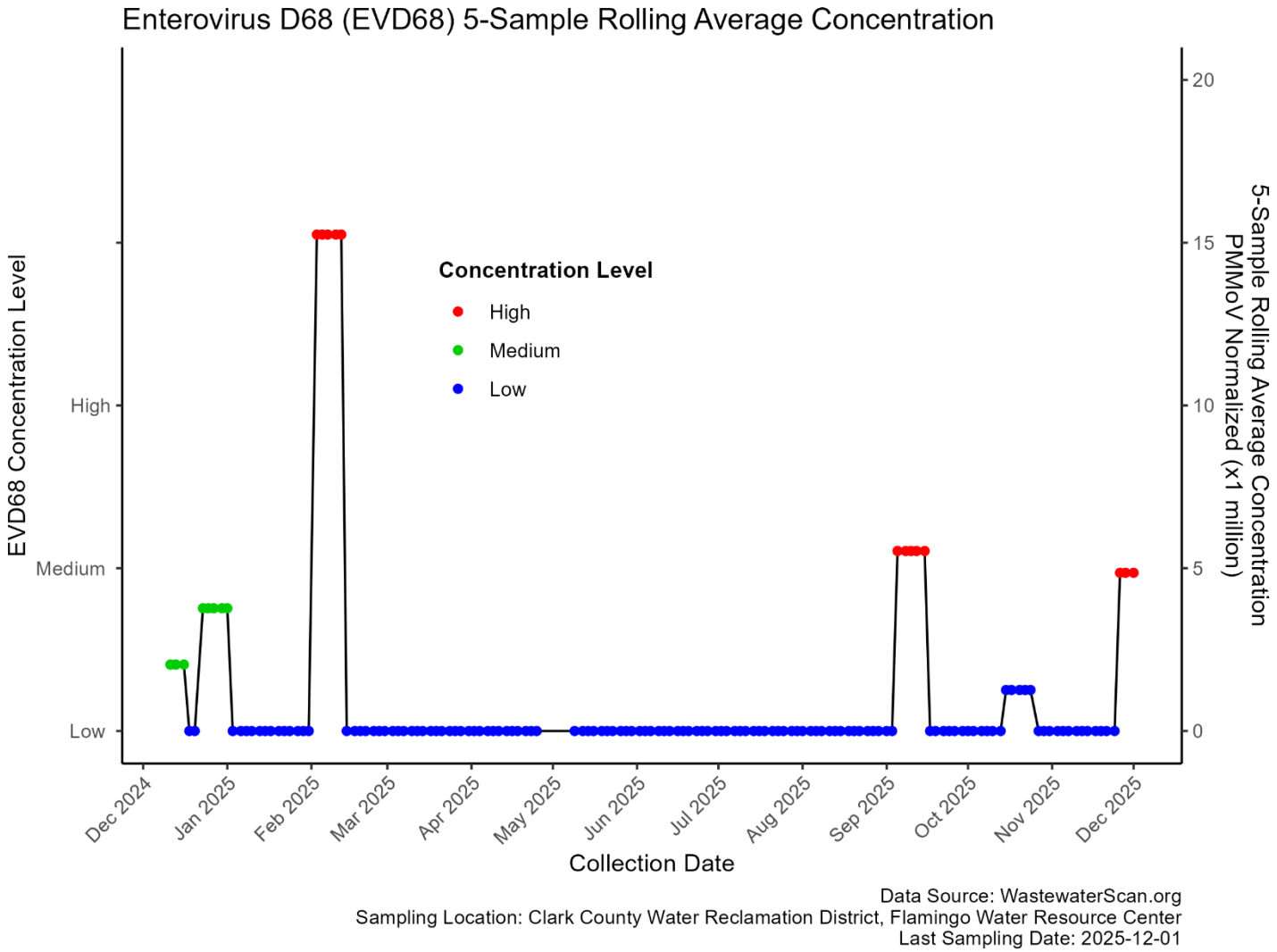
As of December 4, 2025, Rotavirus concentrations in wastewater show mixed trends across Nevada, California, and Utah. Flamingo Water Resource Center (Las Vegas) reports a high level of 145.78 GC/L with an upward trend, while Mesquite and Boulder City were not tested. California sites vary: A.K. Warren (18.52 ↓), Hyperion (33.69 ↓), RP-1 Ontario (20.23 ↑), and Riverside (78.33 ↑). Utah facilities indicate rising levels: Central Valley (62.42 ↑) and Provo (153.03 ↑). Valley Sanitary District shows minimal activity (0.95 ↑).

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	145.78	↑	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Not Tested		December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Not Tested		December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	18.52	↓	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	33.69	↓	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	62.42	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	153.03	↑	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	20.23	↑	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	78.33	↑	December 3 2025
Valley Sanitary District	Indio, CA	Current	0.95	↑	December 3 2025

Enterovirus D68 Viral Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

The chart shows Enterovirus D68 concentrations at the Flamingo Water Resource Center from December 2024 to December 2025 using a 5-sample rolling average. Levels were mostly low throughout the year, with brief medium spikes in December and January. A sharp increase to high occurred in February, followed by a return to low levels through spring and summer. Another short high-level surge appeared in September, then dropped back to low. November showed a minor uptick but remained low overall. The data indicates sporadic, short-lived surges rather than sustained activity.



