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VENTURA COUNTY AGRICULTURAL IRRIGATED LANDS GROUP (VCAILG)

2025 Groundwater Quality Trends Monitoring Report



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Submitted To:

**Los Angeles Regional Water Quality
Control Board**

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SECTION 1: INTRODUCTION AND PURPOSE

In 2016, the Los Angeles Regional Water Quality Control Board adopted the Conditional Waiver (Conditional Waiver) of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region (Order No. R4-2016-0143). The Conditional Waiver included a requirement to track groundwater quality beneath irrigated agricultural lands. In brief, the requirement consists of the following elements:

- Submittal of a Groundwater Quality Trend Monitoring Plan (“2016 Monitoring Plan”)
- Inclusion of the results of the above plan with the discharger’s annual monitoring reports (beginning December 15, 2017)

The 2016 Monitoring Plan was submitted on October 14, 2016 and approved by the Los Angeles Regional Water Quality Control Board (Regional Board) on June 23, 2017. Per the approved Monitoring Plan, the annual reporting of groundwater trends was based on nitrate concentrations. The requirement for annual reporting of groundwater quality trends was carried forward in two extensions of the Conditional Waiver (Order No. R4-2021-0045, Order No. R4-2021-0045-A01). Six annual reports of nitrate trends in the groundwater basins were completed during the lifetime of the 2016 Conditional Waiver and its extensions.

In 2024, the Conditional Waiver was replaced by the Waste Discharge Requirements for Discharges from Irrigated Agricultural Lands within the Los Angeles Region (Order No. R4-2023-0353; “Ag Order”). The Ag Order maintained the requirement for submittal of groundwater quality trends reports, but at an interval of every three years, as opposed to annually. As required by the Ag Order, an updated Groundwater Quality Trend Monitoring Plan was submitted on December 15, 2024 (2024 Monitoring Plan). The 2024 Monitoring Plan updated the sources of groundwater data that would be consulted for each report,¹ but did not change the criteria for inclusion of wells, and data analysis and presentation methods were carried over from the 2016 Monitoring Plan essentially unchanged. This 2025 groundwater trends quality report (2025 Trends Report) is the first report prepared in accordance with the 2024 Monitoring Plan.

SECTION 2: SELECTION OF WELLS

The 2016 Monitoring Plan identified over 600 mappable, “regularly sampled” wells to consider for annual trends reporting and presented maps of recent (2013-2015) average nitrate concentrations for these wells.^{2, 3} Based on a request from Regional Board staff to reduce the number of wells proposed in the Monitoring Plan for annual trends reporting, and to avoid using time series data that would be potentially biased by recent drought, a screening criterion was developed to identify wells that had samples representing the wet, interim and dry phases of the most recent complete climatic cycle revealed by plotting the cumulative departure from the long-term annual precipitation depth in Ventura County. Using this approach, 1991 was identified as the beginning of the most recent complete climatic cycle (see **Error! Reference source not found.**). Wells were identified that had at least one nitrate sample in each of three time periods:

- Wet period: 1991-1997

¹ GeoTracker GAMA and Calleguas Municipal Water District were omitted as data sources because they became unnecessary to maintain the time series for the wells that have been tracked since 2017.

² Basins within Regional Board jurisdiction that were excluded from trends tracking due to minimal, or absent, overlying irrigated agriculture were the Santa Clara River East Subbasin, Simi Valley Basin, Conejo Valley Basin, Lockwood Valley Basin, Hungry Valley Basin, Thousand Oaks Area Basin, Russell Valley Basin, and Cuddy Ranch Area Basin.

³ Two of the basins that lie wholly or partially within Ventura County (Cuyama Valley and Carpinteria Basins) are wholly outside the jurisdictional area of the Los Angeles Regional Water Quality Control Board and were omitted from trends reporting.

- Interim period: 1998-2006
- Dry period: 2007-2016

Application of this screening criterion resulted in elimination of 45% of the wells originally included in the 2016 Monitoring Plan. Additional screening steps were taken in October 2018 to complete the refinement of the well list using a process that was agreed to by Regional Board staff during a meeting in March 2017 and that is illustrated in the flow chart in **Error! Reference source not found.**⁴ The refinements resulted in a list of 290 wells for nitrate trends tracking, which were carried over to the 2024 Monitoring Plan.

This (2025) report was developed after augmenting the database with nitrate concentrations made available in response to data requests and State Board Division of Drinking Water database downloads made shortly after at the end of the VCAILG 2024/2025 monitoring year. New data was available for most of the wells that were used to develop previous reports. However, there were 20 wells that had been included in previous trends reports which passed the screening criteria described above, for which new data has been lacking for at least ten water years. These wells were omitted from trend analysis for this 2025 report.⁵ If any of these wells become regularly sampled again in the future for a sufficient number of years, they may be re-included in trend analysis in future trends reports. The wells that were excluded from trend analysis in 2025 for this reason are listed in Attachment 1. Ultimately, this 2025 Trends Report was prepared using the datasets for 270 wells.

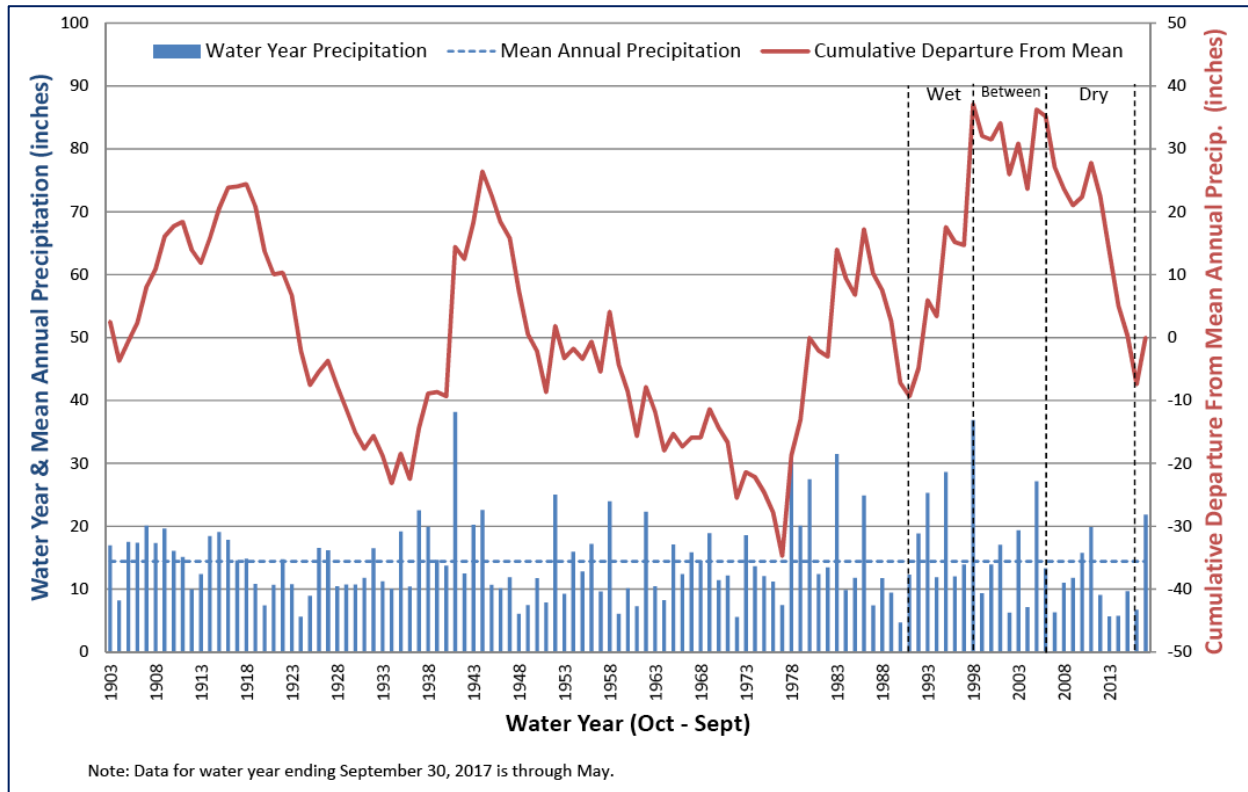


Figure 1. Cumulative Departure from Mean Annual Precipitation Depth for 1903-2017.

Notes: Data for 1903-2003 are from VCWPD Gage 032 (Oxnard-Water Department); data for 2003-2017 are from VCWPD Gage 032A (Oxnard Civic Center)

⁴ The flow chart was provided to Regional Board staff in a follow-up email on June 27, 2017.

⁵ The 2024 Monitoring Plan noted that many wells had no longer been monitored for many years by the time the 2022 Trends Report was prepared, and that these wells would be considered for deletion from trends analysis in subsequent years on a case-by-case basis.

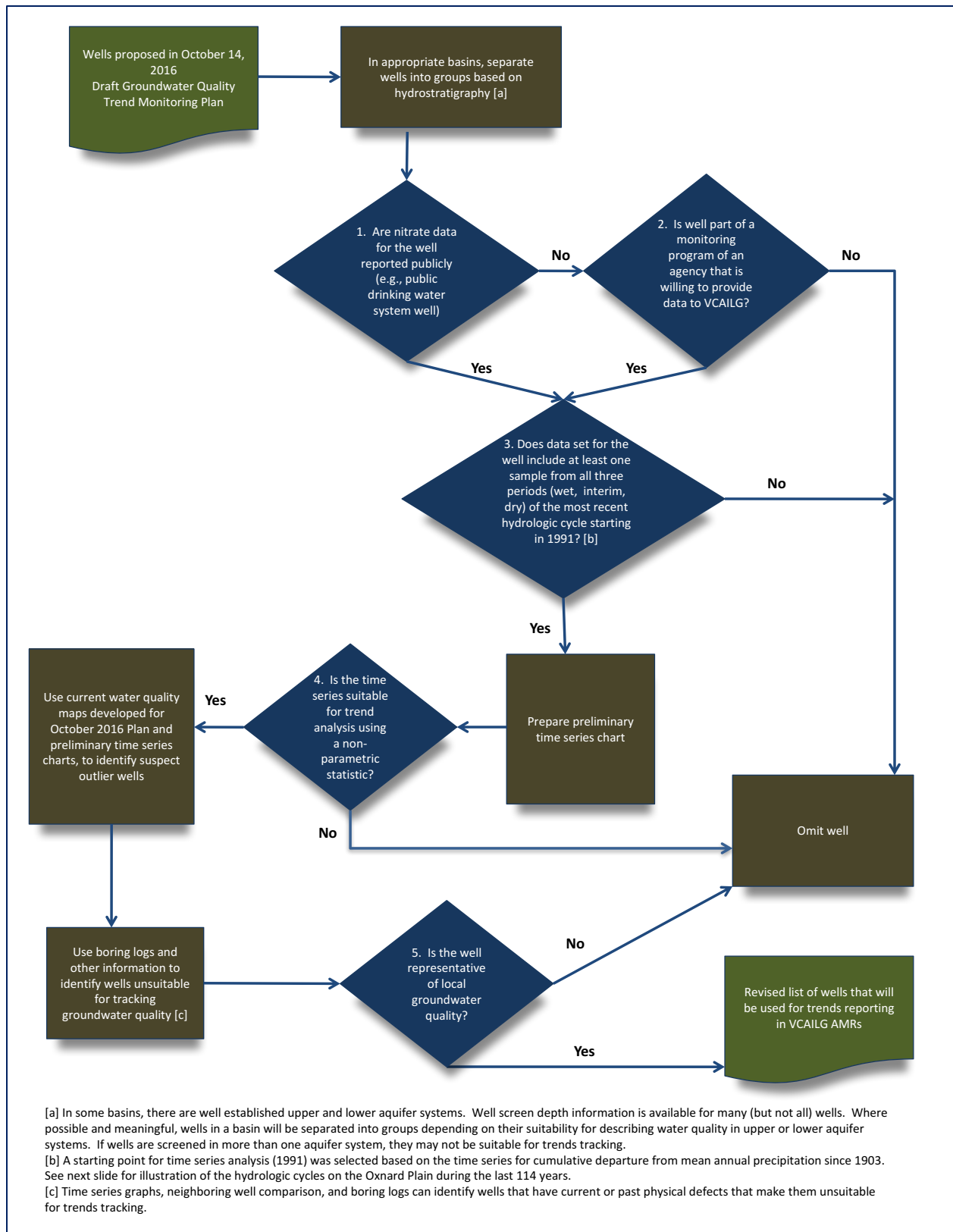


Figure 2. Process Used in 2018 to Refine the List of Wells for Trends Reports

SECTION 3: DATA COLLECTION AND ANALYSIS

3.1 Nitrate Data Sources

Groundwater nitrate concentration data were compiled from the following three sources:

1. State Board Division of Drinking Water Safe Drinking Water Information System (SDWIS)
2. Ventura County Watershed Protection District (VCWPD)
3. United Water Conservation District (UWCD)

Some data from private domestic potable groundwater wells may inadvertently be included in the datasets from UWCD and VCWPD, and is collected at the discretion of the agency and landowners.⁶ The sources of nitrate data are further described below.

3.1.1 Safe Drinking Water Information System

SDWIS is a United States Environmental Protection Agency (USEPA) program that provides information about public water systems and their violations of USEPA's drinking water regulations. The State Water Resources Control Board (SWRCB) maintains a SDWIS website that provides monitoring data from wells, other water sources, distribution points, and other facilities belonging to water systems (including recycled water systems and drinking water systems) (SWRCB, 2016a).⁷ Well sampling frequencies are dictated by well use and other factors. Thus, although a well from a particular water system may have been sampled recently, there is no guarantee that the well will be sampled in the future. The dataset includes nitrate concentrations from both potable and non-potable water wells.

Although listed as "wells" in the SDWIS, the City of San Buenaventura Foster Park wells are surface water (Ventura River) collector wells. As such the nitrate data for these wells is expected to reflect the water quality of surface water, not groundwater, and the wells were omitted from analysis.

3.1.2 Ventura County Watershed Protection District

VCWPD samples approximately 150 wells annually throughout Ventura County as part of its countywide groundwater monitoring program. The groundwater monitoring program and results are documented in VCWPD's Annual Reports of Groundwater Conditions, which are available online at <http://vcpublicworks.org/pwa/groundwater-resources>. VCWPD maintains a Microsoft Access® database of the monitoring program data. The database records are available upon request from VCWPD. It should be noted that, while VCWPD attempts to sample the same wells each year, the locations are subject to change based on well access and VCWPD monitoring priorities.

3.1.3 United Water Conservation District

United Water Conservation District (UWCD) samples over 70 wells throughout its service area⁸ as part of its groundwater monitoring program. The sampling frequency for nitrate ranges from quarterly to biennially. The groundwater monitoring program and results are documented in various reports prepared by UWCD, which are available online at <http://www.unitedwater.org/reports-5/groundwater-conditions>. It should be noted that, while UWCD attempts to sample the same wells over time, the locations are subject to change based on well access and UWCD monitoring priorities. In addition to its groundwater sampling program, UWCD compiles SWRCB Division of Drinking Water (DDW) records for all wells in Ventura County annually and routinely compiles data from VCWPD. Lastly, UWCD compiles groundwater level

⁶ The only potable groundwater wells that VCAILG can guarantee to report on in the future are active potable groundwater wells for public water systems regulated by the SWRCB, for which data is publicly available via SDWIS

⁷ SWRCB SDWIS Website: <https://sdwis.waterboards.ca.gov/PDWWW/>, accessed August 2016

⁸ UWCD's service area includes all or portions of the Mound, Santa Paula, Fillmore, Piru, and Oxnard Subbasins and Pleasant Valley Basin.

and quality data provided by many private well owners. UWCD maintains a Microsoft Access® database of the above-described data. The database records are not publicly available but were made available upon request for this study. Future data availability is subject to UWCD data sharing policies.

3.2 Trend Analysis

Available data from the period 1990-July 2025 was used for statistical trend analysis. Both the Mann Kendall test and least squares regression were performed on each time series. The Mann Kendall test required more than four samples, and a significant trend (either decreasing or increasing) required both a p value < 0.05 and an absolute value of Kendall's Tau > 0.3 . Time series plots were generated to assist with interpretation of statistical tests. Each plot was visually inspected while comparing the results of the Mann Kendall test and least squares regression (slope of trend line, p value and r^2 , for the latter). Priority was given to the Mann Kendall test results. However, on rare occasions, visual inspection of time series plot called the Mann Kendall test result into question. For example, in a few cases, apparently spurious Mann Kendall test results were observed when a brief, but very densely sampled, period was nested within a longer time series with fewer samples. In questionable cases, the trend result from the Mann Kendall test was compared to the results of the least squares regression and professional judgment used to overrule or retain the Mann Kendall test result. In addition, positive or negative trend results were discounted when time series were predominated by non-detects.

In order to provide context for trend results, trend outcomes for individual wells ("increasing trend", "decreasing trend", "no trend") were sorted into concentration bins using mean nitrate-N concentrations for the period spanning January 2021-July 2025 (referred to hereinafter for convenience as 2021-2025).^{9, 10}

SECTION 4: RESULTS

For each groundwater basin or subbasin a brief description of the basin setting and hydrogeology is provided below, followed by the results of the trends analysis for wells that passed the screening criteria illustrated in Figure 2. Trends are presented using stacked bar charts and maps. In the maps, trend outcomes (decreasing trend, increasing trend, no trend) are distinguished using symbol shape. A color ramp for the symbols is used to identify tiers of 2021-2025 mean nitrate concentrations above (orange and red) and below (blue, green, and yellow) the nitrate maximum contaminant level (MCL) of 10 milligrams per liter (mg/L) nitrate-N. The wells are identified in the maps using labels with the last four digits of the state well numbers. The areal extent of irrigated agriculture is illustrated in each basin's map. Where appropriate, areas of confined and unconfined groundwater are indicated on the maps. Stacked bar charts use the same color ramp to illustrate tiers of 2021-2025 mean nitrate-N concentrations. Where applicable, separate bar charts are provided for wells located in confined and unconfined groundwater zones.

Some wells that have enough data for trend analysis lacked data for the current averaging period. As has been done in previous reports, the trends for these wells are presented in maps and bar graphs using specific symbology to indicate a lack of recent data (e.g., "no post-2020 data").

Individual time series plots are provided in Attachment 2.

4.1 Ventura River Watershed Basins

Four groundwater basins/subbasins are located within the Ventura River Watershed: Upper Ojai Valley Basin, Ojai Valley Basin, and the Upper and Lower Ventura River Subbasins. All of the basins in the Ventura River Watershed are alluvial fill basins.

⁹ Mean nitrate concentrations for each well were calculated using a value of one-half of the detection limit for non-detect results.

¹⁰ Time series yielding "No Trend" outcomes may include periods with rising and falling concentrations within the overall evaluation period. In these cases, "No Trend" indicates that there is no statistically consistent trend between 1990-2025.

4.1.1 Upper Ojai Valley Basin (DWR Basin No. 4-01)

Land use in the Upper Ojai Valley Basin is predominantly rural and agriculture. Approximately 20% of the Upper Ojai Valley Basin is occupied by agricultural lands. Generally, the main crops grown in the Upper Ojai Valley Basin are walnuts, hay, citrus, and grains.

The Upper Ojai Valley Basin is an alluvial-filled basin, bounded by the Ojai Valley Groundwater Basin on the north, the Topatopa Mountains on the east, Sulfur Mountain on the south, and near impermeable rocks of the Santa Ynez Mountains elsewhere (DWR, 2003). Groundwater in the Upper Ojai Valley Basin is encountered in Holocene and Pleistocene age alluvium that averages about 60 feet thick and reaches a maximum thickness of about 300 feet (CSWRB 1953). A surface and groundwater divide is found in the eastern part of the basin that separates groundwater flow westward toward San Antonio Creek and eastward toward Santa Paula Creek (DWR, 2003).

Only one well in this basin passed the screening criteria for trends analysis and had enough samples to perform the Mann Kendall test. The trend result for this well is presented in Figures 3-4.¹¹

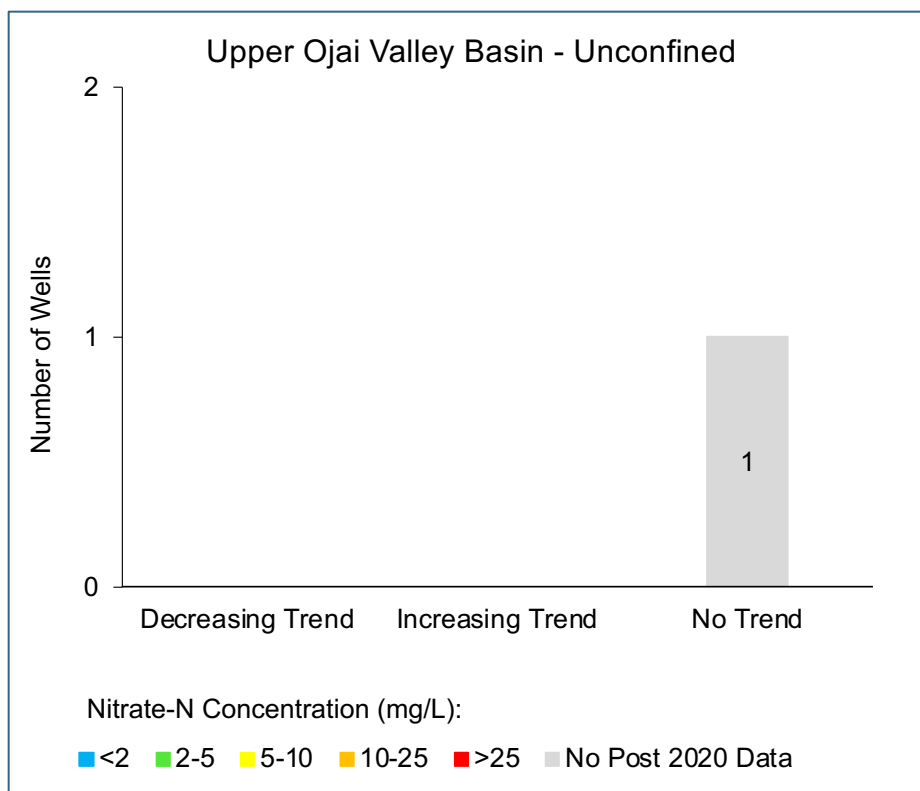


Figure 3. Breakdown of Trends for Wells in the Upper Ojai Valley Basin

¹¹ Three other wells identified in the 2016 Monitoring Plan in the Upper Ojai Valley Basin, *that did not pass the screening criteria for trends analysis*, had 2013-2015 averages < 2 mg/L nitrate-N, as reported in the 2017 annual monitoring report.

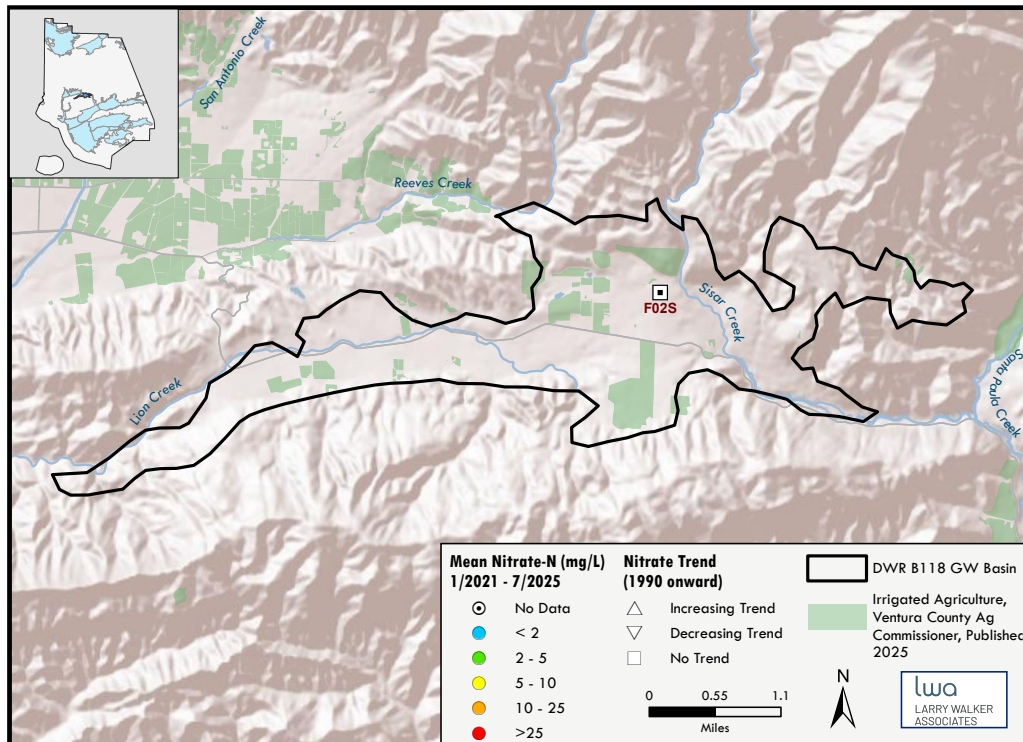


Figure 4. Map of Nitrate Trends for Wells in the Upper Ojai Valley Basin

4.1.2 Ojai Valley Basin (DWR Basin No. 4-02)

The Ojai Valley Basin has the largest capacity of the Ventura River Watershed's four groundwater basins. The western portion of the Ojai Valley Basin is occupied by the City of Ojai; the eastern portion of the basin is predominantly rural and agricultural. Approximately 29% of the Ojai Valley Basin is occupied by irrigated agricultural lands. Generally, the main crops grown in the Ojai Valley Basin are citrus and avocados.