Interpretation of *Enterovirus D68* Concentrations

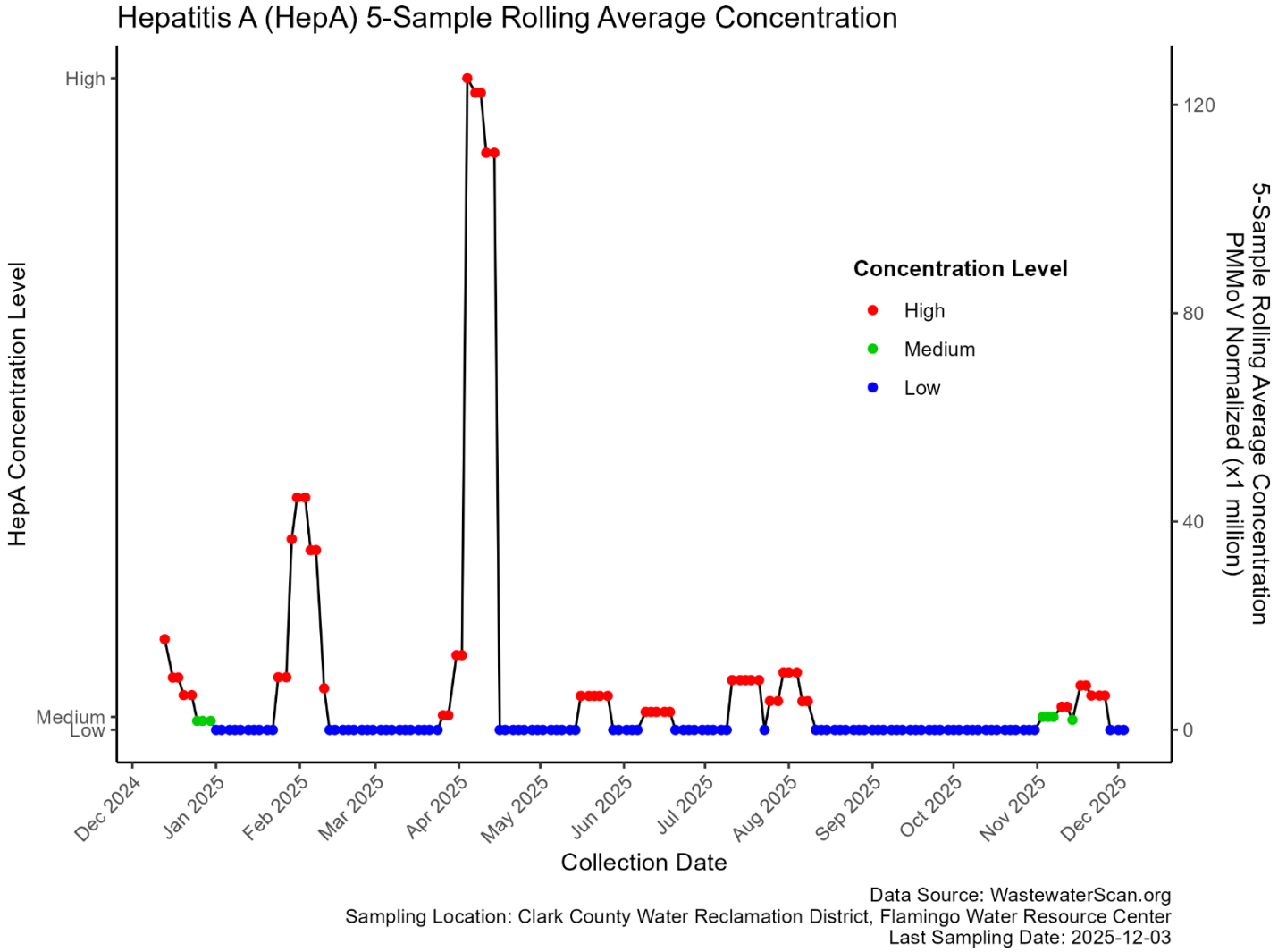
As of December 4, 2025, Enterovirus D68 levels in wastewater across Nevada, California, and Utah range from low to moderate, with most sites showing upward trends. Flamingo Water Resource Center (Las Vegas) reports 4.86 GC/L (→), while Mesquite and Boulder City were not tested. California show increases: A.K. Warren (14.89 ↑), Hyperion (18.85 ↑), RP-1 Ontario (29.53 ↑), Riverside (18.38 ↑), and Valley Sanitary District (12.38 ↑). Utah facilities also report rising levels: Central Valley (8.58 ↑) and Provo (2.55 ↑).

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	4.86	→	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Not Tested		December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Not Tested		December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	14.89	↑	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	18.85	↑	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	8.58	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	2.55	↑	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	29.53	↑	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	18.38	↑	December 3 2025
Valley Sanitary District	Indio, CA	Current	12.38	↑	December 3 2025

Hepatitis A (HepA) Viral Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

The chart shows Hepatitis A concentrations at Flamingo Water Reclamation District showed two major spikes: one in February and another in April 2025, both reaching high levels above 120 PMMoV-normalized units. After April, levels dropped to low, with occasional brief medium or high upticks during summer and early fall. November showed a slight increase, but overall, HepA activity remained mostly low for the rest of the year. Last sample: December 3, 2025.



Interpretation of Hepatitis A Concentrations

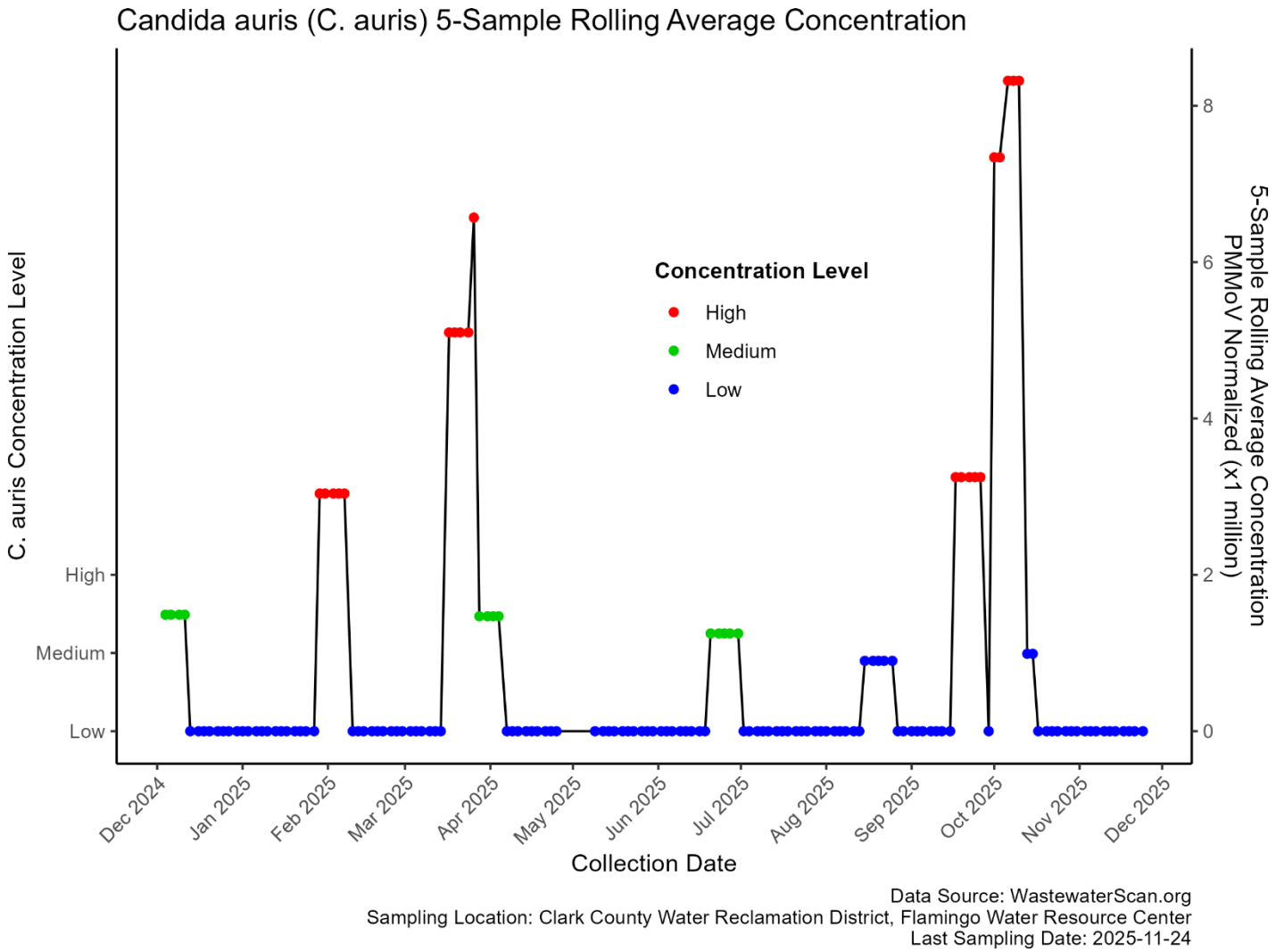
As of December 4, 2025, Hepatitis A concentrations in wastewater across Nevada, California, and Utah are mostly low or undetectable, with notable activity at select California sites. Flamingo Water Resource Center (Las Vegas) reports 0.00 with a downward trend, while Mesquite and Boulder City were not tested. California facilities show measurable levels: A.K. Warren (22.71 ↑), Hyperion (24.21 ↑), RP-1 Ontario (10.70 ↑), and Riverside with the highest concentration (178.64 ↑). Utah sites (Central Valley and Provo) and Valley Sanitary District remain at 0.00 with stable trends.