The Ojai Valley Basin is a bowl shaped alluvial-filled basin that is bounded on the west and east by non-water-bearing Tertiary aged rocks, on the south by the Santa Ana Fault and Black Mountain, and on the north by the Topatopa Mountains (Ojai Basin Groundwater Management Agency [OBGMA], 2016). Groundwater in the Ojai Valley Basin is encountered in alluvium of Holocene and Pleistocene age, which consists of sand, gravel, and clay (DWR, 2003). The basin is deepest in the center and southern areas where sediments have built up against the boundary defined by the Santa Ana Fault (OBGMA, 2016). The thickness of the water-bearing alluvium is as much as 715 feet (OBGMA, 2016).

The Ojai Valley Basin has areas of confined, semi-confined, and unconfined groundwater. Unconfined conditions exist in the northern and eastern portions of the basin, in the areas of the alluvial fan heads adjacent to the mountains (OBGMA, 2016). Groundwater in the remainder of the aquifer system is, depending on the amount of water in storage and groundwater level position, mostly confined to semi-confined (OBGMA, 2016). Groundwater generally flows in a southwesterly direction; however, it also flows towards the municipal wells in the central portion of the basin (OBGMA, 2016).

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 5-6. No wells in the basin exceeded the nitrate MCL, two wells with recent data exhibited an increasing trend in nitrate concentrations between 1990-2025.

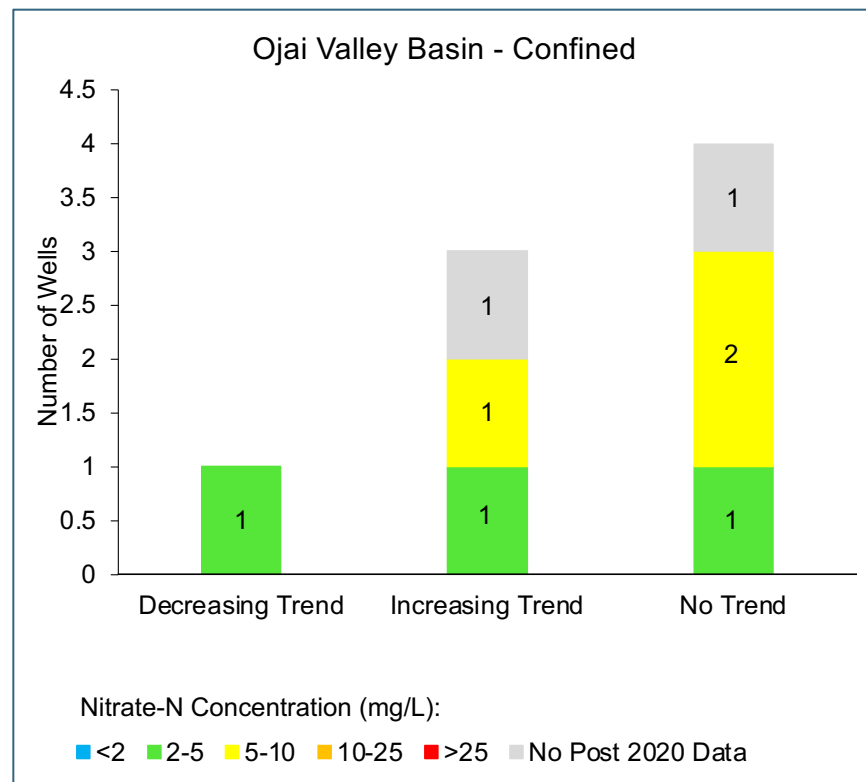
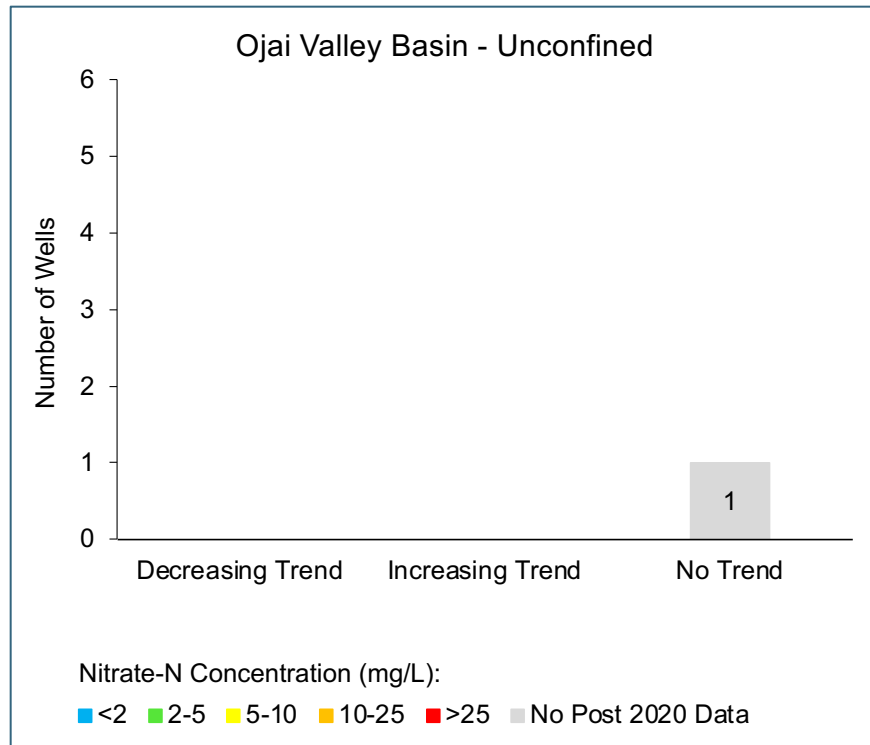


Figure 5. Breakdown of Trends for Wells in the Ojai Valley Basin

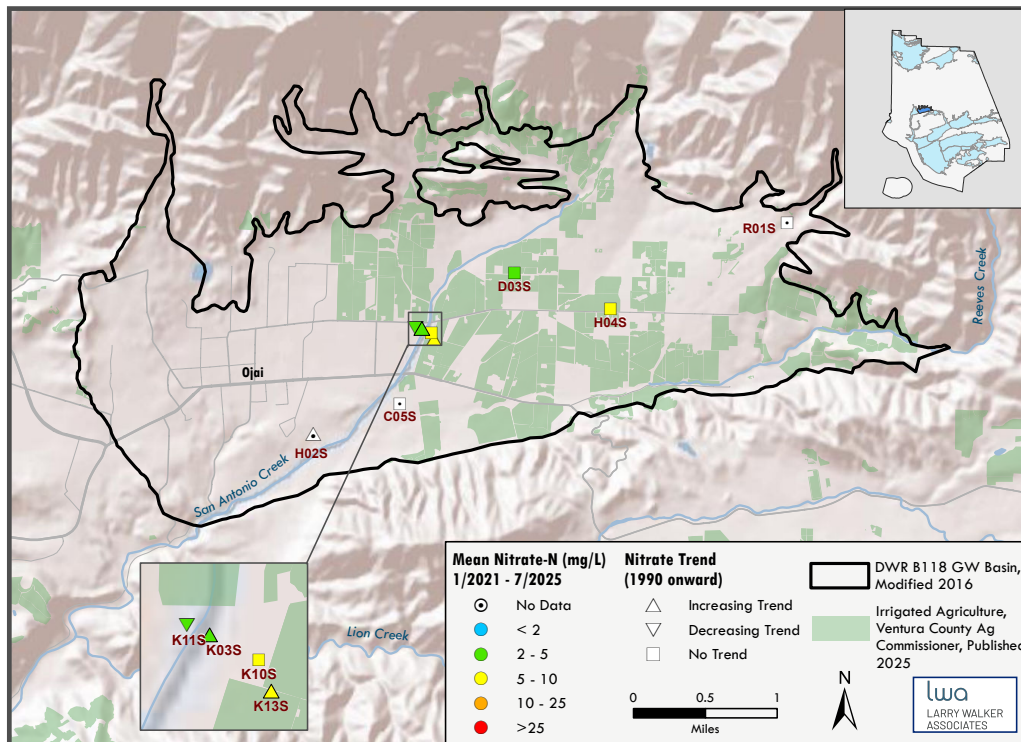


Figure 6. Map of Nitrate Trends for Wells in the Ojai Valley Basin

4.1.3 Upper Ventura River Subbasin (DWR Basin No. 4-03.01)

The Upper Ventura River Subbasin is an alluvial subbasin bounded on the south by the Lower Ventura River Subbasin, on the east by the Ojai Valley Groundwater Basin, and elsewhere by nearly impermeable rocks of the Santa Ynez Mountains (DWR, 2003). Groundwater in the Upper Ventura River Subbasin is encountered in Holocene and Pleistocene age alluvium that ranges from approximately 60 to 200 feet thick in the main part of the subbasin and 5 to 30 feet thick in the San Antonio and Coyote Creek areas (DWR, 2003). The subbasin is considered to be unconfined and groundwater flow is generally southward, following the surface drainage (DWR, 2003).

Land use in the Upper Ventura River Subbasin is a mix of residential, rural, and agriculture. The Ventura River runs north-south through the subbasin. Approximately 10% of the basin is occupied by agricultural lands. Generally, the main crops grown in the Upper Ventura River Subbasin are citrus and avocados.

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 7-8. Recent nitrate concentrations are lowest in the upgradient (north) part of the subbasin and near the southern basin boundary. One of the wells had a mean nitrate concentration for 2021-2025 that exceeded the nitrate MCL, but concentrations are trending downward for this well. Two of the twelve wells currently have an increasing trend in nitrate concentration.

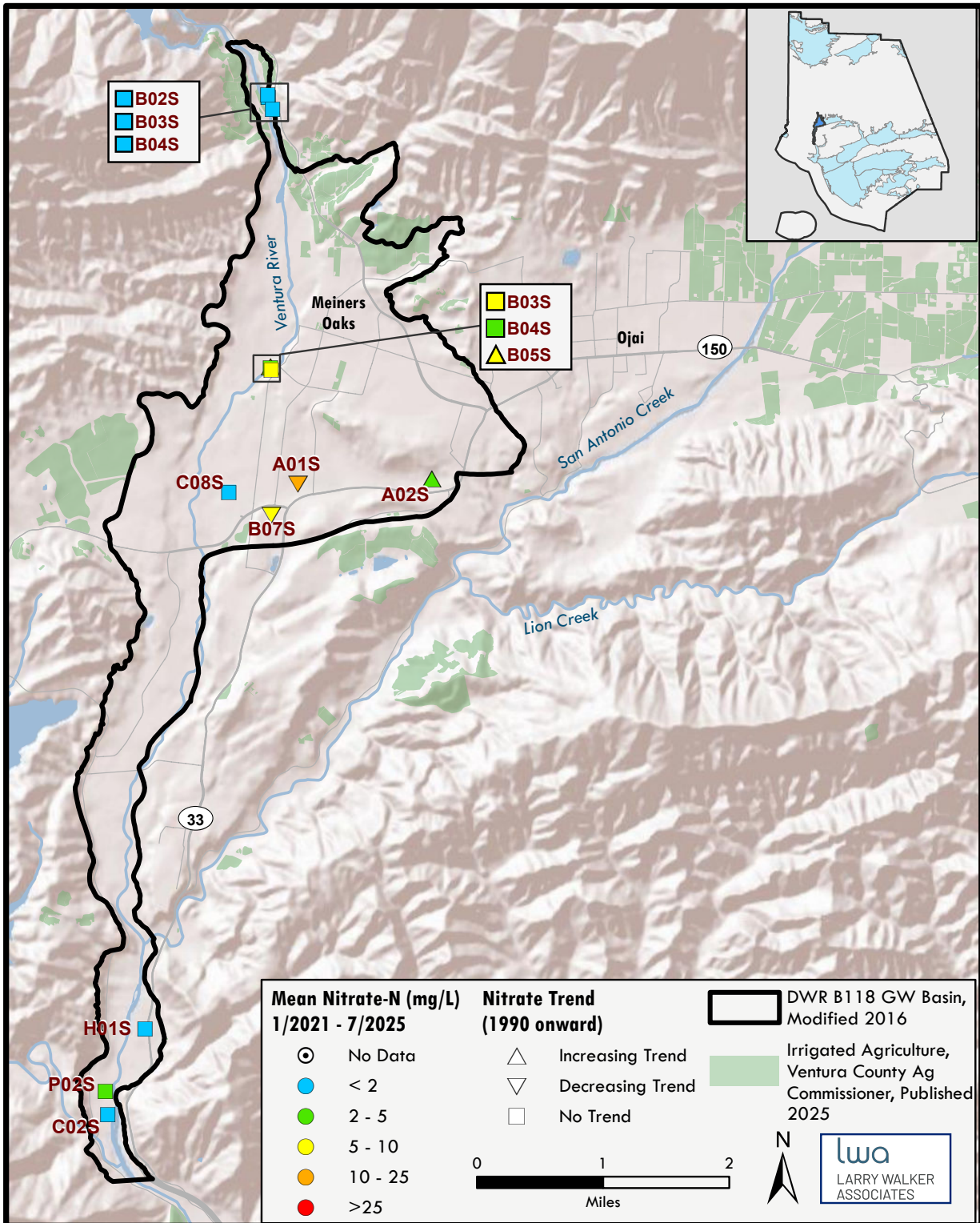


Figure 7. Map of Nitrate Trends for Wells in the Upper Ventura River Subbasin

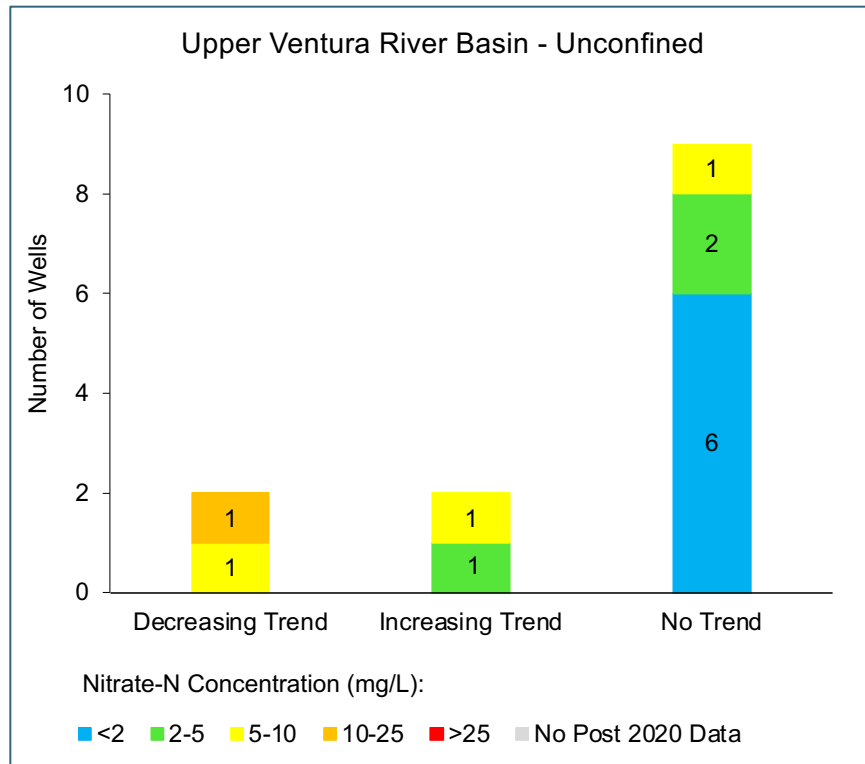


Figure 8. Breakdown of Trends for Wells in the Upper Ventura River Subbasin

4.1.4 Lower Ventura River Subbasin (DWR Basin No. 4-03.02)

The Lower Ventura River Subbasin is an alluvial subbasin bounded on the north by the Upper Ventura River Subbasin, on the south by the Pacific Ocean and Mound Subbasin, and elsewhere by nearly impermeable rocks of the Santa Ynez Mountains (DWR, 2003). Groundwater in the Upper Ventura River Subbasin is encountered in Holocene and Pleistocene age alluvium that ranges from approximately 60 to 100 feet thick (DWR, 2003). The subbasin is considered unconfined and groundwater flow is generally southward, following the surface drainage (DWR, 2003).

Land use in the Lower Ventura River Subbasin is a mix of residential, rural, and agriculture. The Ventura River runs north-south through the basin. Approximately 10% of the basin is occupied by irrigated agricultural lands. Generally, the main crops grown in the Lower Ventura River Subbasin are citrus, avocados, and berries.

Only one well in this subbasin passed the screening criteria and had enough samples for trend analysis. The results for this well are presented in Figures 9-10; nitrate-N concentrations are < 2 mg/L in this well.¹²

¹² Two other wells located in the very southern end of the subbasin, that did not pass the screening criteria for trends analysis, also had average nitrate concentrations < 2 mg/L nitrate-N during 2013-2015, as reported in the 2017 annual monitoring report.

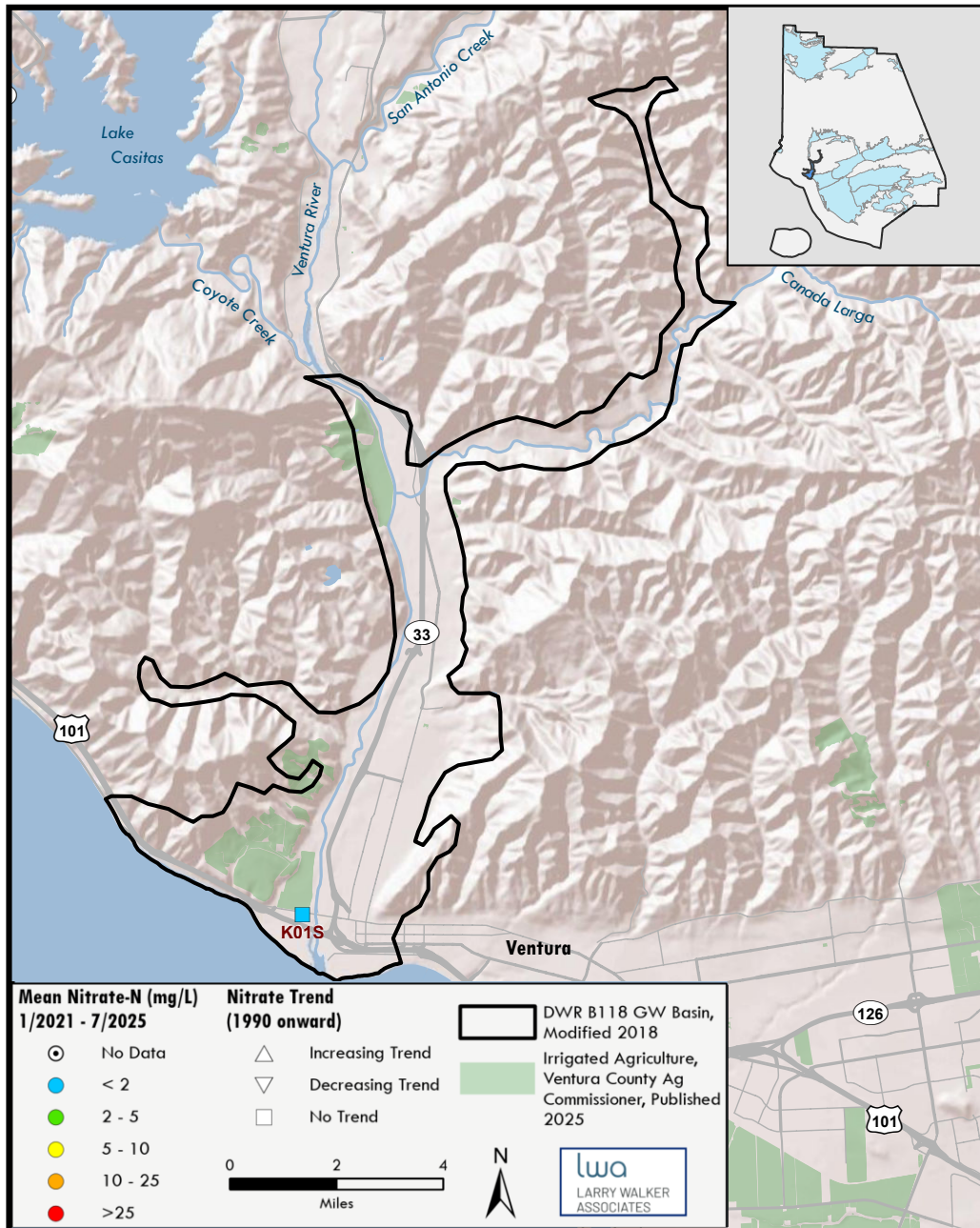


Figure 9. Map of Nitrate Trends for Wells in the Lower Ventura River Subbasin

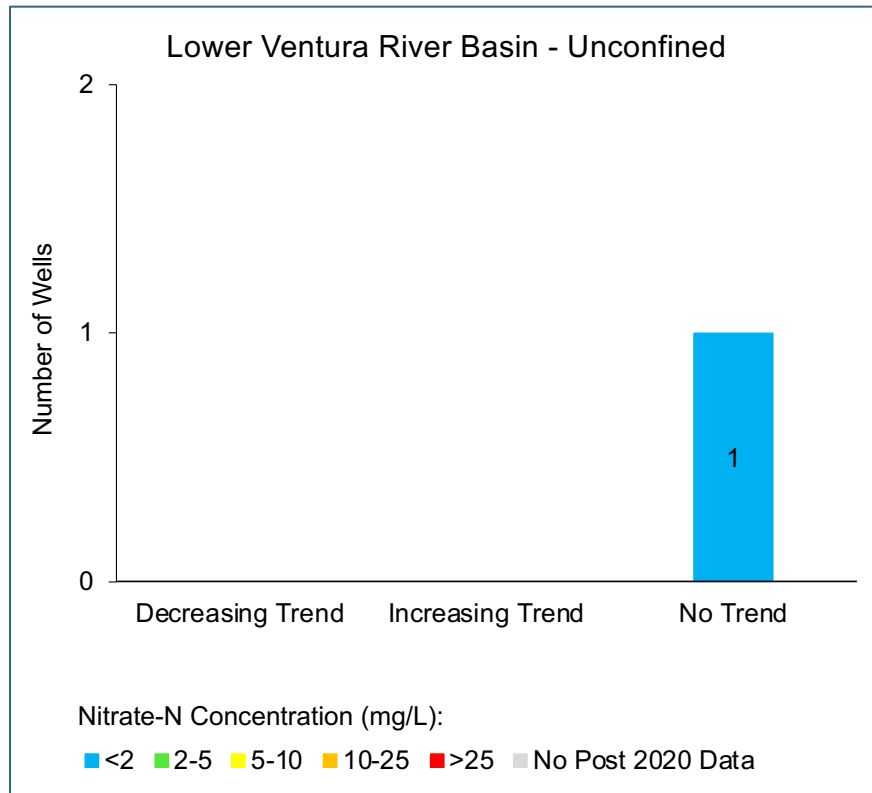


Figure 10. Breakdown of Trends for Wells in the Lower Ventura River Subbasin

4.2 Santa Clara River Valley Basins

The groundwater basins in the Santa Clara River Valley are located within the more regional Ventura Basin, which is an elongate east-to-west trending structurally complex syncline within the Transverse Range province (Yeats, et. al., 1981). The Santa Clara River Valley occupies the Ventura Basin, which is one of the major sedimentary basins in the geomorphic province. The principal water-bearing units are generally limited to the upper Pleistocene to Holocene alluvium and lower Pleistocene San Pedro Formation (California State Water Resources Board [CSWRB], 1953).

4.2.1 Oxnard Subbasin (DWR Subbasin No. 4-04.02)

The Oxnard Subbasin is the largest subbasin of the Santa Clara River Valley Basin in Ventura County. The western portion of the Oxnard Subbasin is occupied primarily by the City of Oxnard. The eastern portion of the subbasin is predominantly agricultural. Approximately 42% of the Oxnard Subbasin is occupied by agricultural lands. Generally, the main crops grown in the Oxnard Subbasin are row crops, berries, citrus, and avocados. Although DWR includes the Oxnard Subbasin as part of the Santa Clara River Valley Basin, it underlies portions of the Calleguas Creek and Oxnard Coastal Watersheds.

The Oxnard Subbasin is characterized by a low-lying alluvial plain which gently rises away from the Pacific Ocean. The Pacific Ocean borders the basin to the west. The Mound Subbasin is directly adjacent to the Oxnard Subbasin on the north side and the Pleasant Valley and Las Posas Basins are directly adjacent on the eastern side. The southeastern boundary of the subbasin is formed by the contact with nearly impermeable rocks of the Santa Monica Mountains.

The groundwater system in the Oxnard Subbasin includes a main recharge area termed the “Forebay”, and a confined aquifer system that extends throughout the main part of the subbasin and under the

Pacific Ocean. Five aquifers are recognized in this subbasin. The shallowest aquifers consist of Holocene and Pleistocene alluvial deposits and deeper aquifers are found within the lower San Pedro Formation and upper Santa Barbara Formation. The main groundwater flow pattern is from the Forebay (recharge) area in the northeastern corner of the basin toward the Pacific Ocean. During periods of low groundwater levels, landward groundwater flow directions are observed in coastal portions of the basin. Unconfined groundwater conditions are limited to the “Forebay” area. A shallow perched groundwater zone overlies the principal aquifers in the confined portion of the basin. Perched groundwater is not used for water supply.

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 11-13. Recent average nitrate concentrations are very low across most of the basin where confined groundwater conditions prevail. There have been periods in the past when somewhat higher nitrate concentrations occurred in the “Forebay” area where unconfined groundwater conditions coexist with unsewered residential areas¹³ and agricultural land use, however, only one well in the Forebay had an 2021-2025 average nitrate concentration that exceeded the MCL and the majority of the wells had nitrate-N concentrations < 2 mg/L. Nitrate in public water supply wells that are owned and operated by UWCD and the City of Oxnard is managed, when necessary, by blending with other sources of groundwater and/or imported water. In addition, recharge basins in the Forebay receive surface water diverted from the Santa Clara River and are operated in part to manage nitrate levels in groundwater.

¹³ The El Rio neighborhood was converted from septic to sewer within the last 10 years. Much of the northern portion of the Forebay area remains unsewered.

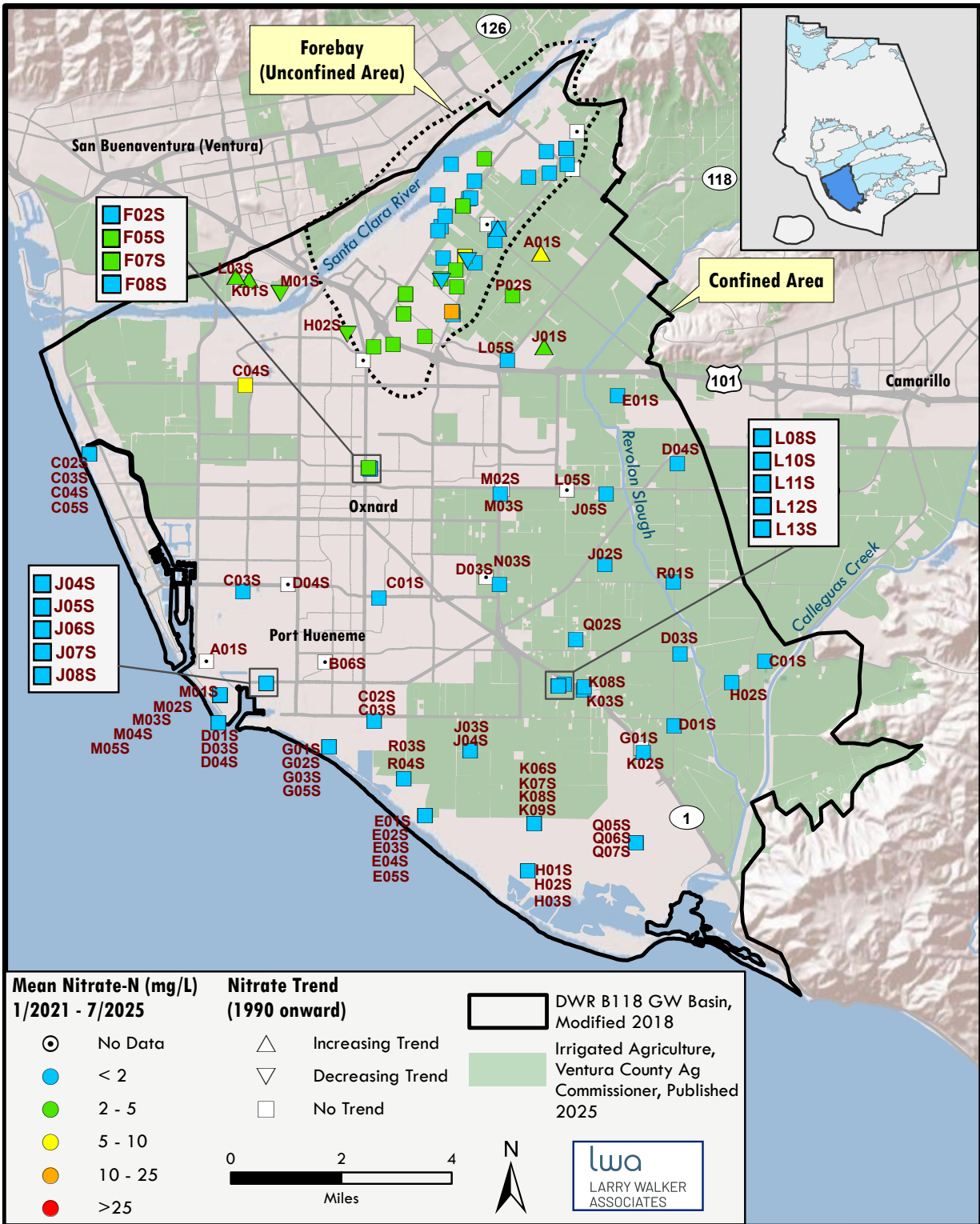


Figure 11. Map of Nitrate Trends for Wells in the Oxnard Subbasin

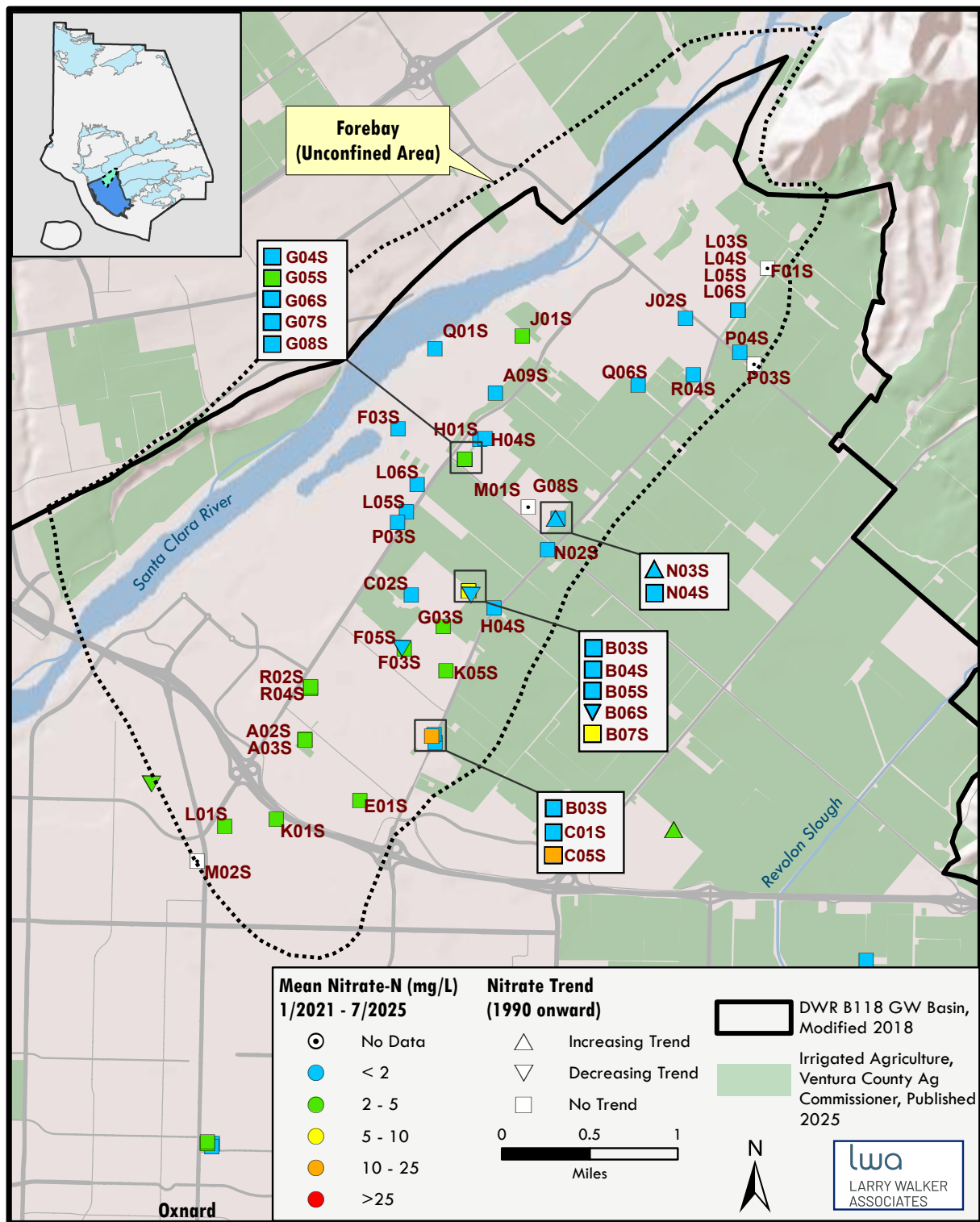


Figure 12. Map of Nitrate Trends for Wells in the Oxnard Forebay

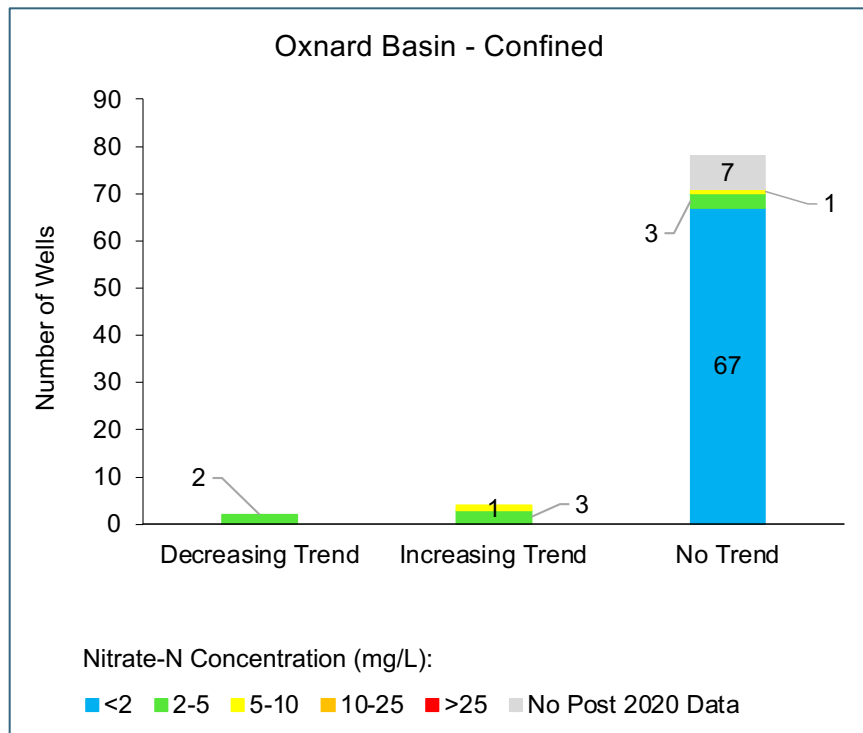
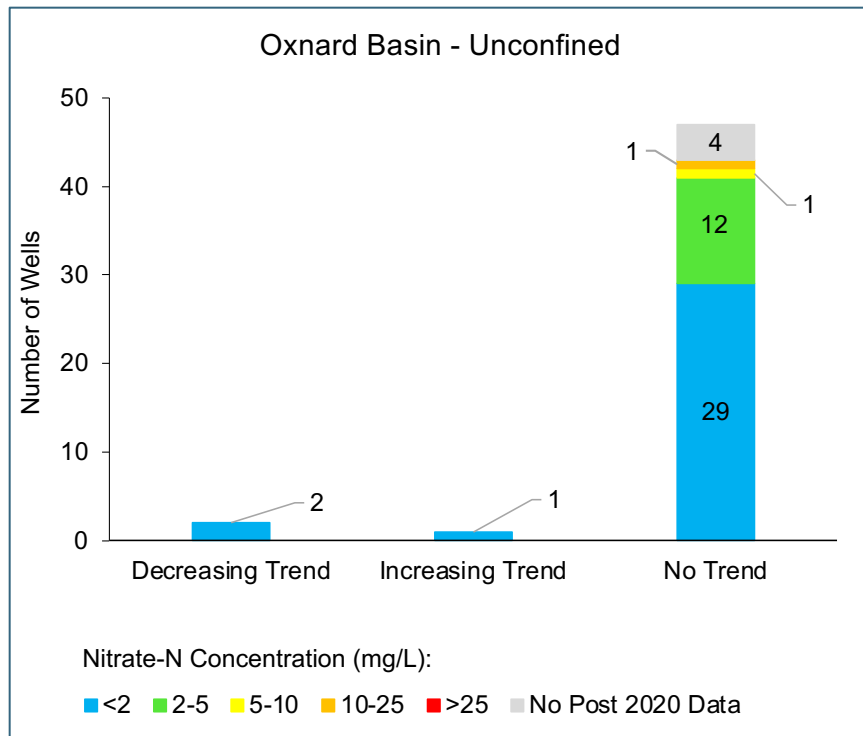


Figure 13. Breakdown of Trends for Wells in the Oxnard Subbasin

4.2.2 Mound Subbasin (DWR Subbasin No. 4-04.03)

The Mound Subbasin is the westernmost basin within the Santa Clara River Valley Watershed. Most of the Mound Subbasin is occupied by the city/suburban environment of San Buenaventura (Ventura), California. Approximately 15% of the Mound Subbasin is occupied by agricultural lands. Generally, the main crops grown in the Mound Subbasin consist of citrus, avocados, berries, and row crops.

The Mound Subbasin is characterized by a low-lying alluvial plain which gently rises in a northerly direction. The southern boundary approximately coincides with the axis of the Montalvo anticline and extends from the mouth of the Santa Clara River toward South Mountain. The northern boundary is the Ventura Foothills north of the City of Ventura. The eastern boundary is the Country Club fault. The Pacific Ocean borders the subbasin to the west. The Oxnard Subbasin is directly adjacent to the Mound Subbasin on the south side and the Santa Paula Subbasin is directly adjacent on the eastern side. The Mound Subbasin is characterized by a significant east-west trending fold axis (Ventura syncline) and a significant amount of faulting. Alluvial deposits and the San Pedro formation represent the principal water bearing strata. The main groundwater flow pattern is down the axis of the subbasin from east to west. Little published information exists concerning the extent of confined versus unconfined groundwater conditions in the Mound Subbasin.

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 14-15. All of the five wells had mean nitrate-N concentrations < 2 mg/L.

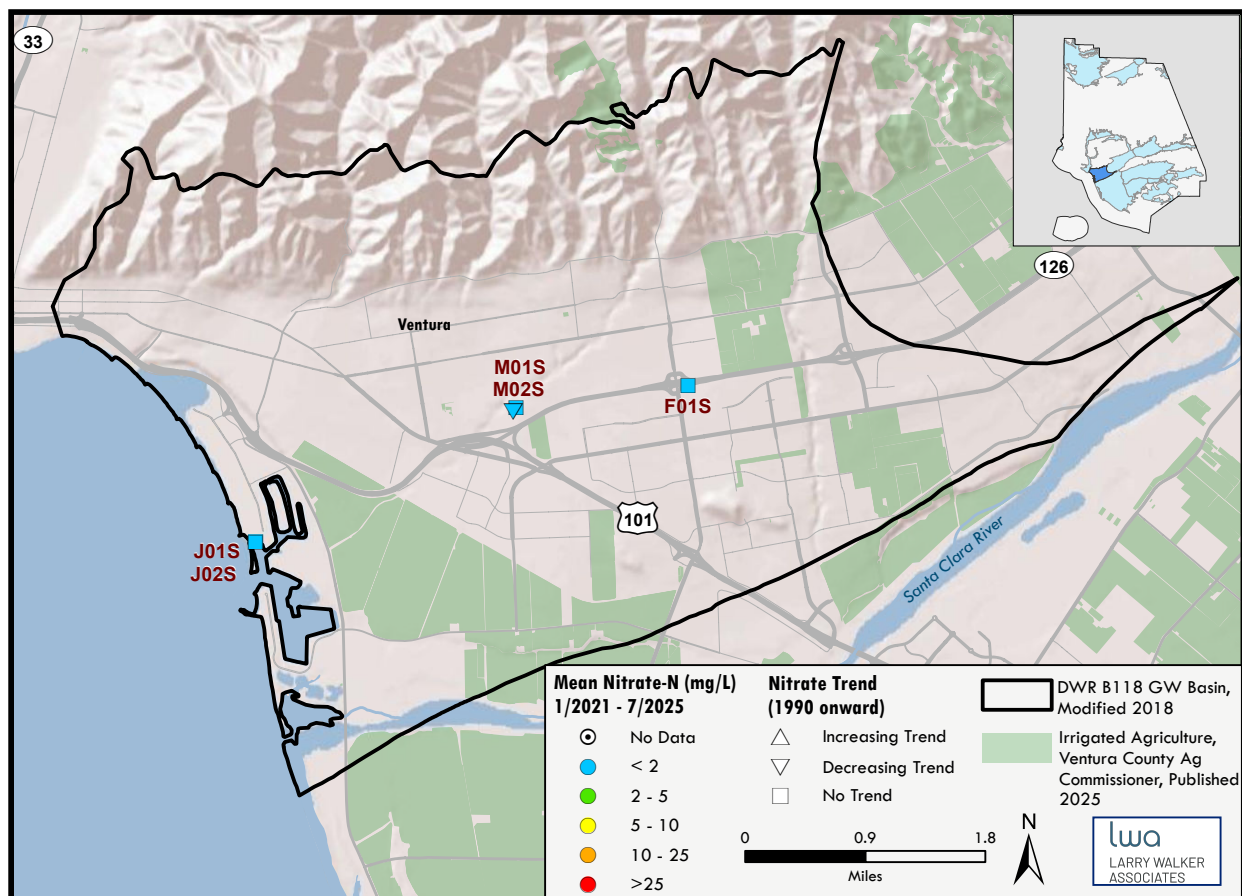


Figure 14. Map of Nitrate Trends for Wells in the Mound Subbasin

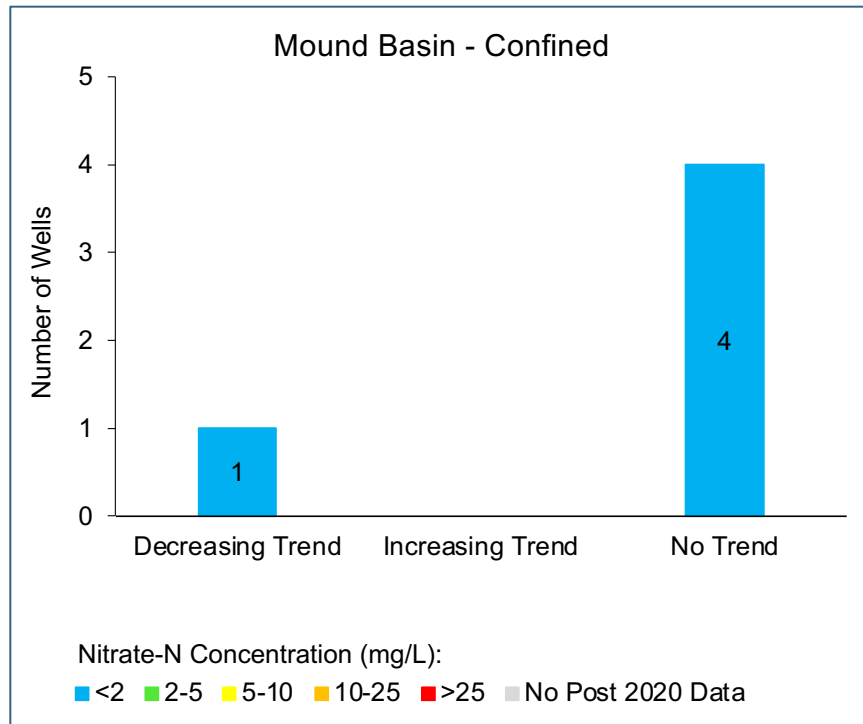


Figure 15. Breakdown of Trends for Wells in the Mound Subbasin

4.2.3 Santa Paula Subbasin (DWR Subbasin No. 4-04.04)

The eastern one-third of the Santa Paula Subbasin is occupied principally by the City of Santa Paula; the western two-thirds of the basin are predominantly rural/agricultural. The City of San Buenaventura overlies the south westernmost portion of the subbasin. Approximately 44% of the Santa Paula Subbasin is occupied by irrigated agricultural lands. Generally, the main crops grown in the Santa Paula Subbasin are citrus, avocados, and row crops.

The northern boundary of the Santa Paula Subbasin is the contact with relatively impervious rocks of the Topatopa Mountains. The southern boundary is formed by the relatively impervious rocks of Oak Ridge and South Mountain, the Oak Ridge fault, and the Saticoy fault (CSWRB 1953). The eastern edge of the subbasin is a bedrock constriction that causes rising groundwater flowing from the Fillmore Subbasin (CSWRB 1953). The western boundary is related to faulting that forms a partial barrier to groundwater flow into the Mound and Oxnard subbasins. The primary water-bearing units in the subbasin include upper Pleistocene to Holocene alluvium and lower Pleistocene San Pedro Formation (CSWRB 1956). The subbasin is generally confined except along the basin margins (Daniel B. Stephens & Associates, Inc., 2016). Groundwater flow is generally southwesterly, following the axis of the basin.

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 16-17. Average nitrate concentrations for all wells in the basin are well below the nitrate MCL.