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	0.00	↓	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Not Tested		December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Not Tested		December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	22.71	↑	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	24.21	↑	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	0.00	→	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	0.00	→	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	10.70	↑	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	178.64	↑	December 3 2025
Valley Sanitary District	Indio, CA	Current	0.00	→	December 3 2025

Candida Auris Fungal Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

The chart shows Candida auris (C. auris) concentrations in wastewater at the Flamingo Water Reclamation District from December 2024 to November 24, 2025, using 5-sample rolling averages. Levels were mostly low throughout the year, with intermittent spikes to medium and high. Significant surges occurred in February, April, and October, with April and October showing the highest peaks, exceeding 8 normalized units. Smaller increases to medium levels were observed in January, July, and September, followed by brief returns to low. November showed a minor rise but remained low overall. The data indicates sporadic, short-lived outbreaks without sustained activity. Last sample: November 24, 2025.



Interpretation of *Candida Auris* Concentrations

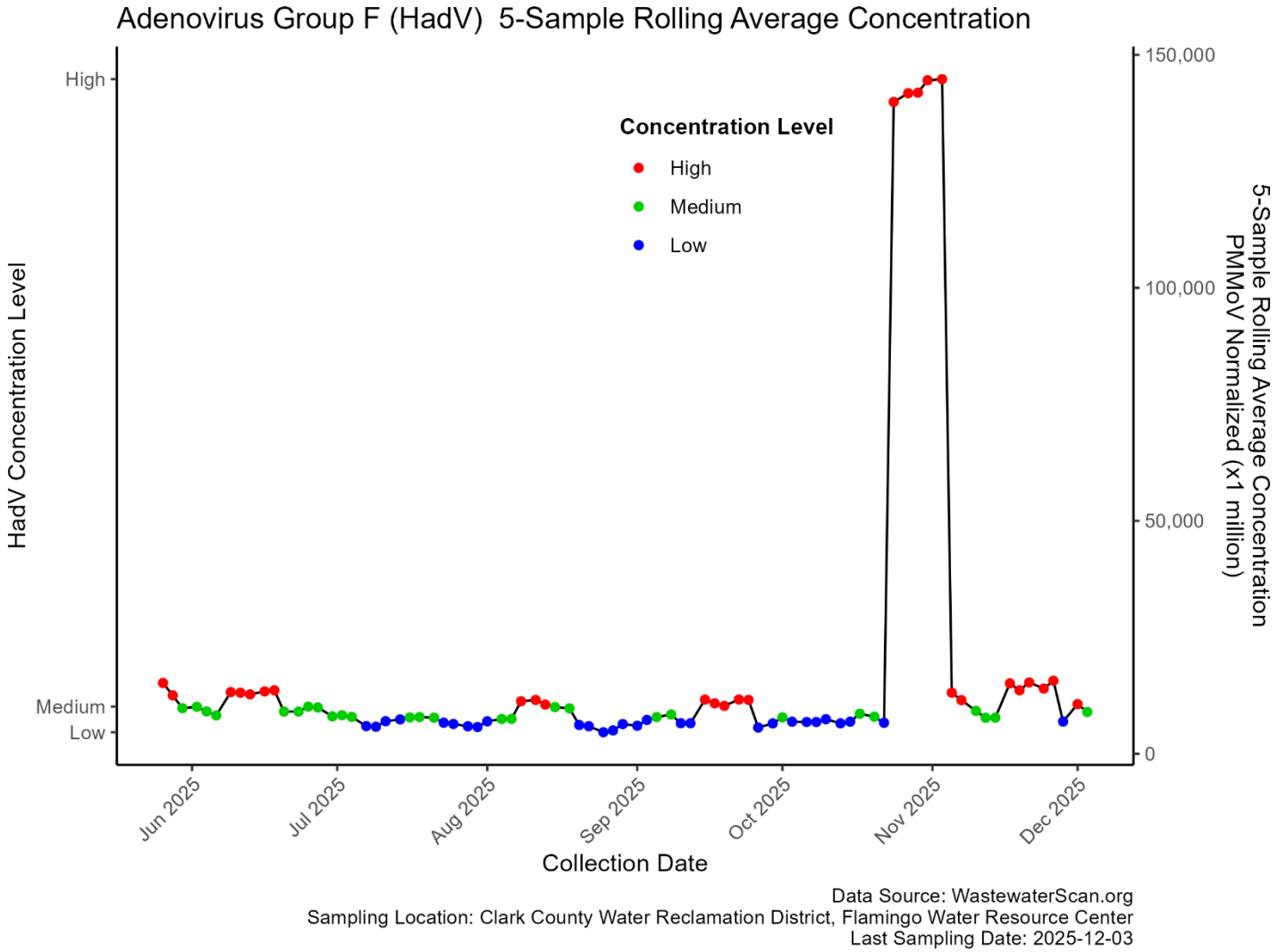
As of December 4, 2025, Candida auris concentrations in wastewater remain extremely low or undetectable across Nevada, California, and Utah. Flamingo Water Resource Center (Las Vegas) and most facilities in California and Utah report 0.00 with stable trends (→). The only measurable level is at A.K. Warren in Los Angeles County, showing 0.4 and stable. Mesquite and Boulder City were not tested.