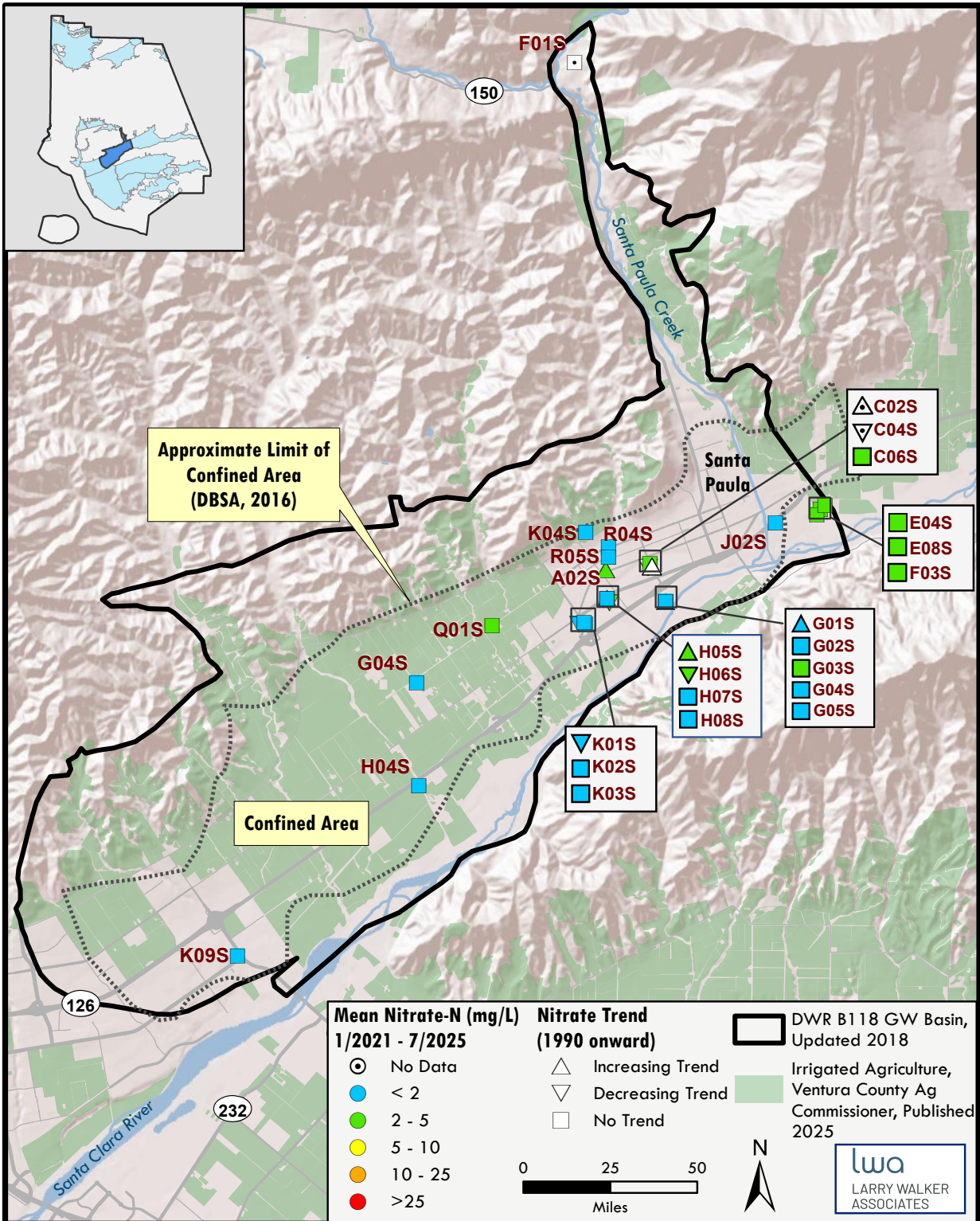


Figure 16. Map of Nitrate Trends for Wells in the Santa Paula Subbasin

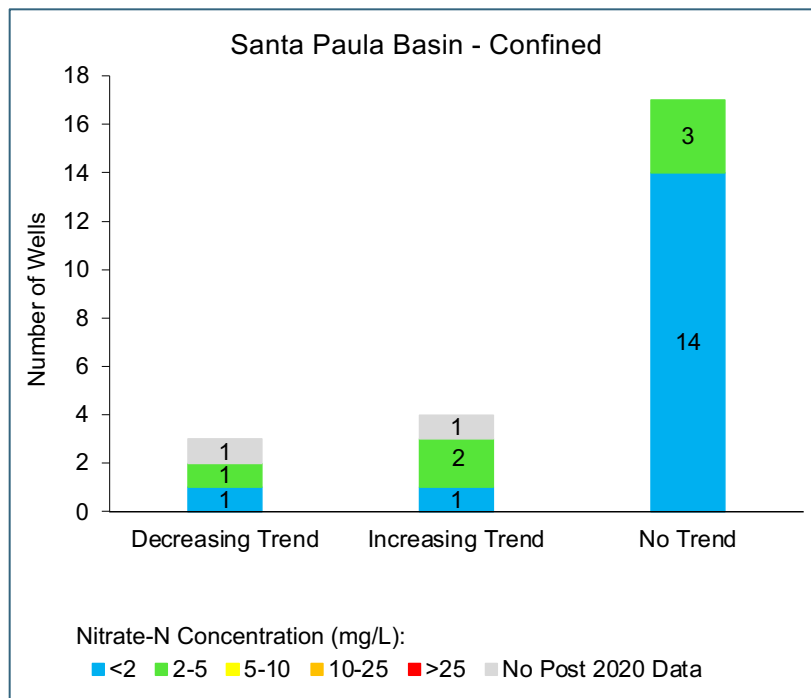
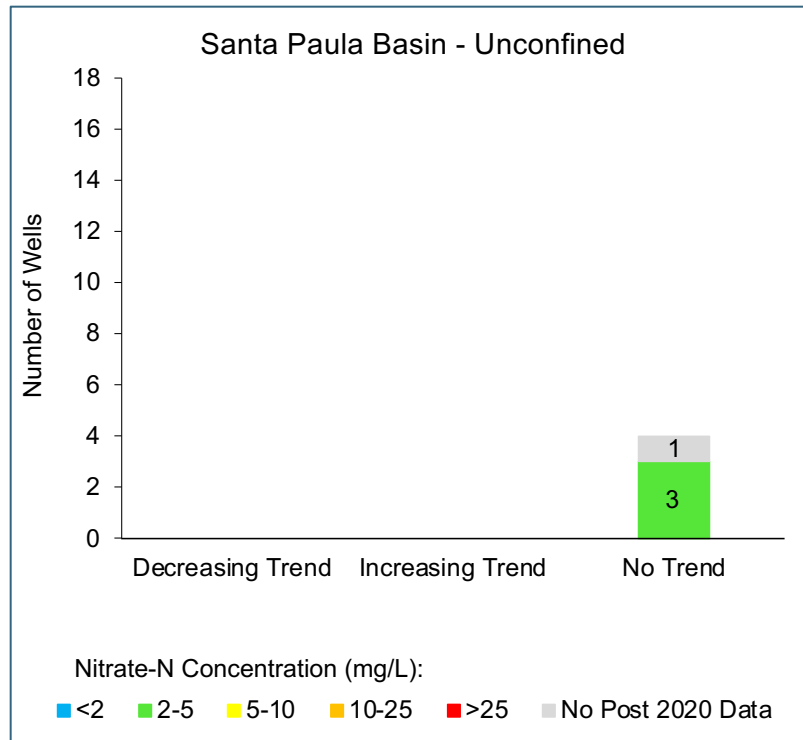


Figure 17. Breakdown of Trends for Wells in the Santa Paula Subbasin

4.2.4 Fillmore Subbasin (DWR Subbasin No. 4-04.05)

Except for the City of Fillmore, land use in the Fillmore Subbasin is principally rural, agricultural, and open space associated with the Santa Clara River and Sespe Creek. Approximately 55% of the Fillmore Subbasin is occupied by agricultural lands. Generally, the main crops grown in the Fillmore Subbasin are primarily citrus, avocados, and row crops.

The northern boundary of the Fillmore Subbasin is the contact with relatively impervious rocks of the Topatopa Mountains and the San Cayetano Fault (DWR, 2003). The southern boundary is formed by the relatively impervious rocks of Oak Ridge and the Oak Ridge fault (DWR, 2003). The western and eastern boundaries of the subbasin are bedrock constrictions that cause rising groundwater flowing toward the Santa Paula Subbasin and from the Piru Subbasin, respectively (CSWRB 1953). The primary water-bearing units in the subbasin include upper Pleistocene to Holocene alluvium and lower Pleistocene San Pedro Formation (CSWRB 1956). The subbasin is generally unconfined. Groundwater flow is generally westerly, following the axis of the basin (DWR, 2003).

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 18-19. Except for two wells north of the Santa Clara River, average nitrate concentrations in the basin for 2021-2025 are below the nitrate MCL.

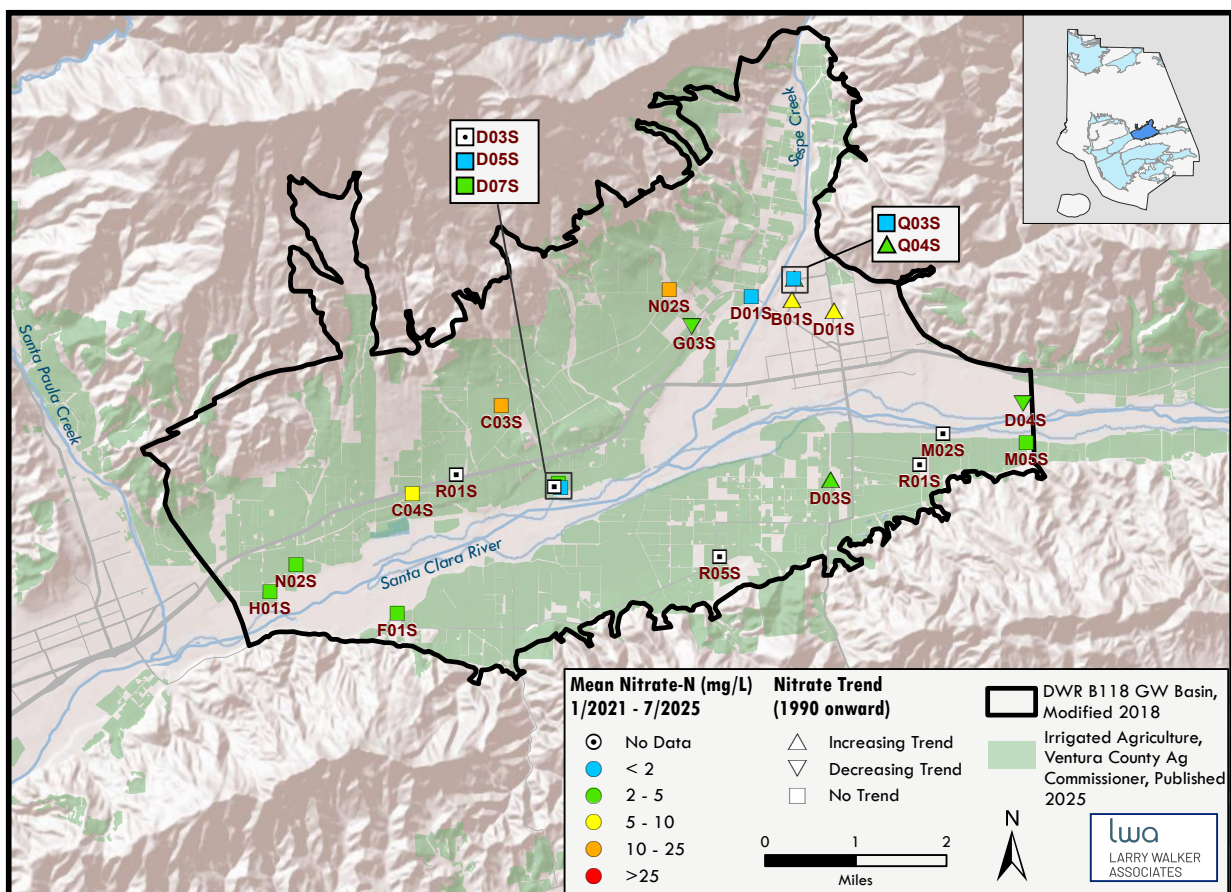


Figure 18. Map of Nitrate Trends for Wells in the Fillmore Subbasin

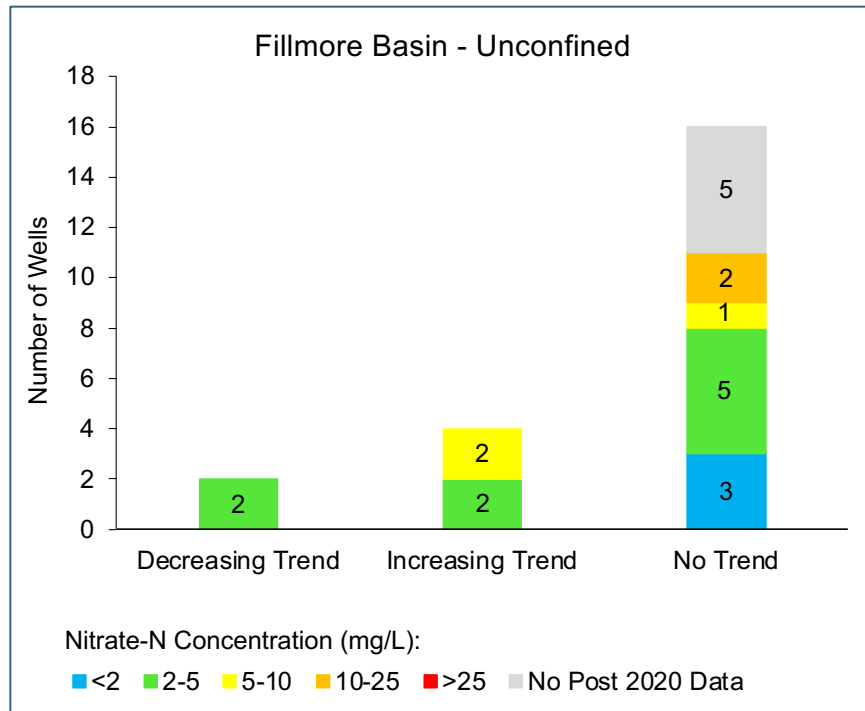


Figure 19. Breakdown of Trends for Wells in the Fillmore Subbasin

4.2.5 Piru Subbasin (DWR Subbasin No. 4-04.06)

Except for the unincorporated community of Piru, land use in the Piru Subbasin is principally rural residential, agricultural, and open space associated with the Santa Clara River. Approximately 54% of the Piru Subbasin is occupied by agricultural lands. Generally, the main crops grown in the Piru Subbasin are citrus, avocados, and row crops.

The northern boundary of the Piru Subbasin is the contact with relatively impervious rocks of the Topatopa Mountains and the San Cayetano Fault (DWR, 2003). The southern boundary is formed by the relatively impervious rocks of Oak Ridge and Santa Susana Mountains (DWR, 2003). The western boundary of the subbasin is a bedrock constriction that causes rising groundwater flowing toward the Fillmore Subbasin (CSWRB 1953). The primary water-bearing units in the subbasin include upper Pleistocene to Holocene alluvium and lower Pleistocene San Pedro Formation (CSWRB 1956). The subbasin is generally unconfined. Groundwater flow is generally westerly, following the axis of the basin (DWR, 2003).

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 20-21. No well had an average nitrate concentration above the MCL, and nitrate in most wells is well below the MCL.

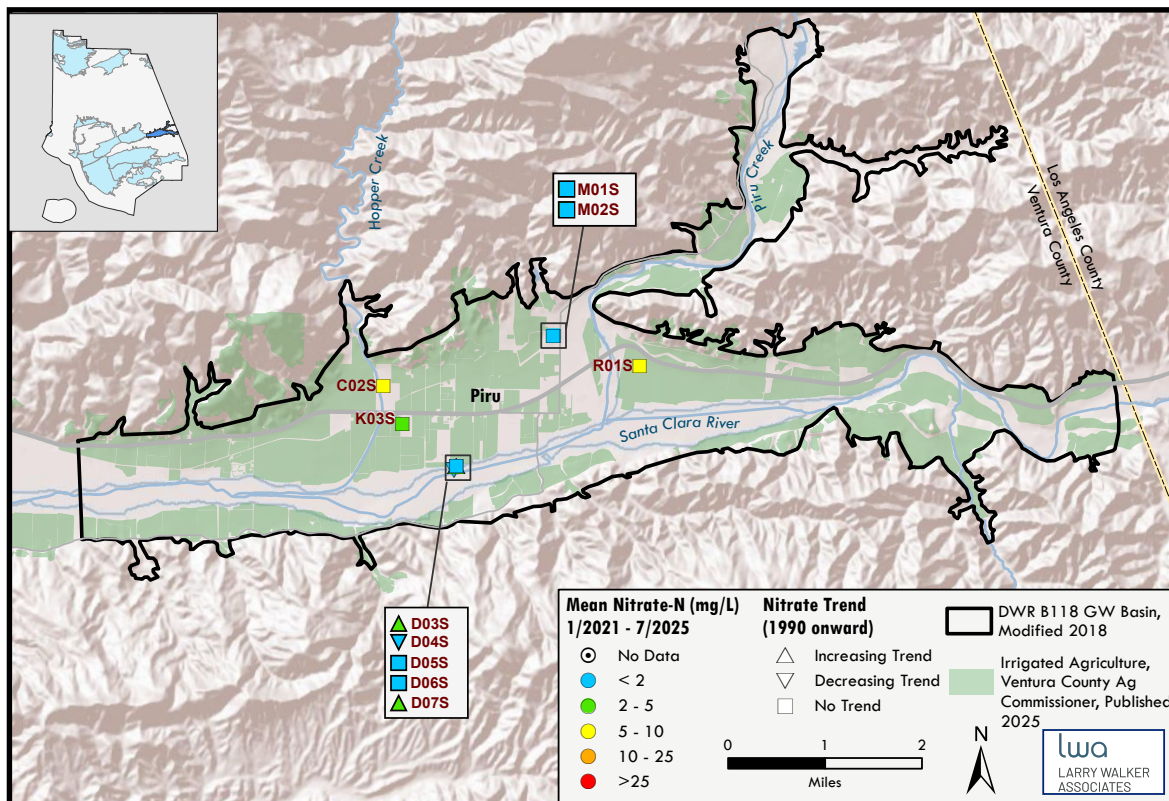


Figure 20. Map of Nitrate Trends for Wells in the Piru Subbasin

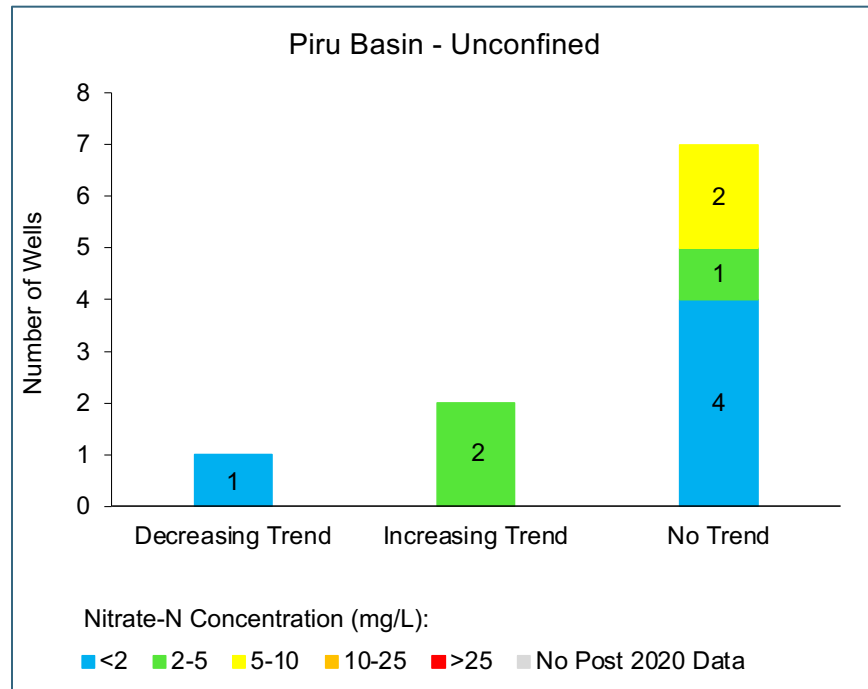


Figure 21. Breakdown of Trends for Wells in the Piru Subbasin

4.3 Calleguas Creek Watershed Basins

Six groundwater basins are located wholly within the Calleguas Creek Watershed: Pleasant Valley Basin, Arroyo Santa Rosa Valley Basin, Las Posas Valley Basin, Simi Valley Basin, Conejo Valley Basin, and the Tierra Rejada Basin. As previously explained, the Simi Valley and Conejo Valley Basins were not evaluated due to the minimal amount of agricultural irrigated land overlying these basins. In addition, although the Oxnard Basin underlies portions of the lower Calleguas Creek watershed, DWR includes the Oxnard Basin as part of the Santa Clara River Valley Basin, and it was described above with the other basins in the Santa Clara River Valley Basin.

4.3.1 Pleasant Valley Basin (DWR Subbasin No. 4-06)

The northern portion of the Pleasant Valley Basin is occupied primarily by the City of Camarillo; the southern portion of the basin is predominantly agriculture. Approximately 35% of the Pleasant Valley Basin is occupied by agricultural lands. Generally, the main crops grown in the Pleasant Valley Basin are row crops and berries.

The Pleasant Valley Basin is characterized by a low-lying alluvial plain which rises gently to the north. The Oxnard Subbasin borders the basin to the west and south. The Camarillo Hills and Las Posas Hills form the northern boundary of the basin. The Las Posas Subbasin also borders the Pleasant Valley Basin to the north in the gap between the Camarillo and Las Posas Hills. The eastern boundary of the subbasin is formed by the Bailey Fault and contact with nearly impermeable rocks of the Santa Monica Mountains. The Arroyo Santa Rosa Valley Basin lies northeast of the Pleasant Valley Basin.

The groundwater system in the Pleasant Valley Basin includes an unnamed recharge area in the northern portion of the basin in the gap between the Camarillo and Las Posas Hills. The remainder of the basin is largely confined. The Pleasant Valley Basin is differentiated from the Oxnard Subbasin based on the general lack of the upper aquifers that are present in the Oxnard Subbasin. The deep aquifers present within the Pleasant Valley Basin are found within the lower San Pedro Formation and the upper Santa Barbara Formation. The main groundwater flow pattern is generally from recharge area in the north part of the basin southwest toward the Oxnard Subbasin.

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 22-23. Average nitrate concentrations in the basin are well below the nitrate MCL.

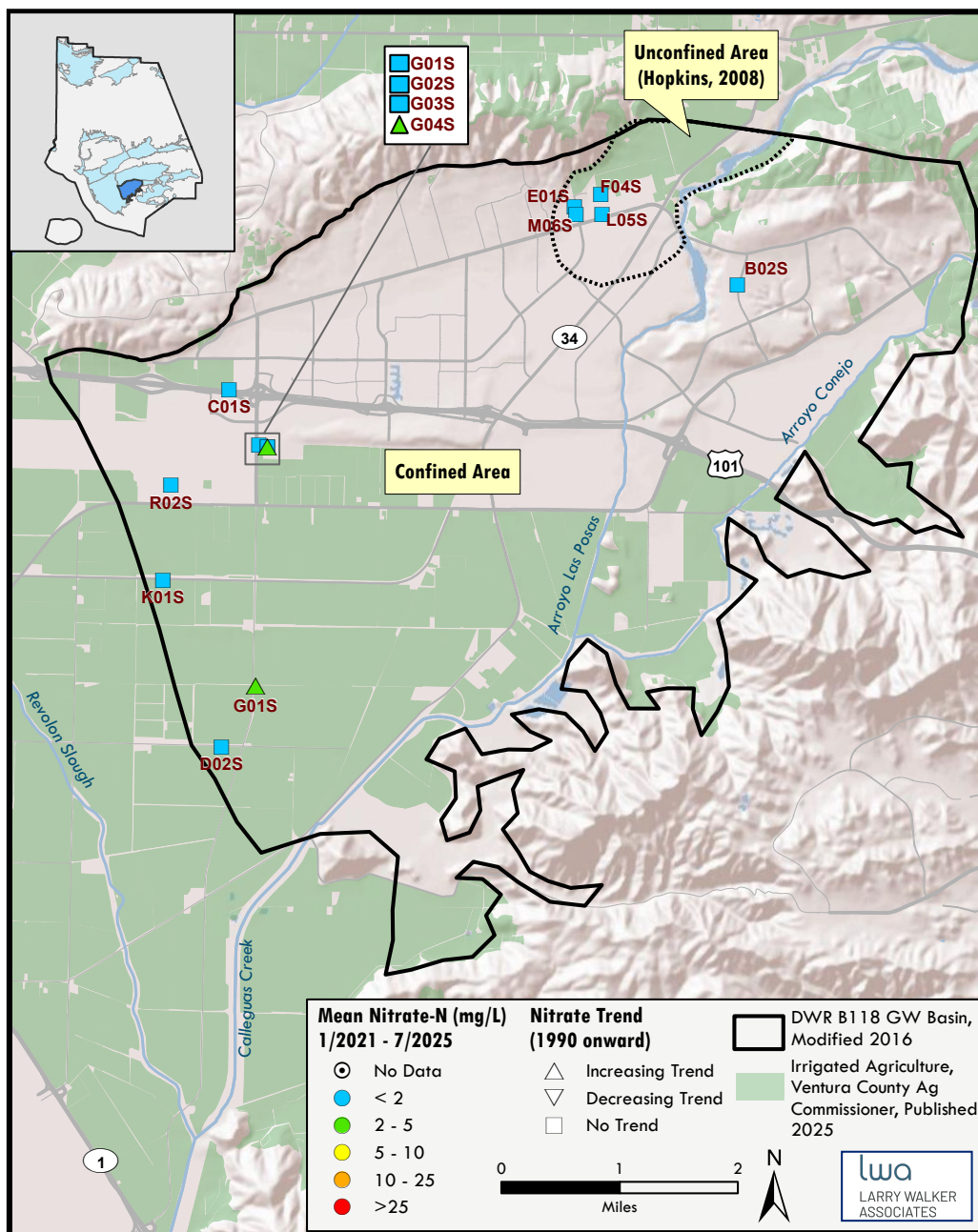


Figure 22. Map of Nitrate Trends for Wells in the Pleasant Valley Basin

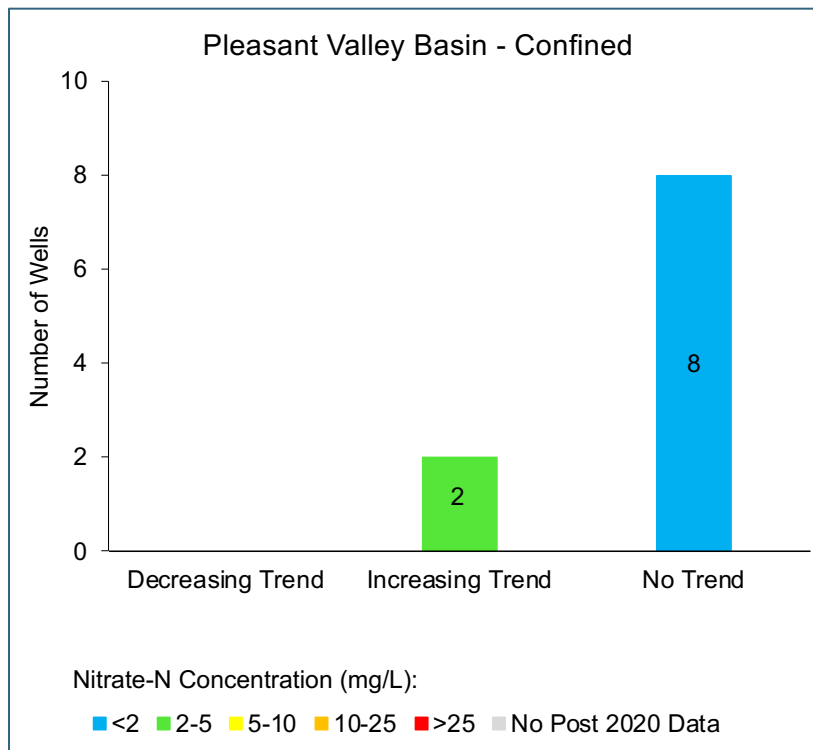
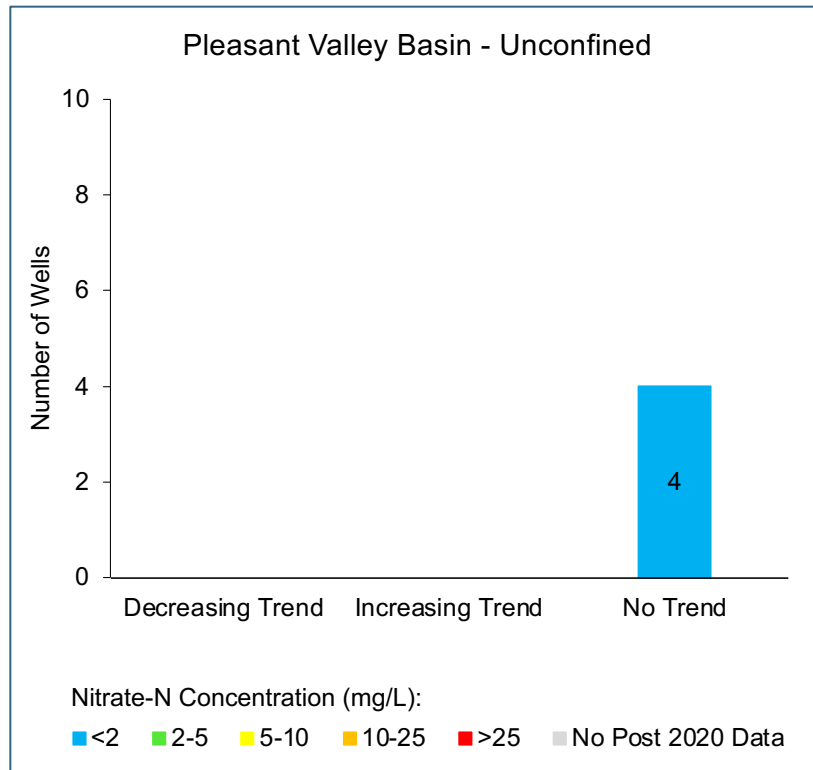


Figure 23. Breakdown of Trends for Wells in the Pleasant Valley Basin

4.3.2 Arroyo Santa Rosa Valley Basin (DWR Subbasin No. 4-07)

Land use in the Arroyo Santa Rosa Valley Basin is primarily rural residential and agriculture. Approximately 50% of the Arroyo Santa Rosa Valley Basin is occupied by agricultural lands. Generally, the main crops grown in the Arroyo Santa Rosa Valley Basin are citrus, avocados, and row crops.

The Arroyo Santa Rosa Valley Basin is a relatively small alluvial fill valley underlain by the water-bearing upper San Pedro Formation (DWR, 2003). The Arroyo Santa Rosa Valley Basin is bounded by the Las Posas Hills and Santa Rosa Fault to the north and the Santa Monica Mountains to the south and east. The western basin boundary with the Pleasant Valley Basin consists of a constriction in the Holocene alluvium. The Bailey Fault forms a partial barrier to groundwater flow in the western portion of the basin.

The groundwater system in the Arroyo Santa Rosa Valley Basin is encountered in Holocene and Pleistocene-age alluvium and the San Pedro Formation (DWR, 2003). The basin is generally unconfined, except in the San Pedro Formation which is limited to the western approximately one third of the basin (west of the Bailey Fault) (DWR, 2003). The main groundwater flow pattern in the basin is generally from east to west.

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 24-25. Two wells had average nitrate concentrations above the MCL, although only one of them has an increasing trend for the 35-year period 1990-2025. Nitrate has historically been an issue in the Arroyo Santa Rosa Basin, including in several public water system wells owned by Camrosa Water District. Camrosa Water District manages nitrate by blending with imported water.

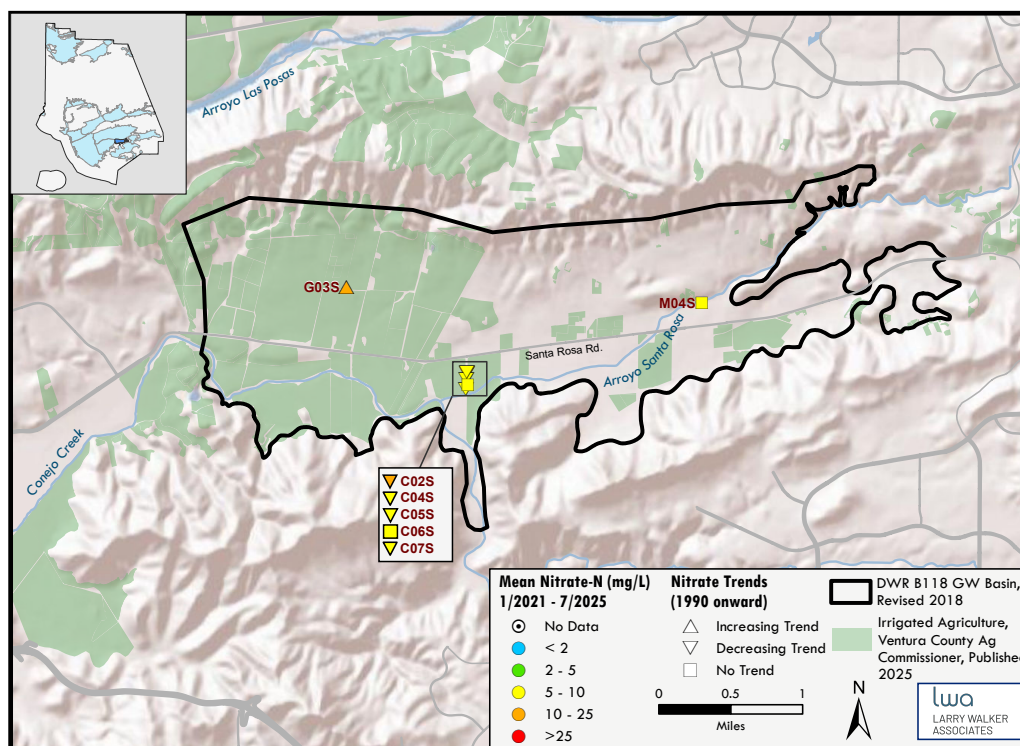


Figure 24. Map of Nitrate Trends for Wells in the Arroyo Santa Rosa Valley Basin

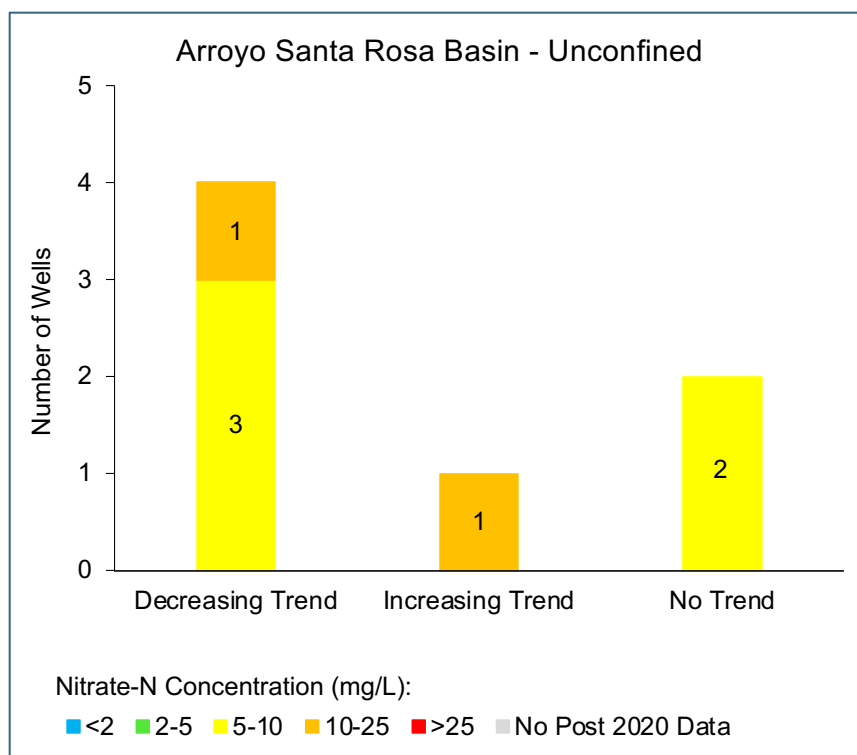


Figure 25. Breakdown of Trends for Wells in the Arroyo Santa Rosa Valley Basin

4.3.3 Las Posas Valley Basin (DWR Subbasin No. 4-08)

Except for the City of Moorpark to the east, land use in the Las Posas Valley Basin is primarily rural residential and agriculture. Approximately 48% of the Las Posas Valley Basin is occupied by agricultural lands. Generally, the main crops grown in the Las Posas Valley Basin are citrus, avocados, berries, and row crops.

The upper aquifers present in the Oxnard Plain Subbasin are generally not present in the Las Posas Valley Basin. The principal aquifer in the Las Posas Valley Basin is the Fox Canyon Aquifer of the lower San Pedro Formation. Locally, alluvium associated with the Arroyo Las Posas is an important aquifer as are alluvial fan deposits within the upper San Pedro Formation that form the Fairview/Epworth Gravels Aquifer in the northeastern part of the basin. The Las Posas Valley Basin is bounded on the north by the non-water-bearing rocks of South Mountain and Oak Ridge Hills and the Springville and Santa Rosa Fault systems to the south. The basin is bounded on the east by the Santa Susana Mountains and is in hydraulic communication with the Oxnard Subbasin to the west.

Much of the Las Posas Valley Basin is considered confined. Unconfined areas are generally limited to the aquifer outcrop areas on the basin margins, the shallow, alluvial aquifer associated with the Arroyo Las Posas floodplain, and the Fairview/Epworth Gravels Aquifer in the northeastern part of the basin. A north-south trending fault located near the gap between the Camarillo and Las Posas Hills (Somis Fault) bisects the Las Posas Valley Basin into two hydraulically disconnected subbasins. The main groundwater flow direction in the western subbasin is generally from northwest to southeast. The main groundwater flow in eastern subbasin is generally from the north, south, and east toward the center of the basin where pumping is concentrated.

Trend results for individual wells, binned according to mean nitrate concentrations during 2021-2025, are presented in Figures 26-28. In Figures 27-28, the portion of the basin west of the Somis Fault is referred to as the West Las Posas Valley Subbasin and the portion of the basin to the east of the Somis Fault is referred to as the East/South Las Posas Valley Subbasin. This geographic distinction aligns with the

West- and East Las Posas Management Areas, respectively, that are used by the Fox Canyon Groundwater Management Agency. Average nitrate concentrations in the basin are generally well below the nitrate MCL, as would be expected in a principally confined basin.

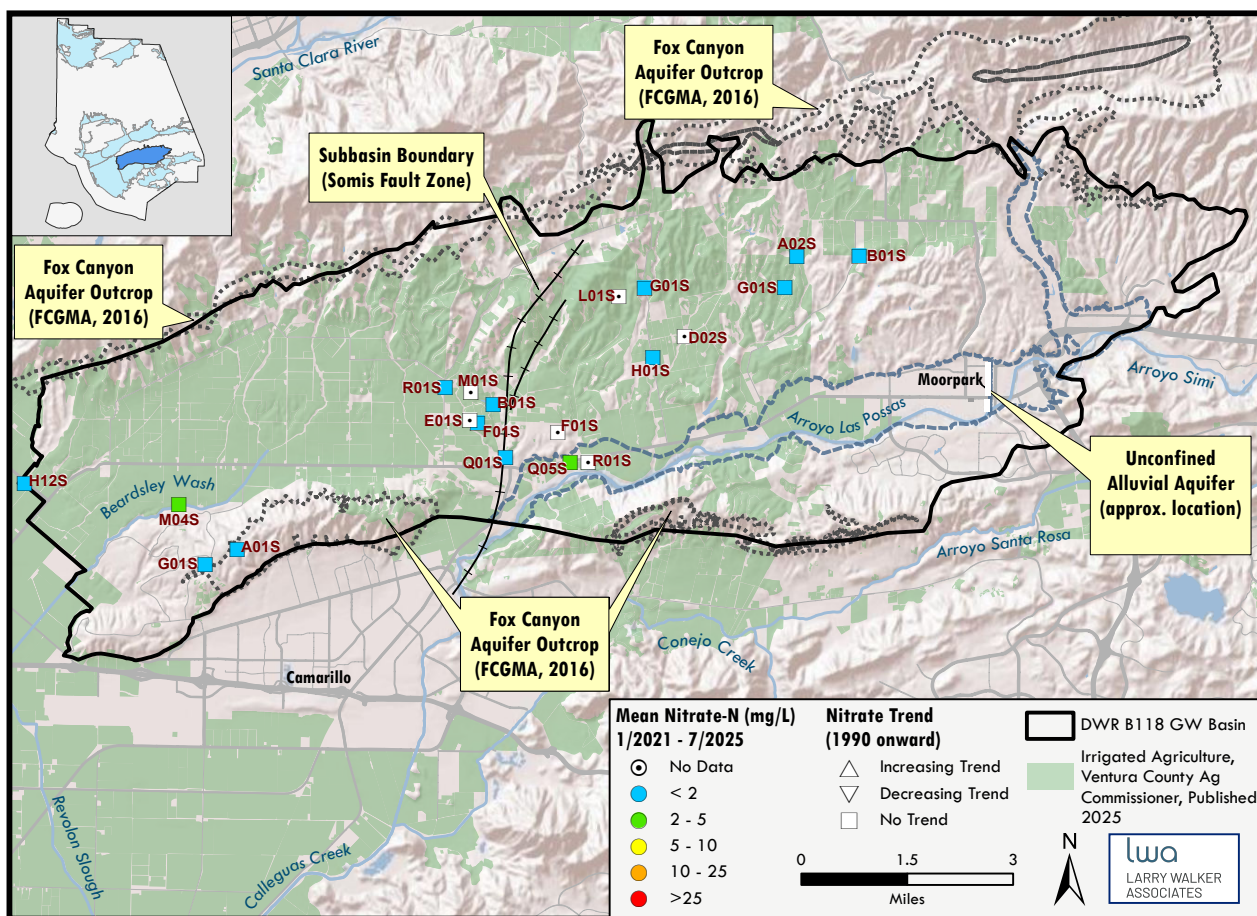


Figure 26. Map of Nitrate Trends for Wells in the Las Posas Valley Basin

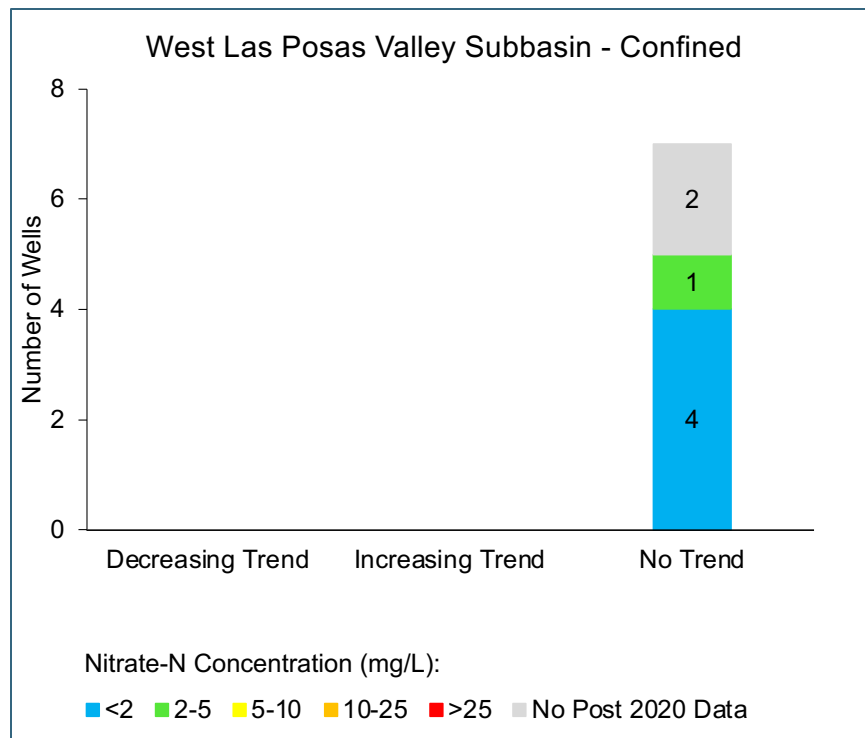
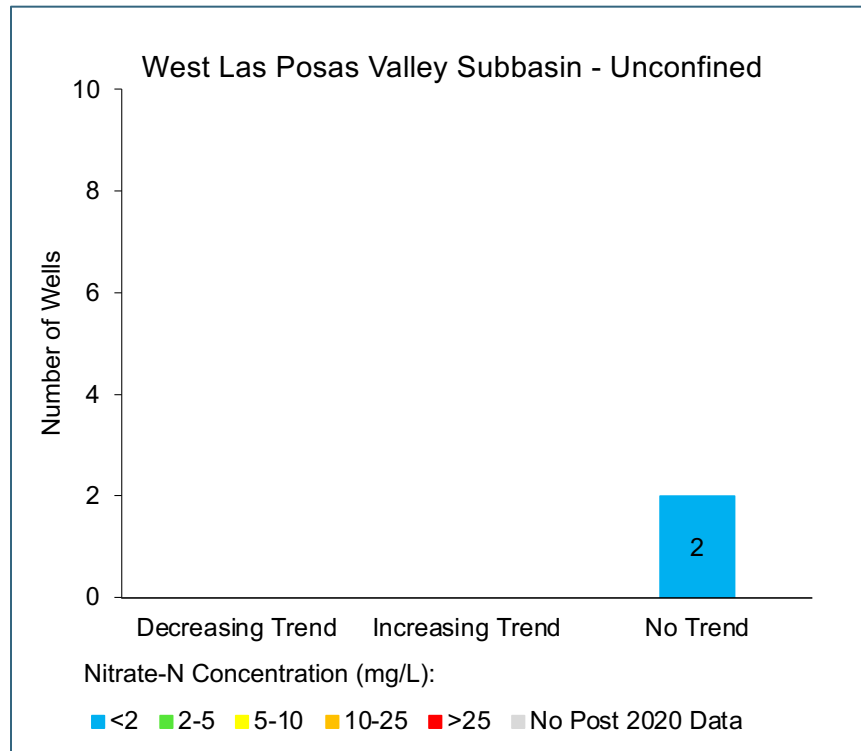


Figure 27. Breakdown of Trends for Wells in the West Las Posas Valley Subbasin

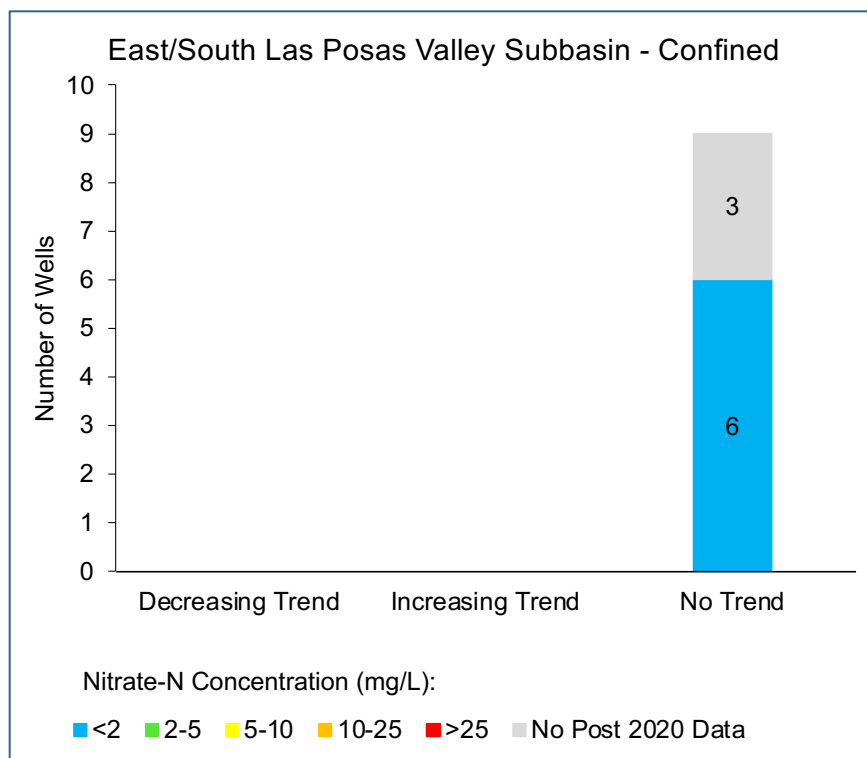
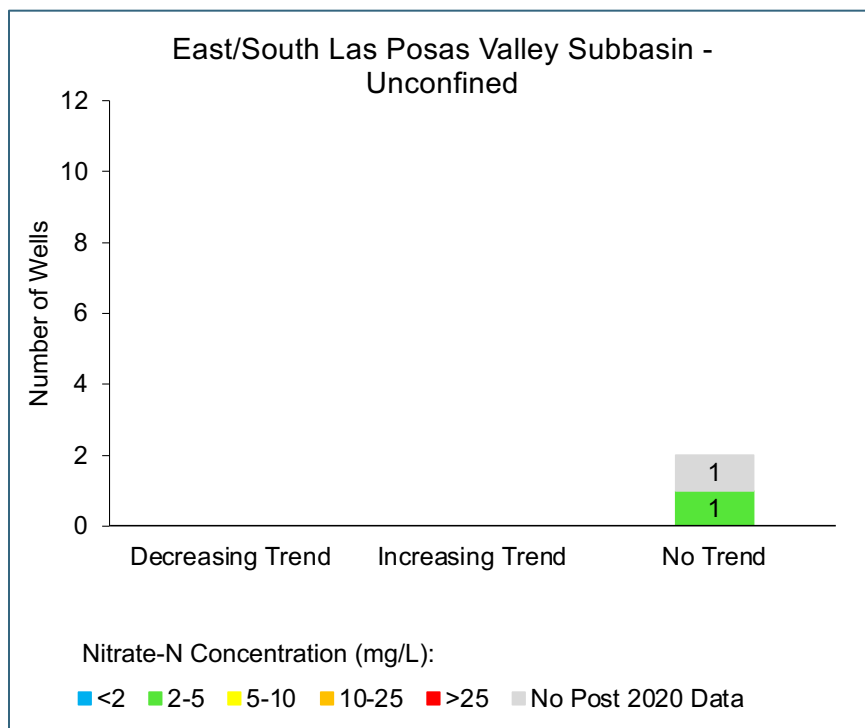


Figure 28. Breakdown of Trends for Wells in the East/South Las Posas Valley Subbasin

4.3.4 Tierra Rejada Basin (DWR Subbasin No. 4-15)

The Tierra Rejada Basin is a relatively small basin located upstream of the Arroyo Santa Rosa Basin. Land use in the Tierra Rejada Basin is a mix of residential, agricultural, golf courses, and open space. Approximately 16% of the Tierra Rejada Basin is occupied by agricultural lands. Generally, the main crops grown in the Tierra Rejada Basin are avocados and row crops.

Groundwater in the basin is found in alluvium and the Modelo, Topanga, and Conejo Formations (DWR, 2003). Quaternary age alluvium is generally found only near the center of the valley where it is interpreted as about 25 feet thick (Schaaf 1998). This unit can bear water, but is not the major producer in the basin (DWR, 2003). The Miocene age Modelo Formation consists of marine sandstone and shale and unconformably overlies the Topanga and Conejo Formations (CSWRB 1953). The Miocene age Topanga Formation contains sandstone, conglomerate and shale in this basin (DWR, 2003). The Miocene age Conejo Formation consists of volcanic tuff, debris flow, and basaltic flow and breccia deposits (CSWRB 1956). There is very limited available information concerning the degree of confinement or groundwater flow directions in the Tierra Rejada Basin.

Two wells passed the screening criteria in this basin (Figures 29-30). The well near the western margin of the basin, with an average nitrate-N concentration < 2 mg/L, is the only public water system well in the basin.