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	0.00	→	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Not Tested		December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Not Tested		December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	0.4	→	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	0.00	→	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	0.00	→	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	0.00	→	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	0.00	→	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	0.00	→	December 3 2025
Valley Sanitary District	Indio, CA	Current	0.00	→	December 3 2025

Adenovirus Group F Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

The chart illustrates Adenovirus Group F (HadV) concentrations in wastewater at the Flamingo Water Reclamation District from June to December 3, 2025. Levels were predominantly low to medium from June through early November, with minor fluctuations. In early November, concentrations surged dramatically, exceeding 140,000 PMMoV-normalized units, the highest peak recorded during the year. Following this spike, levels declined but remained above medium before dropping back to low by early December. This trend reflects a long period of low-to-medium activity, followed by a sharp increase and gradual decrease. Last sample date: December 3, 2025



Interpretation of Adenovirus Group F Concentrations

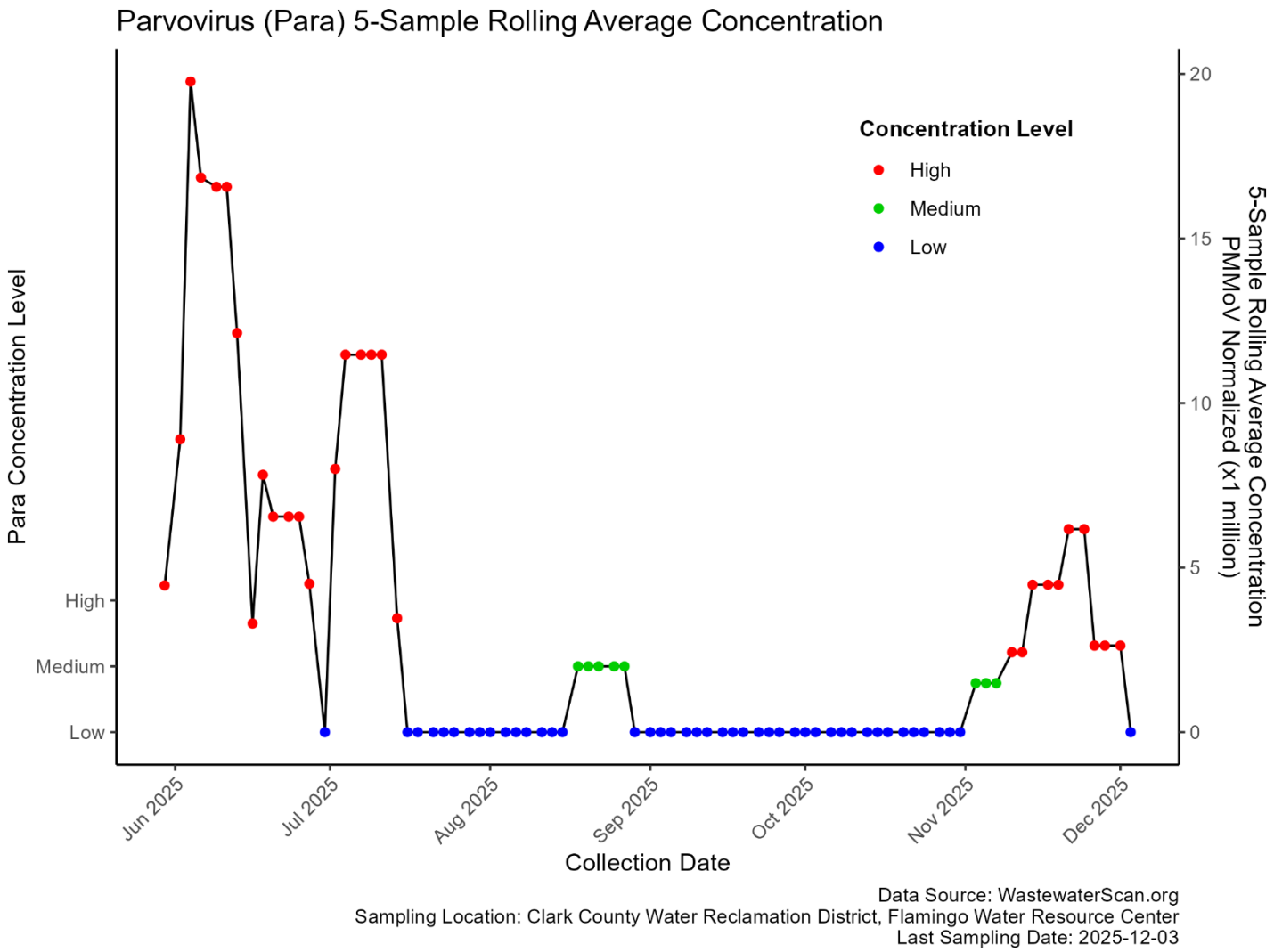
As of December 4, 2025, Adenovirus Group F concentrations in wastewater remain elevated across Nevada, California, and Utah, with mixed trends. Nevada's Flamingo Water Resource Center reports 10,662.65 GC/L (↓), while Mesquite and Boulder City were not tested. California sites show high levels: Hyperion (19,089.31, ↑), RP-1 Ontario (22,729.96, ↑), Riverside (10,716.29, ↑), and A.K. Warren (7,238.25, ↓). Utah facilities also report significant concentrations: Central Valley (10,684.72, ↑) and Provo (17,679.84, ↑). Valley Sanitary District shows 9,676.57 (↓).