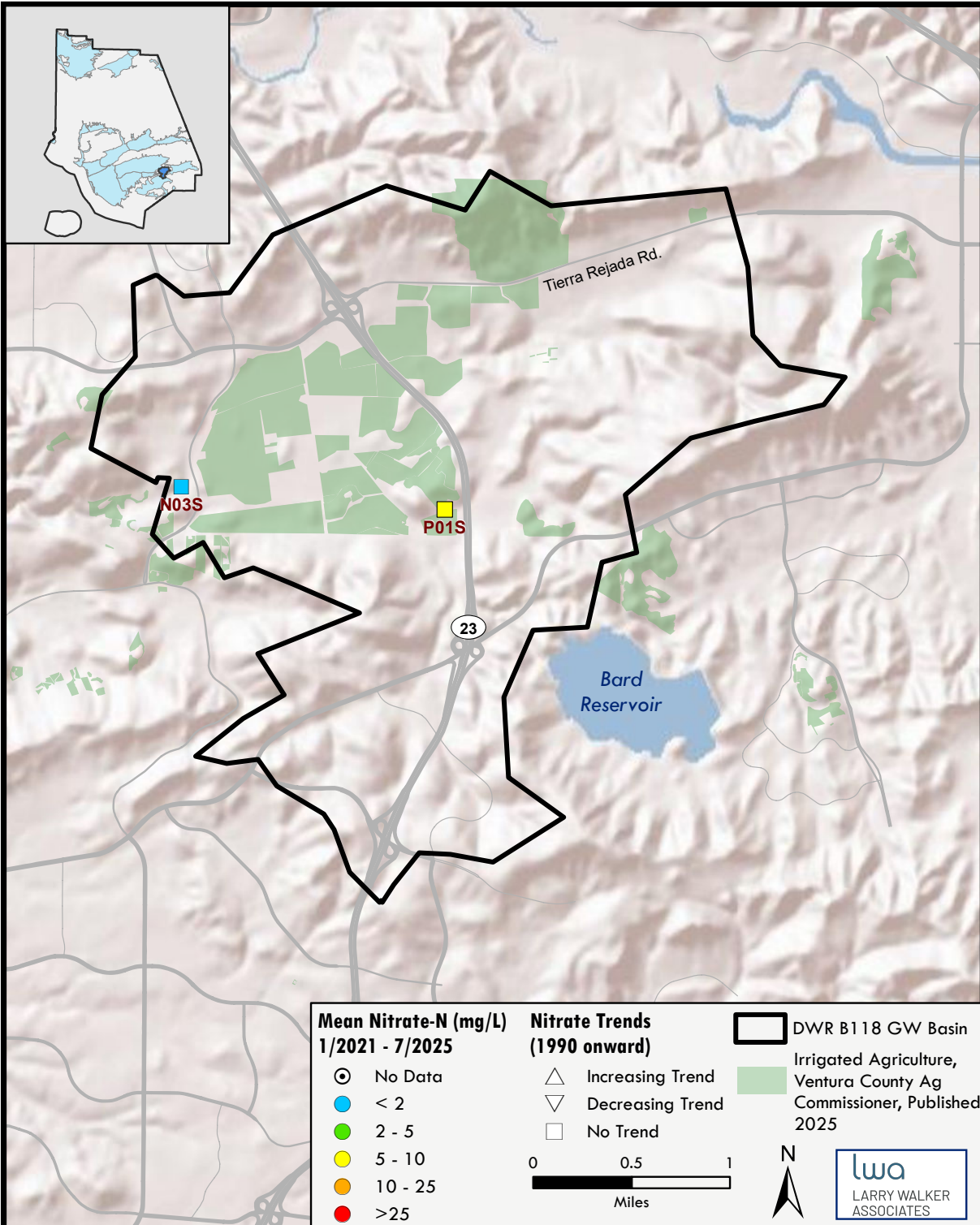


Figure 29. Nitrate Trends for Wells in the Tierra Rejada Basin

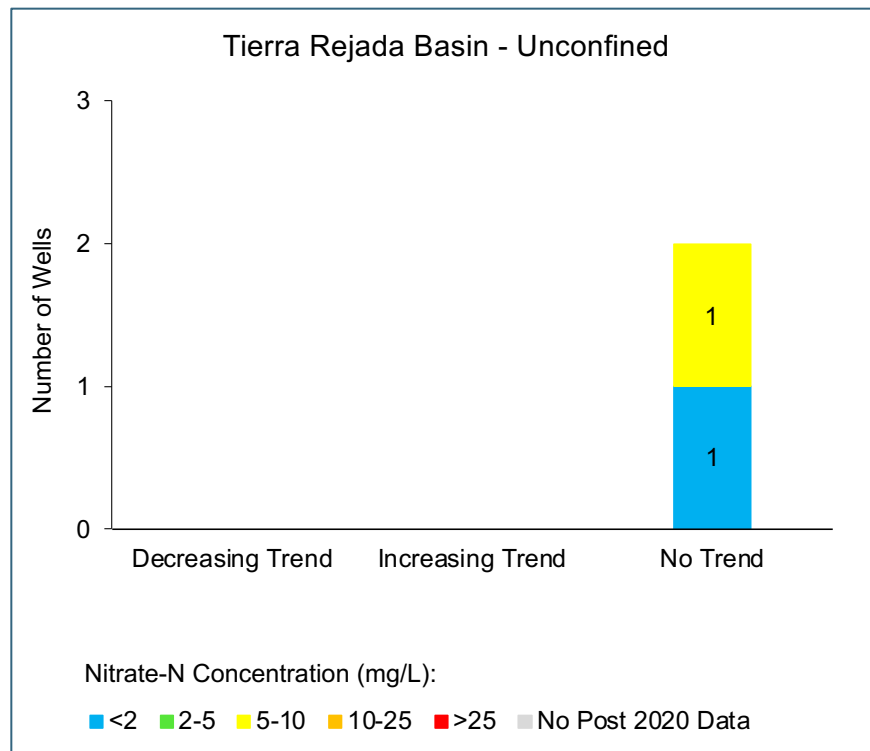


Figure 30. Breakdown of Trends for Wells in the Tierra Rejada Basin

4.4 Malibu Creek Watershed

One basin retained for trends monitoring (Hidden Valley Basin) is in the Malibu Creek Watershed.

4.4.1 Hidden Valley Basin (DWR Subbasin No. 4-16)

The Hidden Valley Basin is relatively small basin located south of the Conejo Basin in the Santa Monica Mountains. Land use in the Hidden Valley Basin a mix of residential, rural, and agricultural. Approximately 27% of the Hidden Valley Basin is occupied by agricultural lands, although very little of this area is irrigated. Grains are the principal crop grown in the Hidden Valley Basin.

Groundwater in the Hidden Valley Basin is encountered in the fractures and interflow zones of the Conejo Formation volcanic deposits and overlying alluvium (DWR, 2003). Groundwater moves southeastward through the basin toward Lake Sherwood (CSWRB, 1953).

No wells passed the screening criteria in this basin. However, during the development of the 2017 annual monitoring report, five wells were identified in the basin with some nitrate data for the period 2013-2015; nitrate concentrations in all five wells were well below the nitrate MCL (the maximum mean concentration, observed in three of the five wells, was 0.3 mg/L), and the available data for none of them exhibited temporal trends. The location of all five regularly sampled wells that had enough data to generate 2013-2015 mean nitrate concentrations are shown in Figure 31. Post-2015 data for these wells are provided in Table 1, and show continued absence of nitrate contamination.

Table 1. Post 2015 Nitrate Data for Wells in Hidden Valley Basin

SWN	Sample Date	Nitrate-N (mg/L)
01N19W19H03S	11/14/17	ND
	9/20/19	ND
	12/17/20	ND
	9/23/21	ND
01N20W25C07S	11/30/17	1.2
	11/21/19	3.7
01N20W25F04S	11/30/17	ND
	11/21/19	0.1
	10/19/21	ND
	9/22/22	0.2
	11/14/23	ND
01N19W29E05S	9/20/19	0.6

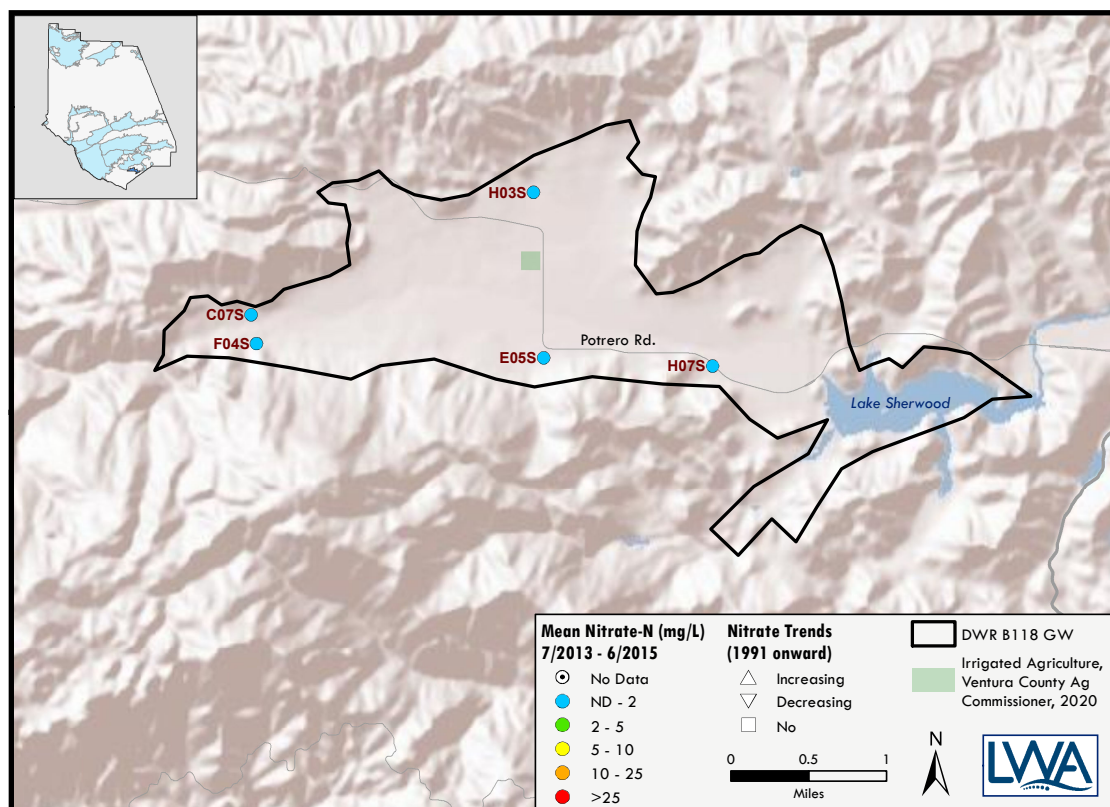


Figure 31. Mean Nitrate-N Concentrations for wells in Hidden Valley Basin for 2013-2015.

Note: None of the wells have data sets that passed the climatic screening criterion, and thus trends are not displayed.

SECTION 5: SUMMARY

Among all the basins covered by this report, 270 wells were used for nitrate trends reporting.¹⁴ The mean nitrate-N concentrations for the current averaging period (1/2021-7/2025) exceeded the MCL (10 mg/L nitrate-N) in only 6 wells (see Table 2, second column). Recent prior averaging periods (2016-2018, 2017-2019, 2018-2021, 2019-2022) yielded 8 wells, 10 wells, 10 wells, and 10 wells with averages greater than the MCL, respectively. County-wide, only 20 wells had mean 2021-2025 nitrate-N concentrations between 5-10 mg/L; in only five cases were nitrate-N concentrations in this range paired with a long-term increasing nitrate-N concentration trend (see Table 2, first column).

Table 2. Numbers of Wells Exceeding the MCL for Nitrate-N or Indicating Potential to Exceed the MCL in the Future

	Number of Wells with 2021-2025 Mean Nitrate-N Concentration 5-10 mg/L and Increasing Trend	Number of Wells with 2021-2025 Mean Nitrate-N Concentration > 10 mg/L
Upper Ventura River Basin	1	1
Ojai Valley Basin (confined area)	1	
Oxnard Basin (in or near unconfined Forebay)		1
Oxnard Basin (confined)	1	
Fillmore Basin	2	2
Arroyo Santa Rosa Valley Basin		2

¹⁴ This total includes the four wells in Hidden Valley Basin described in Section 4.4, for which trend statistics are not performed.

SECTION 6: REFERENCES

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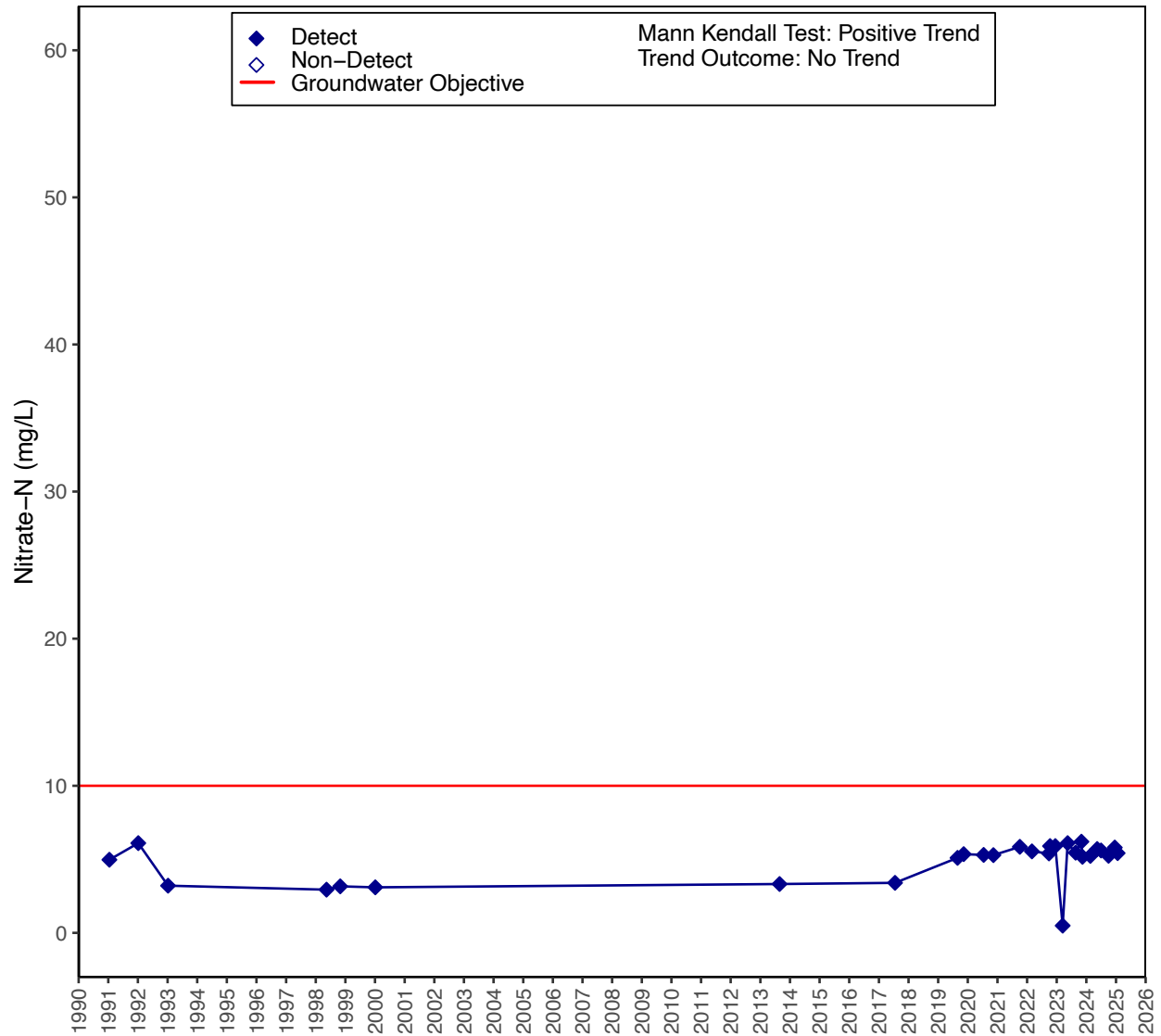
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Attachment 1. Wells Omitted from Trend Analysis in 2025

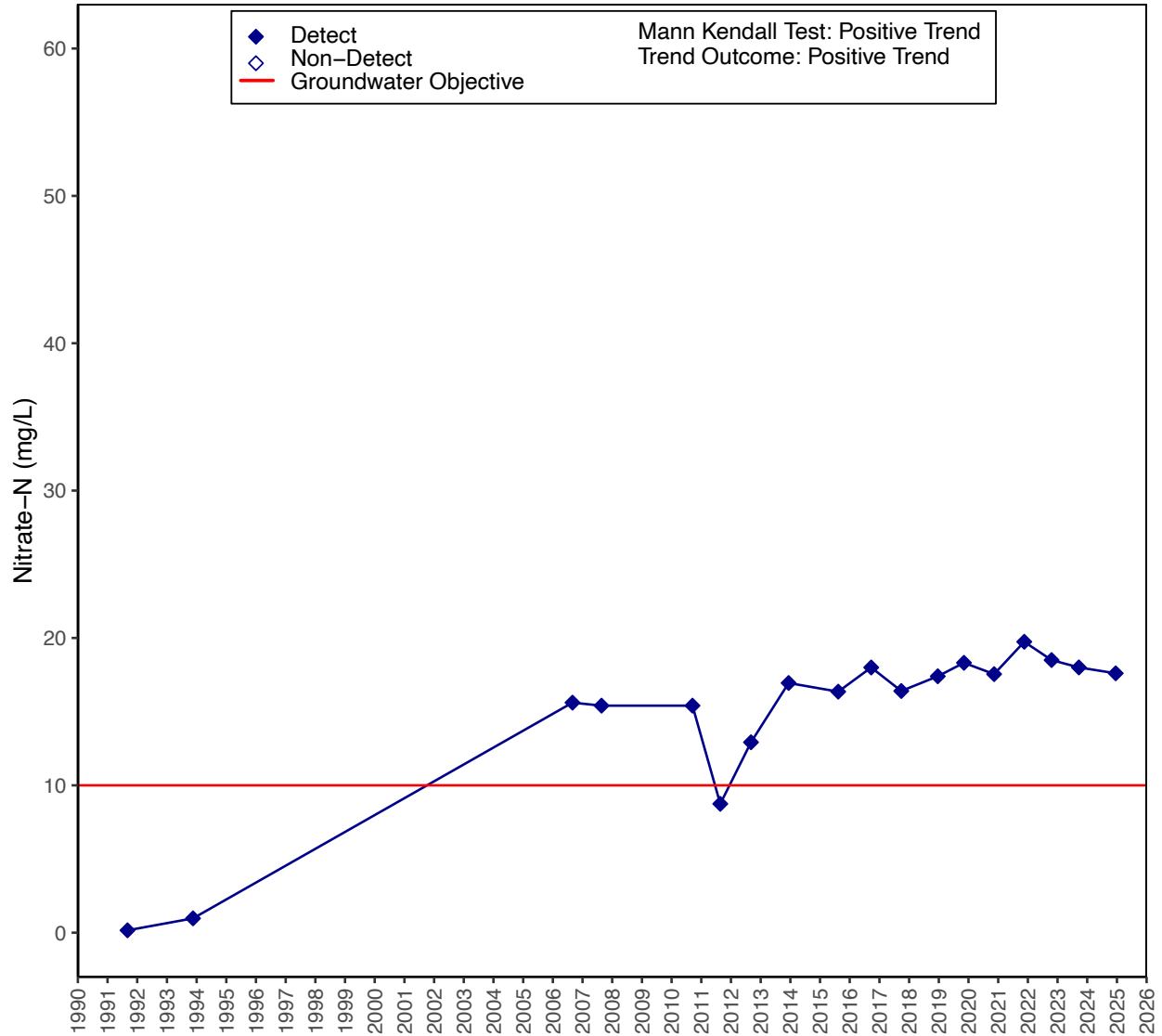
SWN	Basin Name	Most Recent Nitrate Sample	Public Water System No.	Public Water System Name	Well Common Name
02N20W25D01S	Arroyo Santa Rosa Valley	9/21/15			
02N20W01E01S	Las Posas Valley	1/27/11			
02N20W02N03S	Las Posas Valley	8/15/12			
02N20W07R02S	Las Posas Valley	9/14/15			
02N20W09Q04S	Las Posas Valley	10/29/09			
02N20W18A01S	Las Posas Valley	10/23/13			
03N20W35J01S	Las Posas Valley	8/19/15			
03N20W35R01S	Las Posas Valley	8/19/15	CA5610018	VENTURA CWWO NO. 1 - MOORPARK	Well 97
01N21W28M01S	Oxnard	9/30/15			
01N21W30K01S	Oxnard	12/16/13			
01N21W32C01S	Oxnard	5/6/15			
01N22W21B03S	Oxnard	12/18/14			
02N22W14H03S	Oxnard	9/27/13	CA5602117	STRICKLAND ACRES	Well 01
02N22W23C01S	Oxnard	2/3/15	CA5610046	UNITED WTR CONS DIST	Well 07
02N22W23F01S	Oxnard	6/23/14			
02N22W25F01S	Oxnard	9/21/15			
02N22W03L01S	Santa Paula	11/18/13			
03N21W19G02S	Santa Paula	3/19/14			
04N22W10K02S	Upper Ojai Valley	11/18/13			
04N23W16C07S	Upper Ventura River	6/10/14	CA5610022	VENTURA RIVER WATER DISTRICT	Well 02

Attachment 2. Time Series Plots

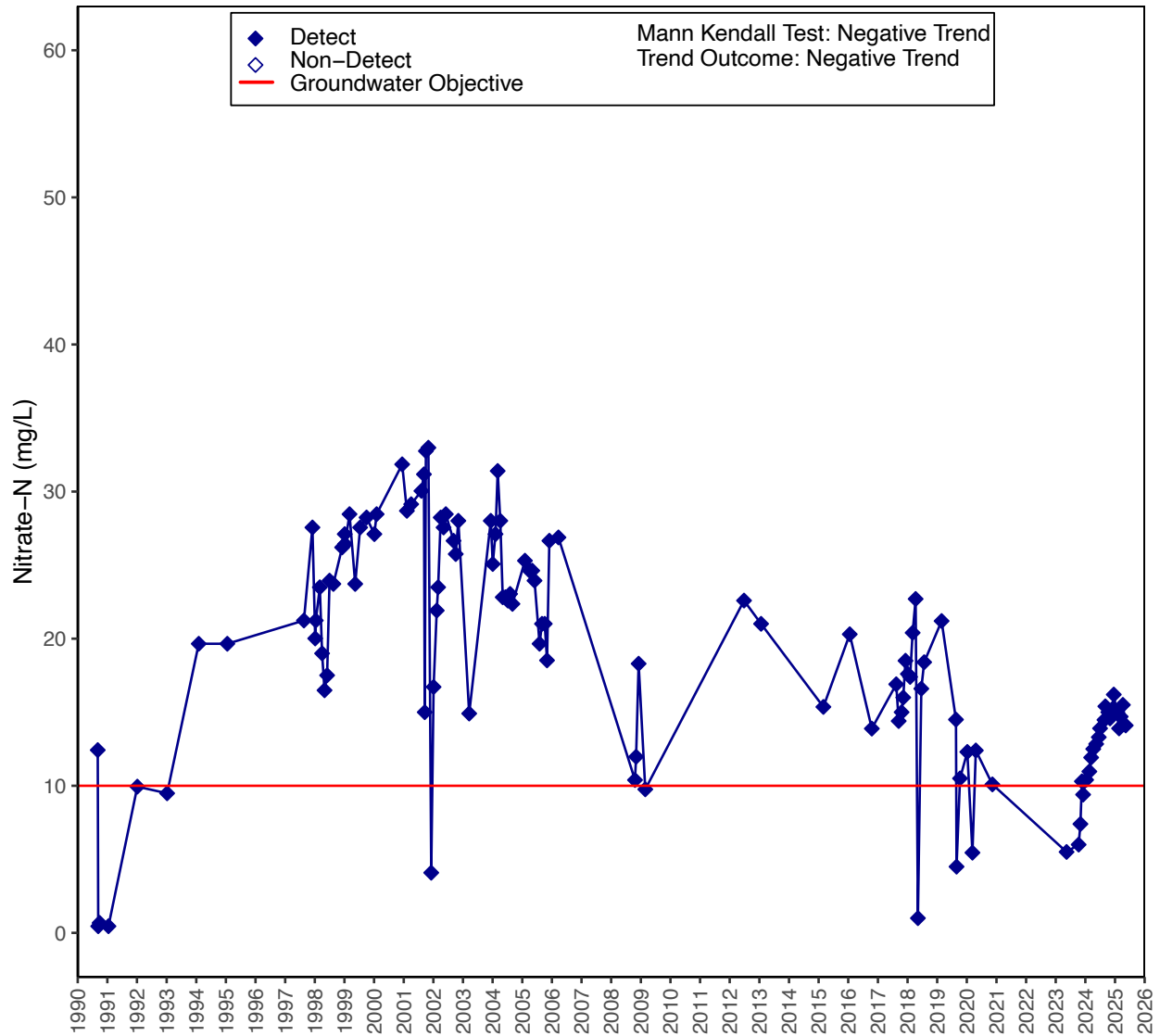
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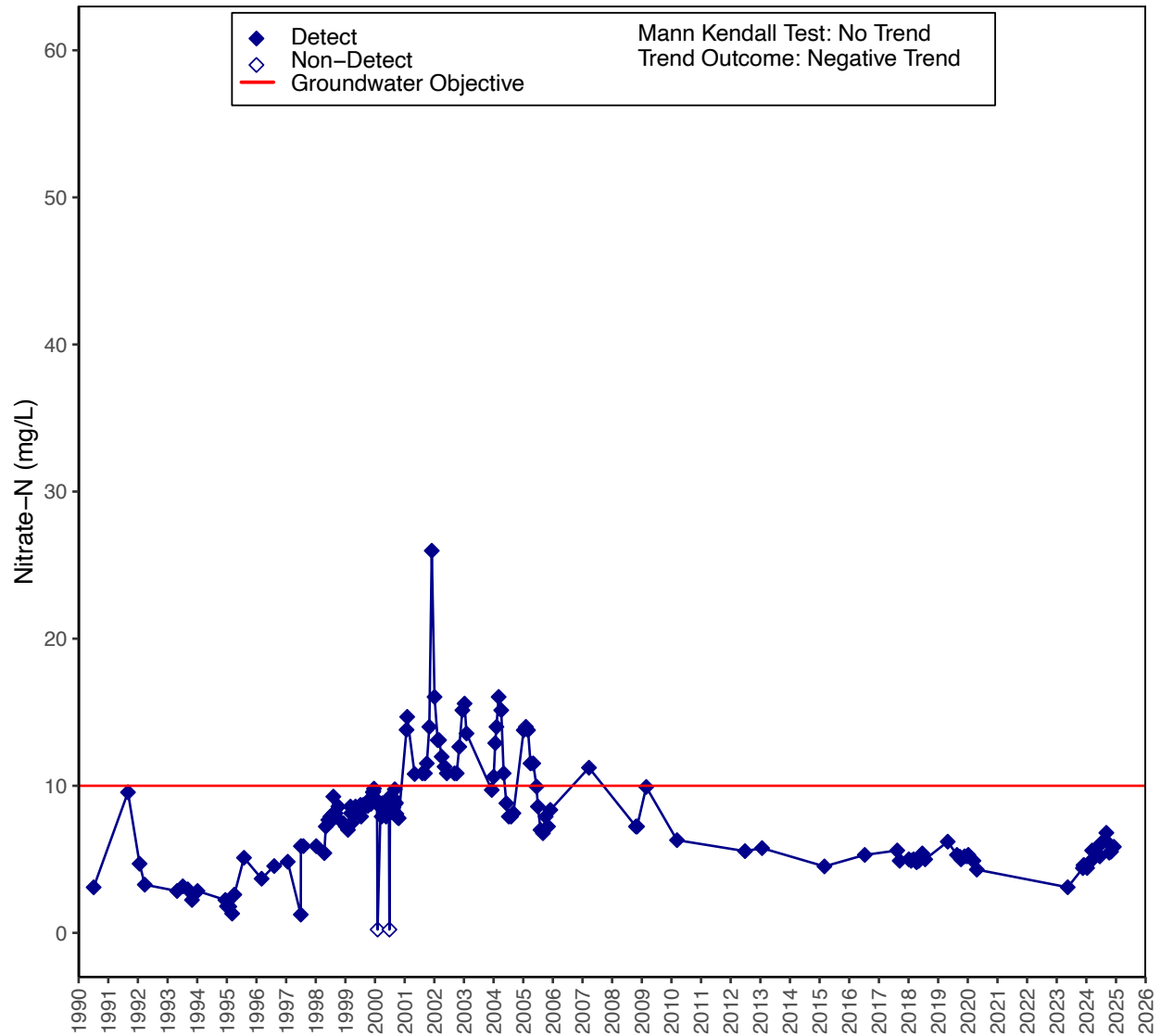
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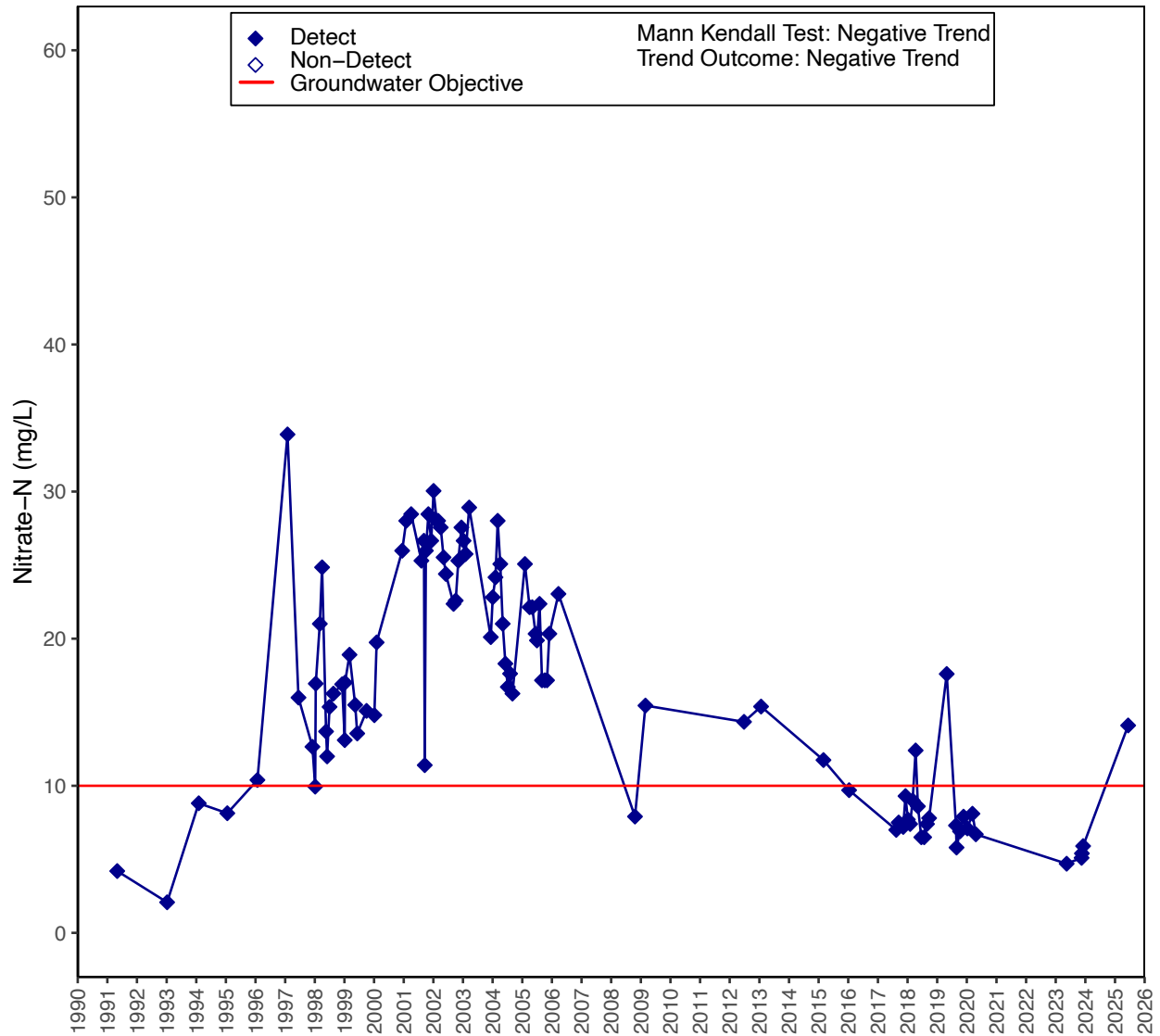
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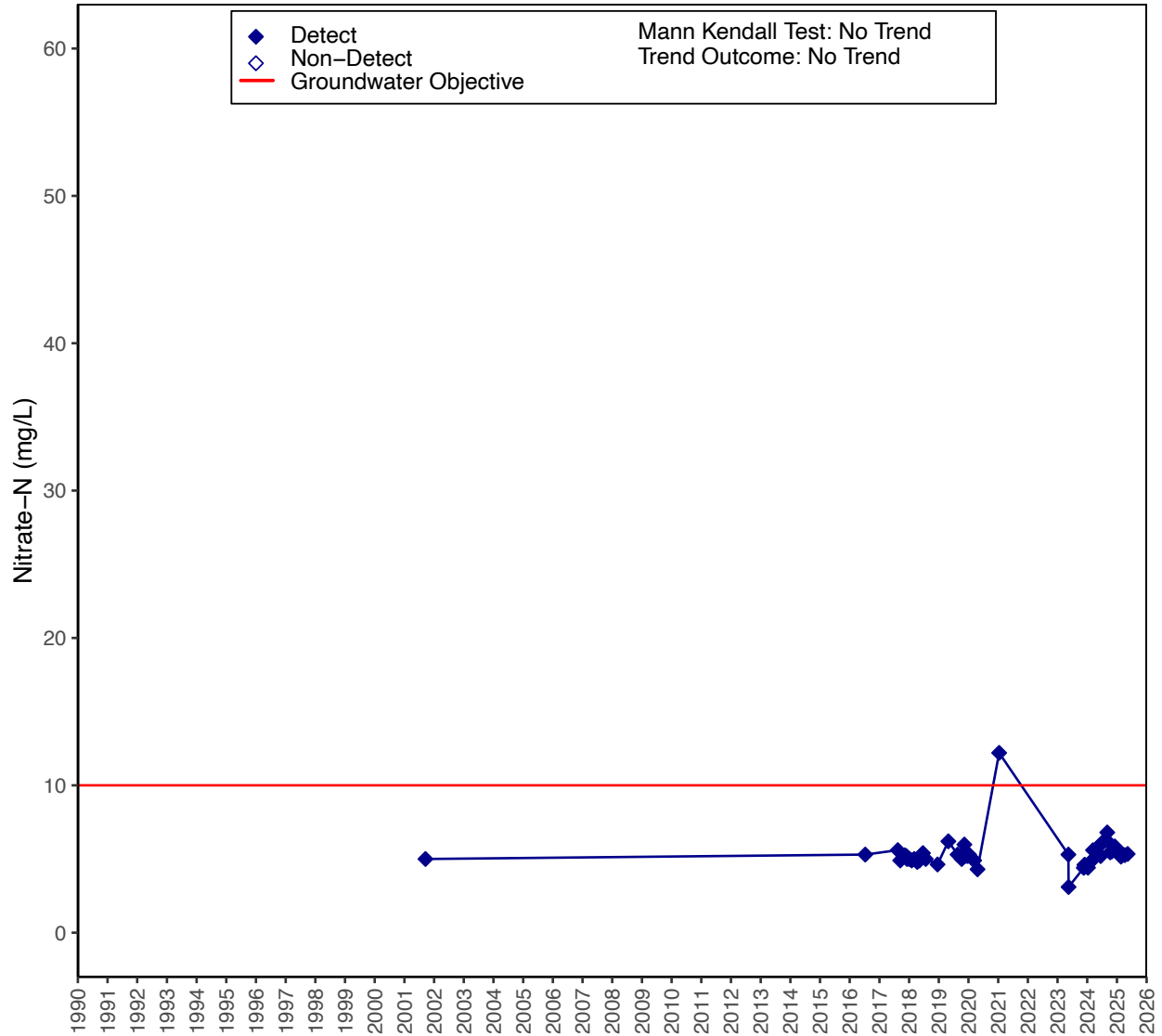
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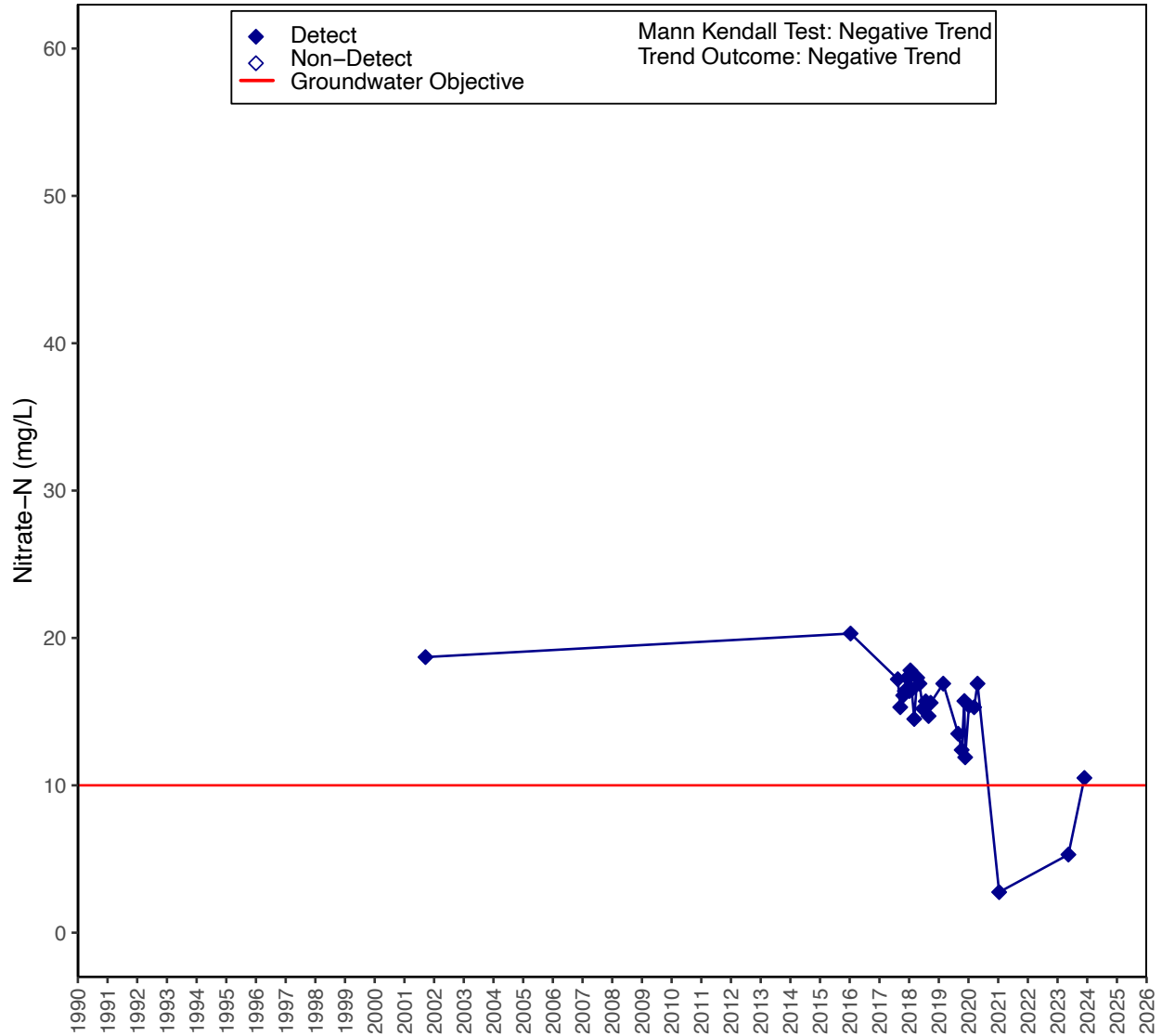
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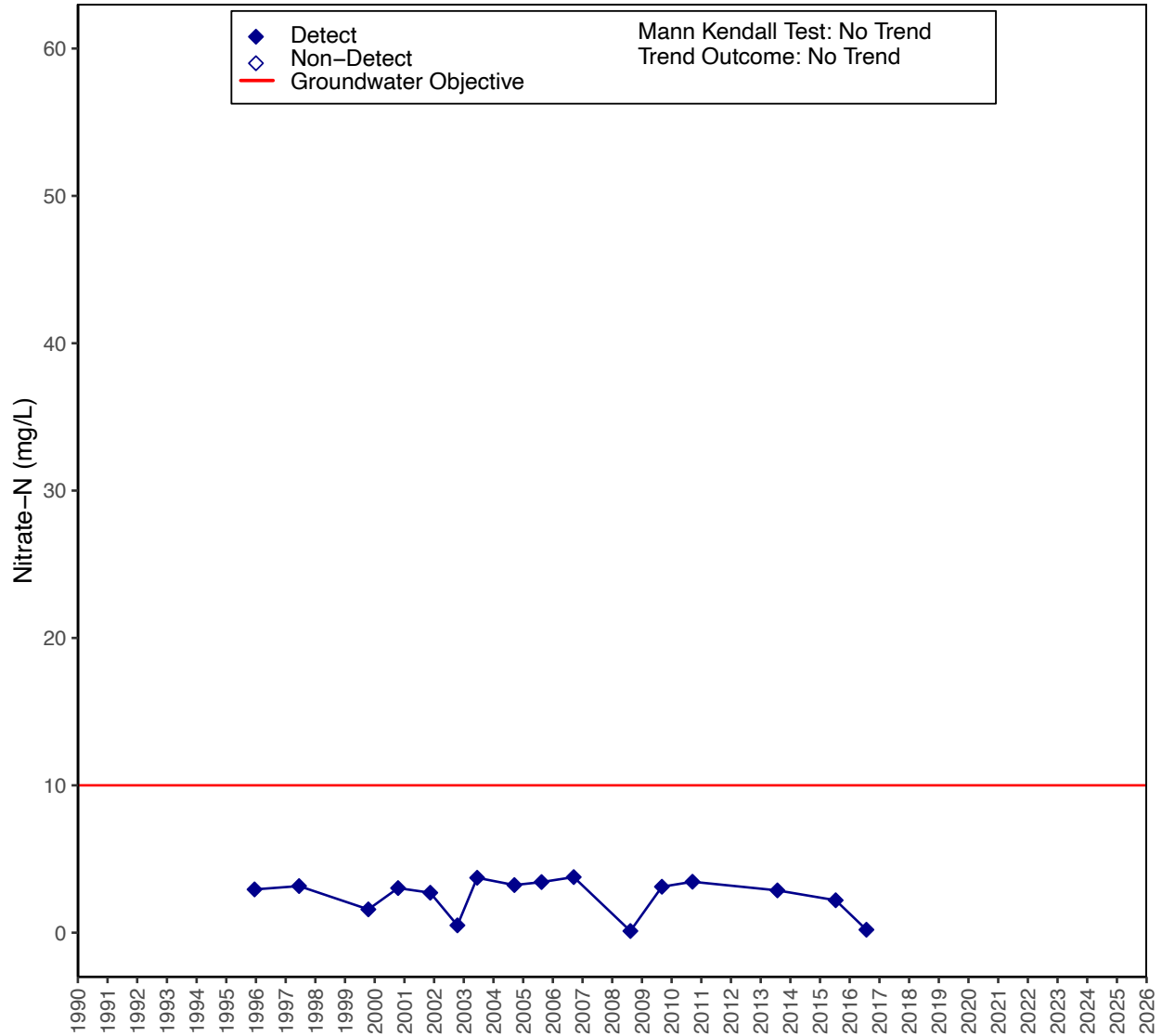
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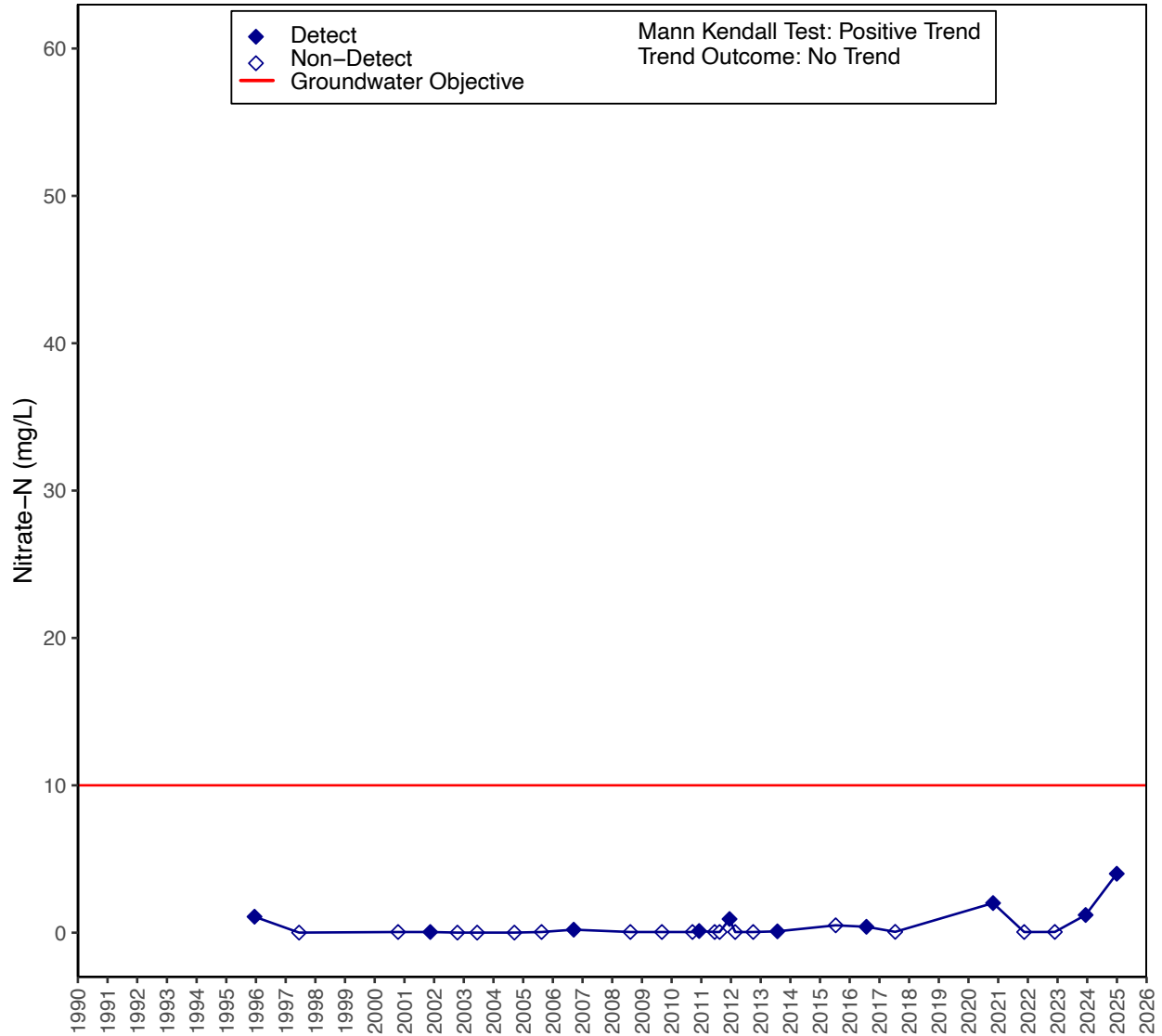
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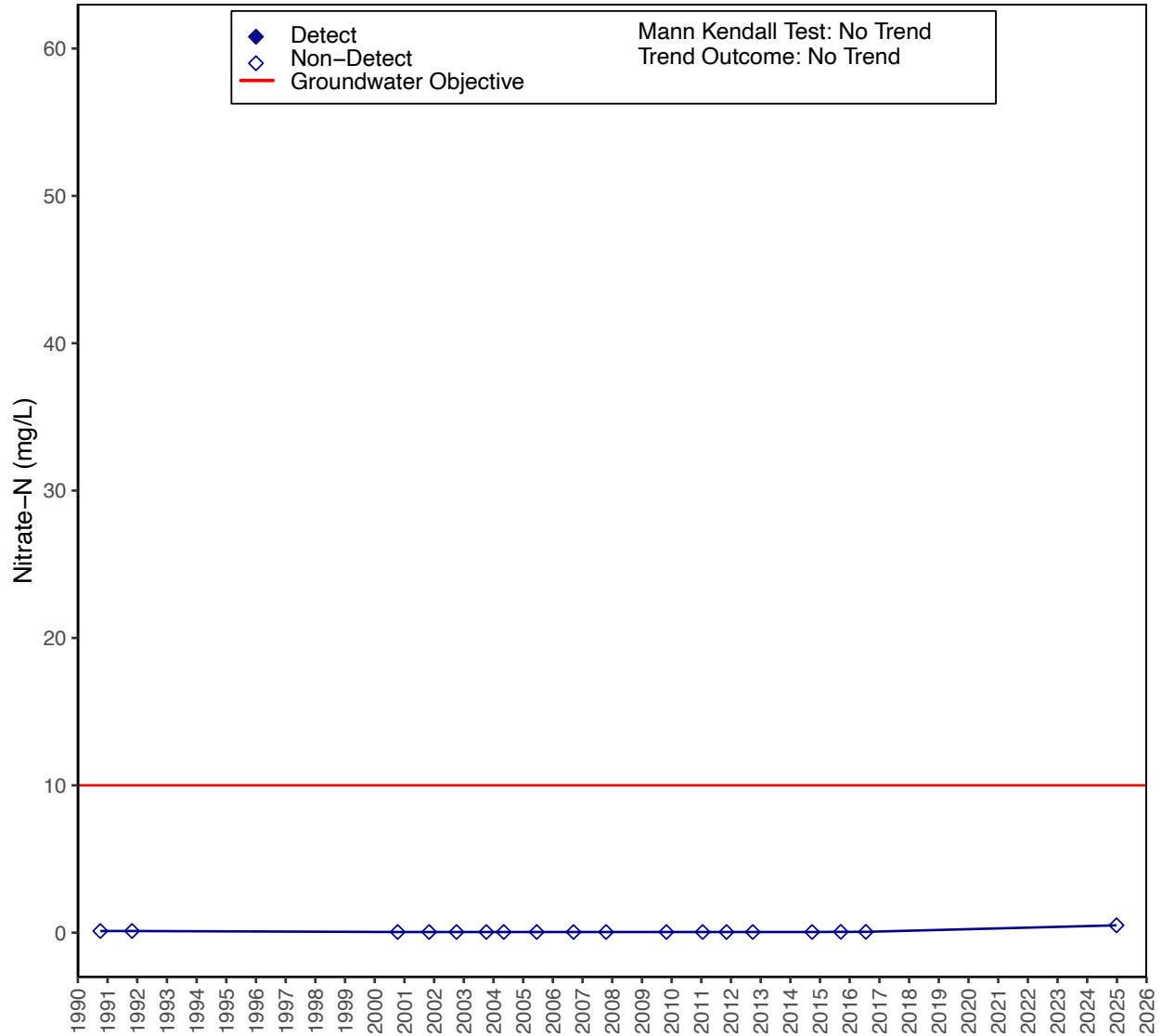
East & South Las Posas Valley Subbasin 02N20W02D02S_D02S