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	10,662.65	↓	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Not Tested		December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Not Tested		December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	7,238.25	↓	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	19,089.31	↑	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	10,684.72	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	17,679.84	↑	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	22,729.96	↑	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	10,716.29	↑	December 3 2025
Valley Sanitary District	Indio, CA	Current	9,676.57	↓	December 3 2025

Parvovirus Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

The chart shows Parvovirus concentrations at the Flamingo Water Resource Center from June to December 2025. Levels were high in June and July, followed by a sharp decline to low in August. A brief medium spike occurred in September, then remained low through October. In November, concentrations rose again, peaking at high levels before declining in early December. Last sample date: December 3, 2025.



Parvovirus Concentrations Interpretation

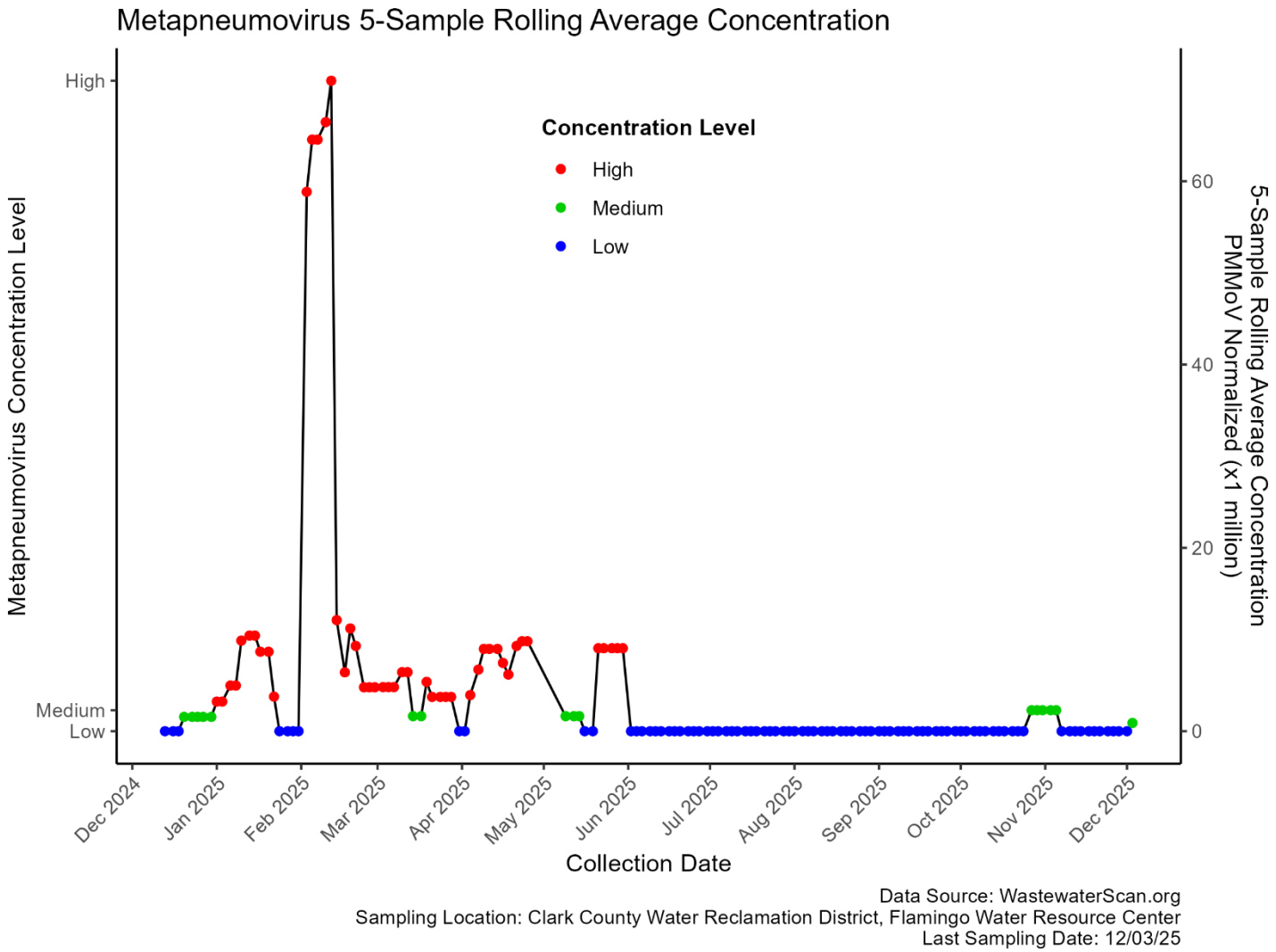
As of December 4, 2025, Parvovirus levels in wastewater across Nevada, California, and Utah remain generally low. Flamingo Water Resource Center in Las Vegas reports 2.63 with a downward trend, while Mesquite and Boulder City were not tested. California sites show minimal activity: A.K. Warren (0.00), Hyperion (1.03), RP-1 Ontario (2.26), and Riverside (1.20), all stable. Utah sites indicate slight increases: Central Valley (2.72) and Provo (2.19). Valley Sanitary District remains at 0.00. Overall, concentrations are low with localized minor upticks.

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	2.63	↓	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Not Tested		December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Not Tested		December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	0.00	→	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	1.03	→	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	2,72	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	2.19	↑	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	2.26	→	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	1.20	→	December 3 2025
Valley Sanitary District	Indio, CA	Current	0.00	→	December 3 2025

Human Metapneumovirus Concentration Trends in Clark County

Flamingo Water Reclamation District Plant

The chart shows Metapneumovirus concentrations in wastewater at the Flamingo Water Reclamation District from December 2024 to December 3, 2025, using a 5-sample rolling average. Levels were low in December, rising to medium and high in January and early February. A sharp peak occurred in late February, exceeding 60 PMMoV-normalized units, marking the highest concentration. After March, levels declined to medium and low, with intermittent minor spikes through May and June. From July onward, concentrations remained consistently low, except for a small medium-level increase in November. Overall, the data indicates a strong late-winter surge followed by sustained low activity.



Human Metapneumovirus Concentrations Interpretation

As of December 4, 2025, Human Metapneumovirus (HMPV) wastewater surveillance across ten facilities in Nevada, California, and Utah shows mostly undetectable or very low levels. Nevada sites (Flamingo, Mesquite, Boulder City) reported 0.00 or were not tested. California facilities were largely non-detect except A.K. Warren (0.30) and RP-1 Ontario (2.62, ↑). Utah sites showed slight increases: Central Valley (1.06, ↑) and Provo (2.58, ↑). Overall, HMPV activity remains minimal, with only minor upward trends at select Utah and California plants.

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	0.00	→	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Not Tested		December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Not Tested		December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	0.30	→	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	0.00	→	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	1.06	↑	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	2.58	↑	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	2.62	↑	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	0.00	→	December 3 2025
Valley Sanitary District	Indio, CA	Current	0.00	→	December 3 2025

Influenza H5 Viral Detection Comparing to Neighboring States

As of December 4, 2025, wastewater surveillance from ten treatment facilities in California, Nevada, and Utah detected no Influenza H5 activity. All sites reported a five-day rolling average of zero with no change in the 14-day trend, indicating stable conditions and no current evidence of Influenza H5.

Plant Name	City	Time frame	5 Sample Rolling Mean	14 Day Trend	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	0	→	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	0	→	December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	0	→	December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	0	→	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	0	→	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	0	→	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	0	→	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	0	→	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	0	→	December 3 2025
Valley Sanitary District	Indio, CA	Current	0	→	December 3 2025

West Nile Virus Viral Detection Comparing to Neighboring States

As of December 4, 2025, wastewater surveillance across ten facilities in California, Nevada, and Utah detected no West Nile virus. All sites with sampling in the past 30 days reported non-detectable levels, indicating no recent viral activity. Mesquite and Boulder City were not tested during this period.

Plant Name	City	Time frame	Detect/ Non-detect	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	Non-detect	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Not Tested	December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Not Tested	December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	Non-detect	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	Non-detect	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	Non-detect	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	Non-detect	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	Non-detect	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	Non-detect	December 3 2025
Valley Sanitary District	Indio, CA	Current	Non-detect	December 3 2025

MPOX Clade 1b Viral Detection Comparing to Neighboring States

As of December 4, 2025, wastewater surveillance from ten facilities in California, Nevada, and Utah detected no Mpox clade 1b. Across all sites, monitoring within the past 90 days reported no recent presence. These findings indicate continued absence of detectable Mpox clade 1b in sampled wastewater across the three states

Plant Name	City	Time frame	Detect/ Non-detect	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	Non-detect	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Non-detect	December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Non-detect	December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	Non-detect	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	Non-detect	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	Non-detect	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	Non-detect	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	Non-detect	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	Non-detect	December 3 2025
Valley Sanitary District	Indio, CA	Current	Non-detect	December 3 2025

MPOX Clade II Viral Detection Comparing to Neighboring States

As of December 4, 2025, wastewater surveillance from ten facilities across California, Nevada, and Utah detected no Mpox Clade II. All sites reported no detect results.

Plant Name	City	Time frame	Detect/ Non-detect	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	Non-detect	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Non-detect	December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Non-detect	December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	Non-detect	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	Non-detect	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	Non-detect	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	Non-detect	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	Non-detect	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	Non-detect	December 3 2025
Valley Sanitary District	Indio, CA	Current	Non-detect	December 3 2025

Measles Viral Detection Comparing to Neighboring States

As of December 4, 2025, wastewater data from ten facilities in California, Nevada, and Utah show non-detect measles levels at nine sites, including major plants in Las Vegas, Los Angeles, Riverside, and Central Salt Lake Valley. Only the Provo City Water Reclamation Facility reported a detection on December 3, making it the sole outlier among otherwise negative regional results.

Plant Name	City	Time frame	Detect/ Non-detect	Last Sampling Dates
Flamingo Water Resource Center	Las Vegas, NV	Current	Non-detect	December 3 2025
Mesquite Wastewater Treatment Plant	City of Mesquite, NV	Current	Non-detect	December 4 2025
Boulder Wastewater Treatment Plant	Boulder City, NV	Current	Non-detect	December 3 2025
A.K. Warren Water Resource Facility	Los Angeles County, CA	Current	Non-detect	December 3 2025
Hyperion Water Reclamation Plant (HWRP)	Los Angeles, CA	Current	Non-detect	December 3 2025
Central Valley Water Reclamation Facility	Central Salt Lake Valley, UT	Current	Non-detect	December 3 2025
Provo City Water Reclamation Facility	Provo, UT	Current	**Detected**	December 3 2025
Regional Water Recycling Plant No.1 (RP-1)	Ontario, CA	Current	Non-detect	December 3 2025
Riverside Water Quality Control Plant	Riverside, CA	Current	Non-detect	December 3 2025
Valley Sanitary District	Indio, CA	Current	Non-detect	December 3 2025

References

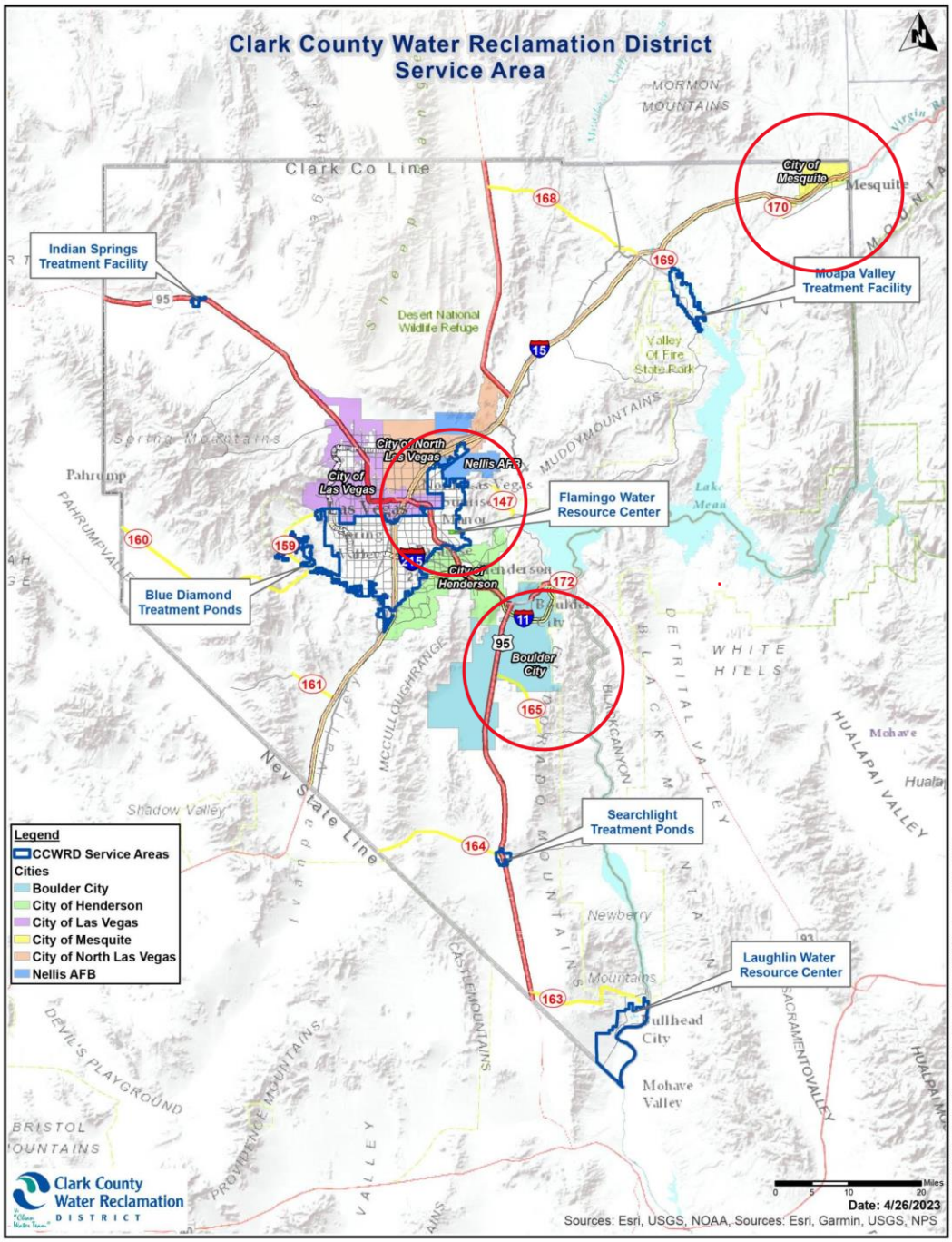
1) Verily Laboratories. *Public health: wastewater-based epidemiology (WBE)*. https://verily.com/solutions/sightline/wastewater. Published 2025. Accessed January 1, 2024.

2) WastewaterSCAN. WastewaterSCAN: wastewater surveillance for community-level disease monitoring. https://www.wastewaterscan.org. Accessed July 3, 2025.

3. Boehm, A. B., Wolfe, M. K., Bidwell, A. L., Zulli, A., Vikram-Chan-Herur, V., White, B. J., Shelden, B., & Duong, D. (2024). *Human pathogen nucleic acids in wastewater solids from 191 wastewater treatment plants in the United States*. *Scientific Data*, 11, 1141.

Appendix

Wastewater Sampling Sites in Clark County, Nevada (red circles).



Source: Clark County Water Reclamation District