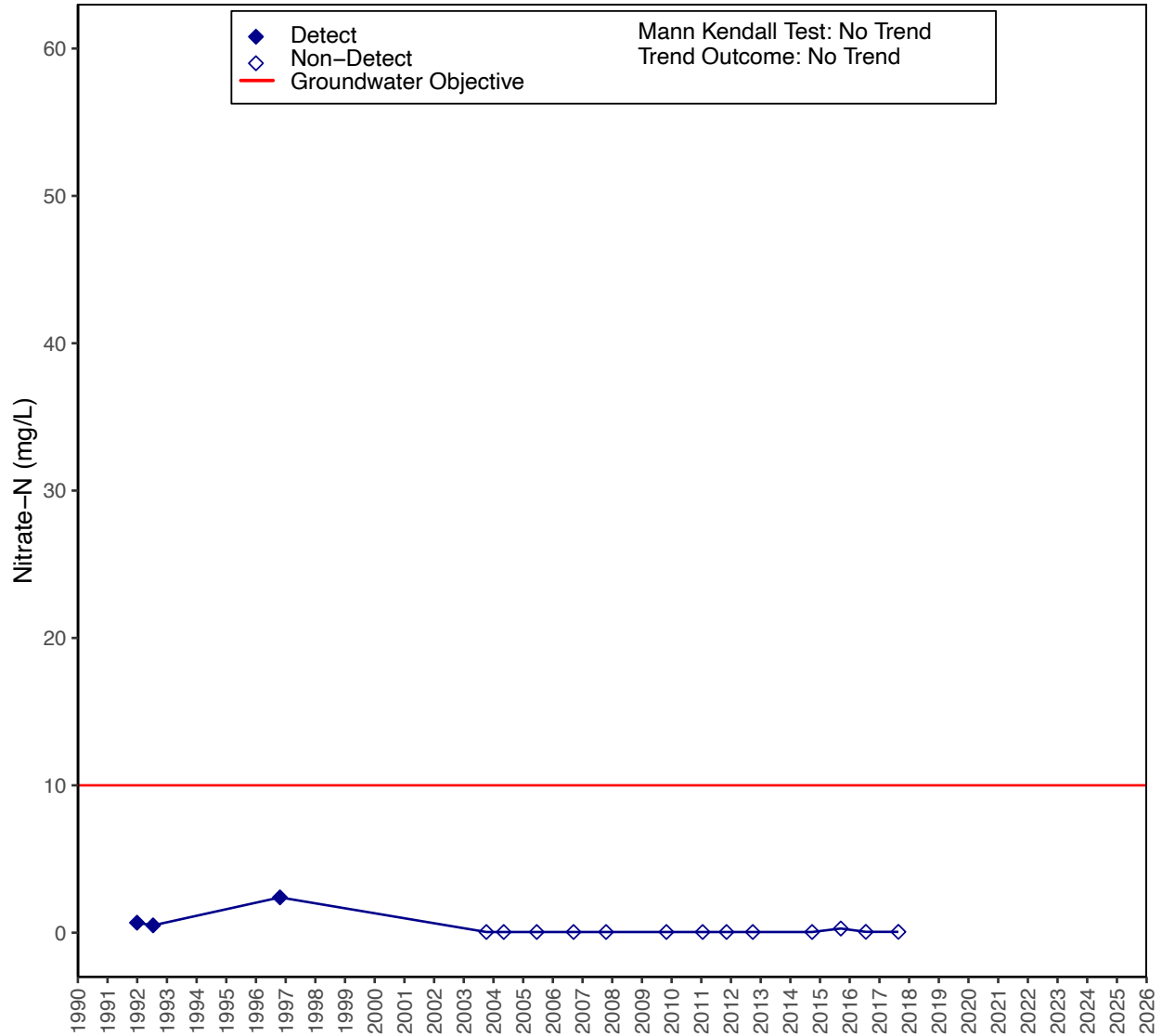
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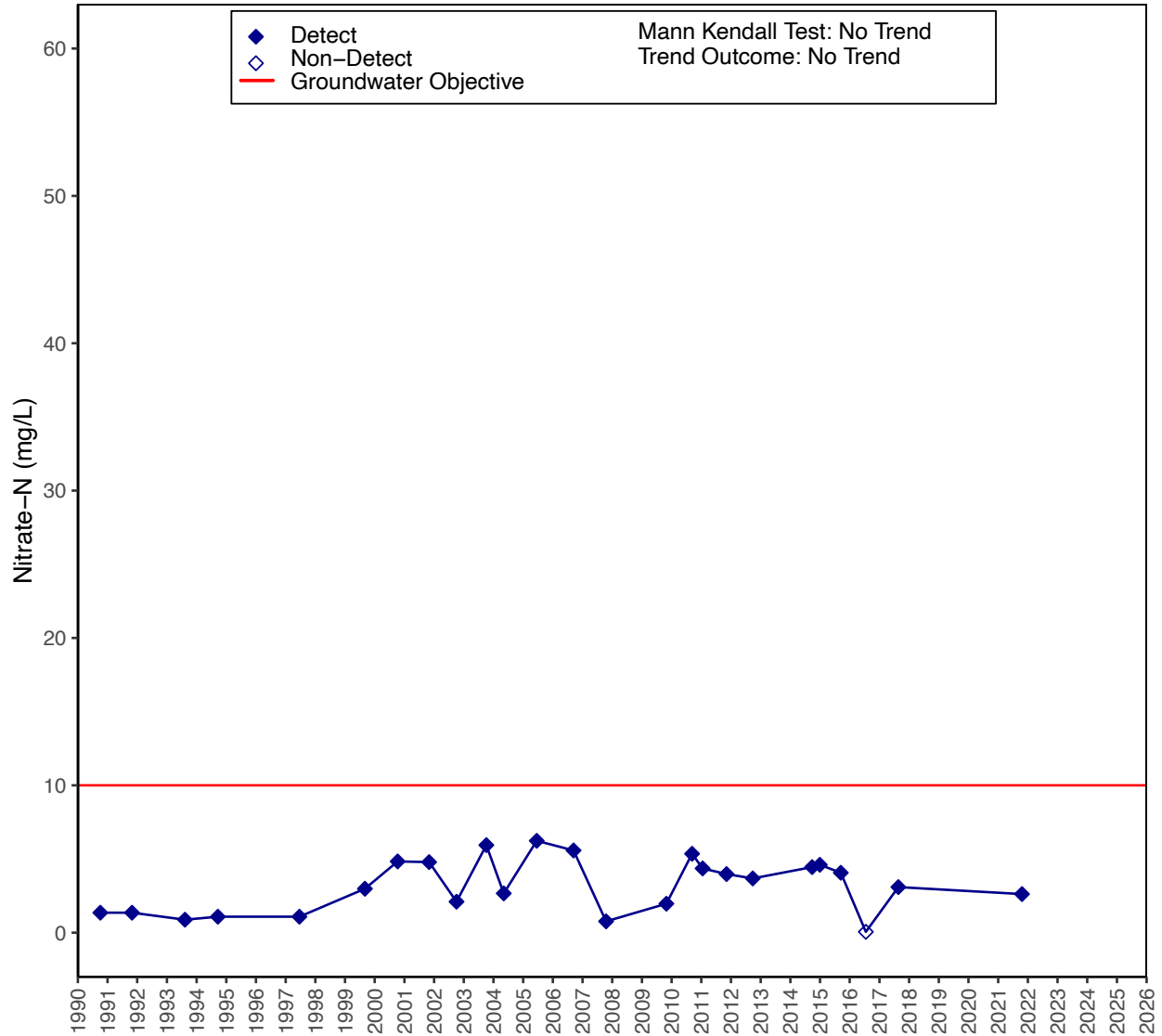
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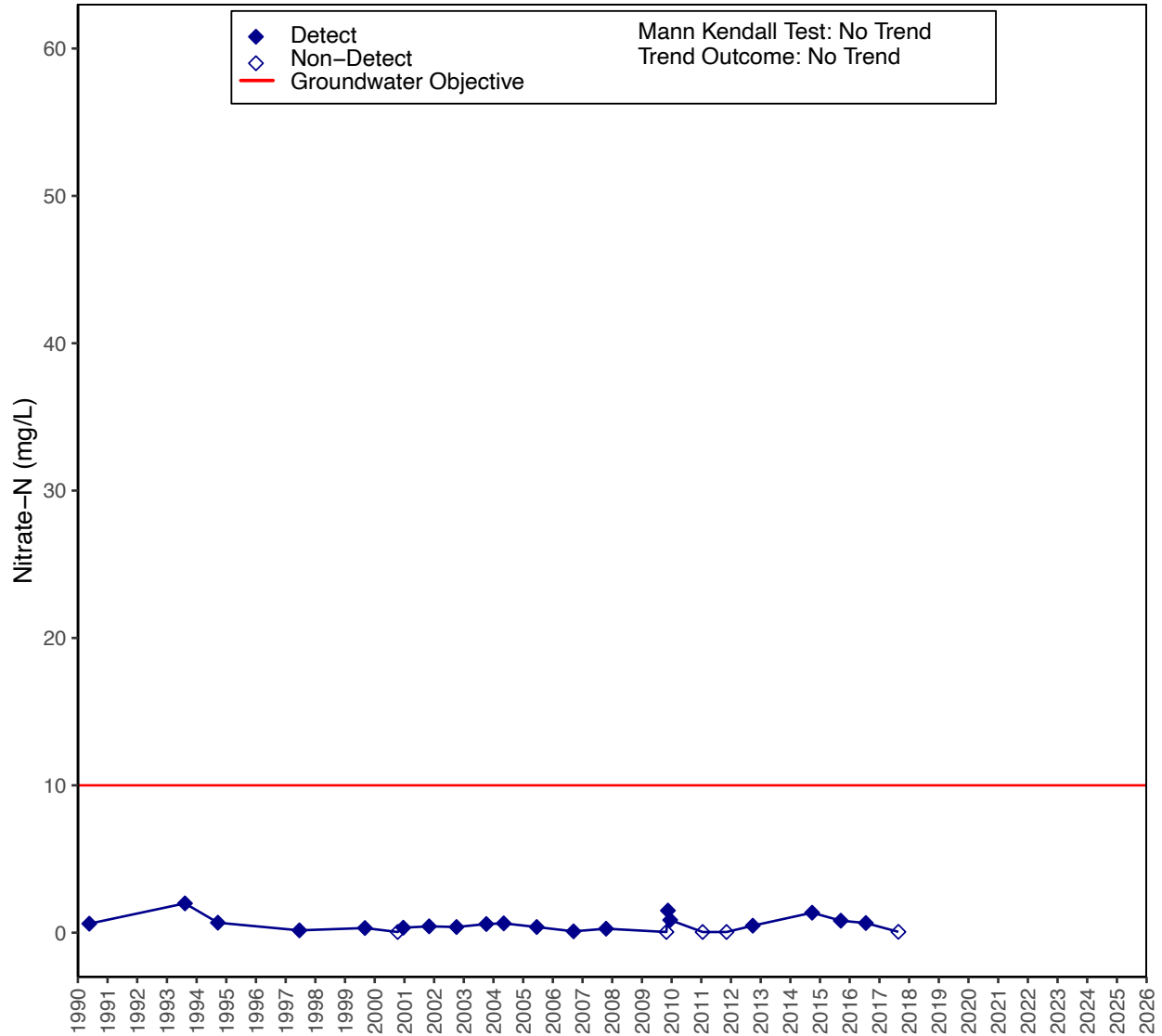
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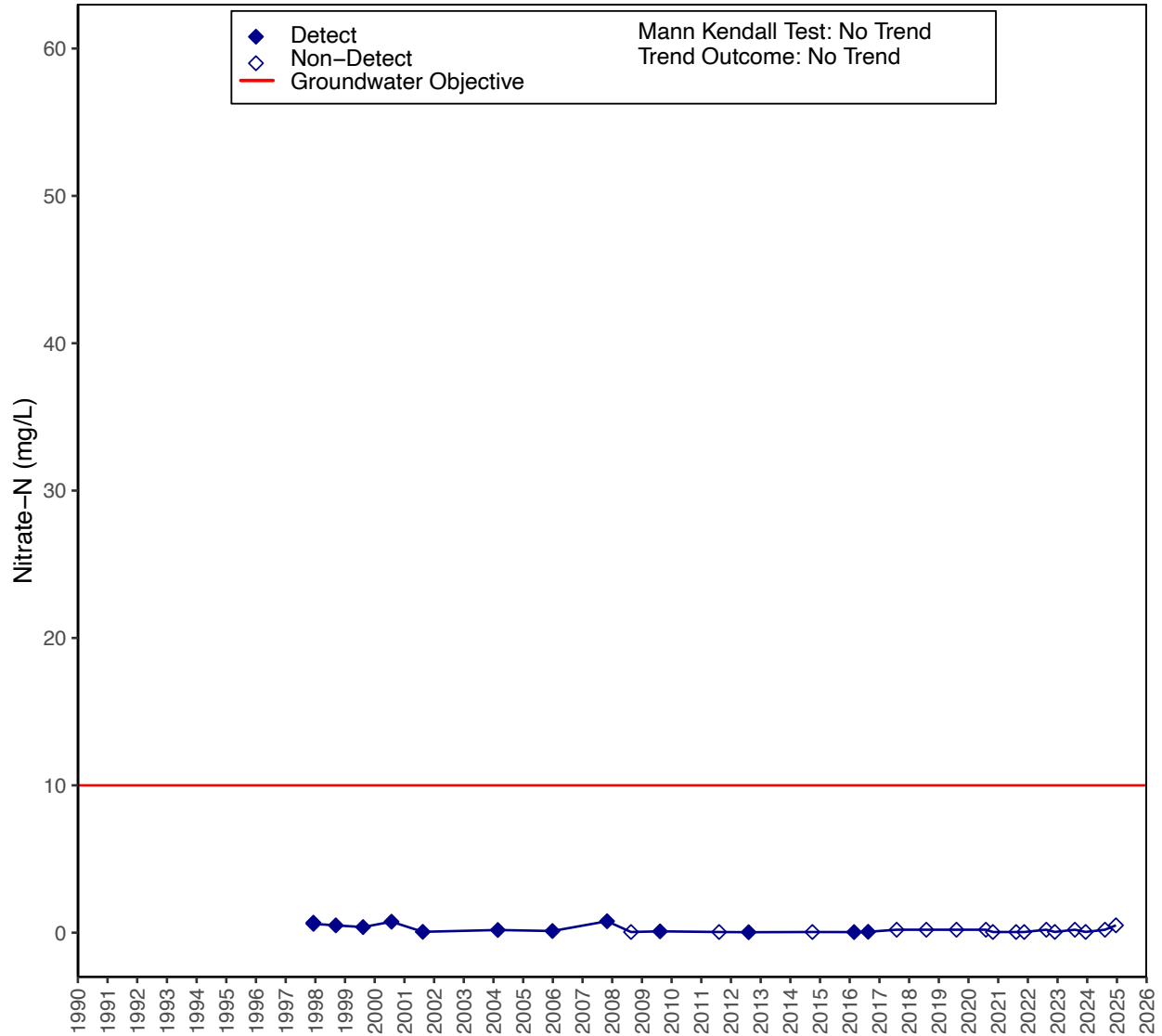
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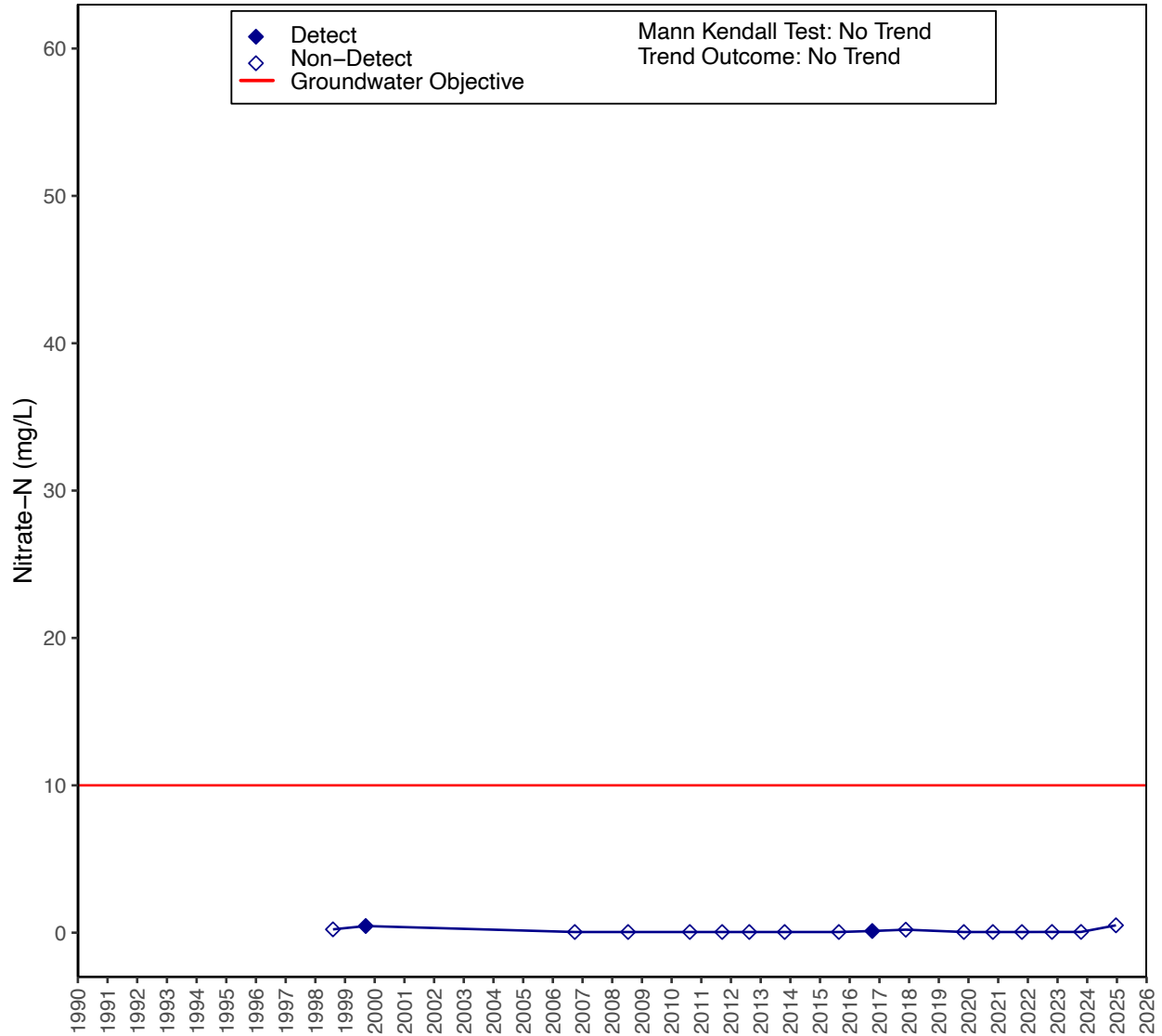
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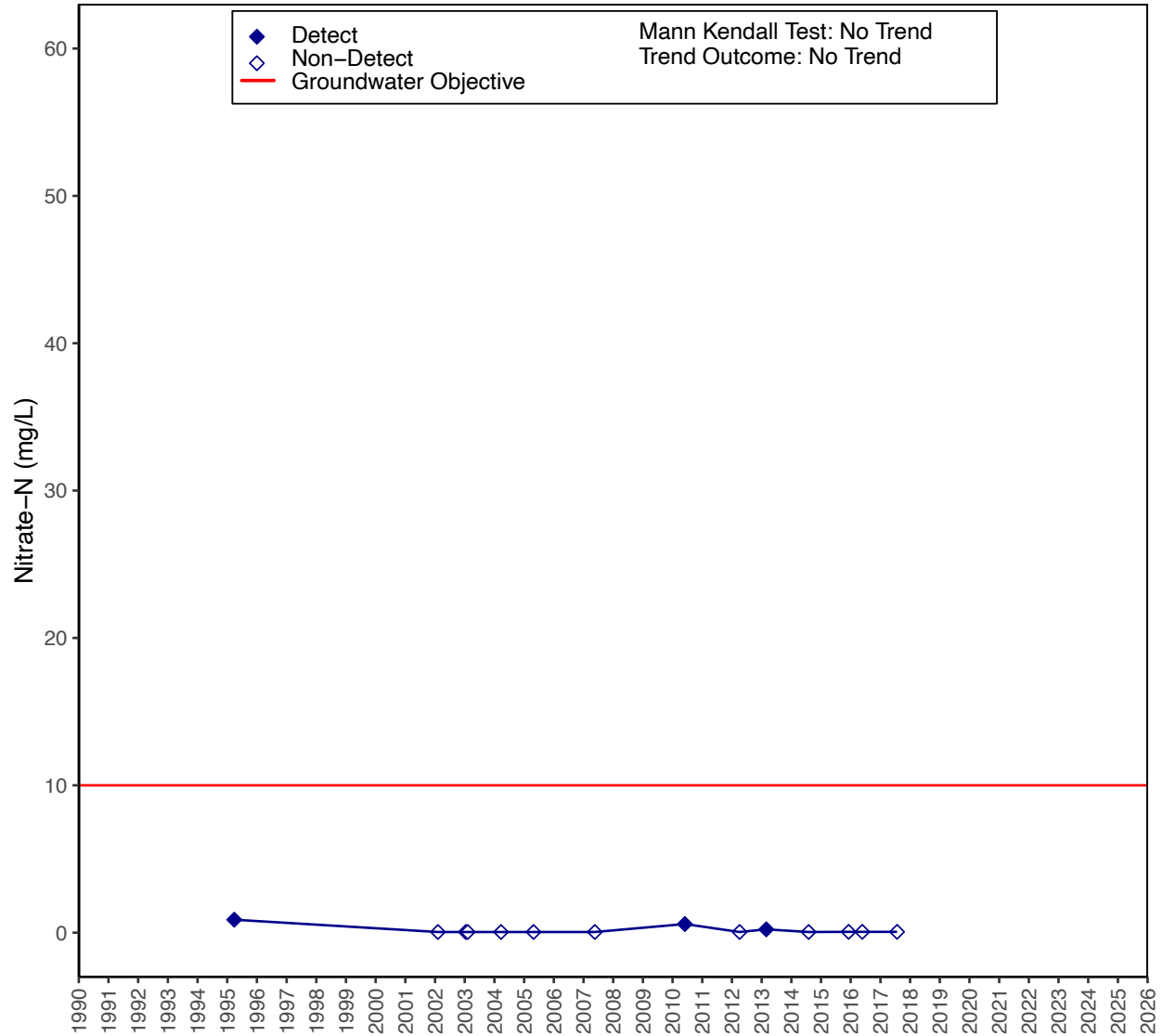
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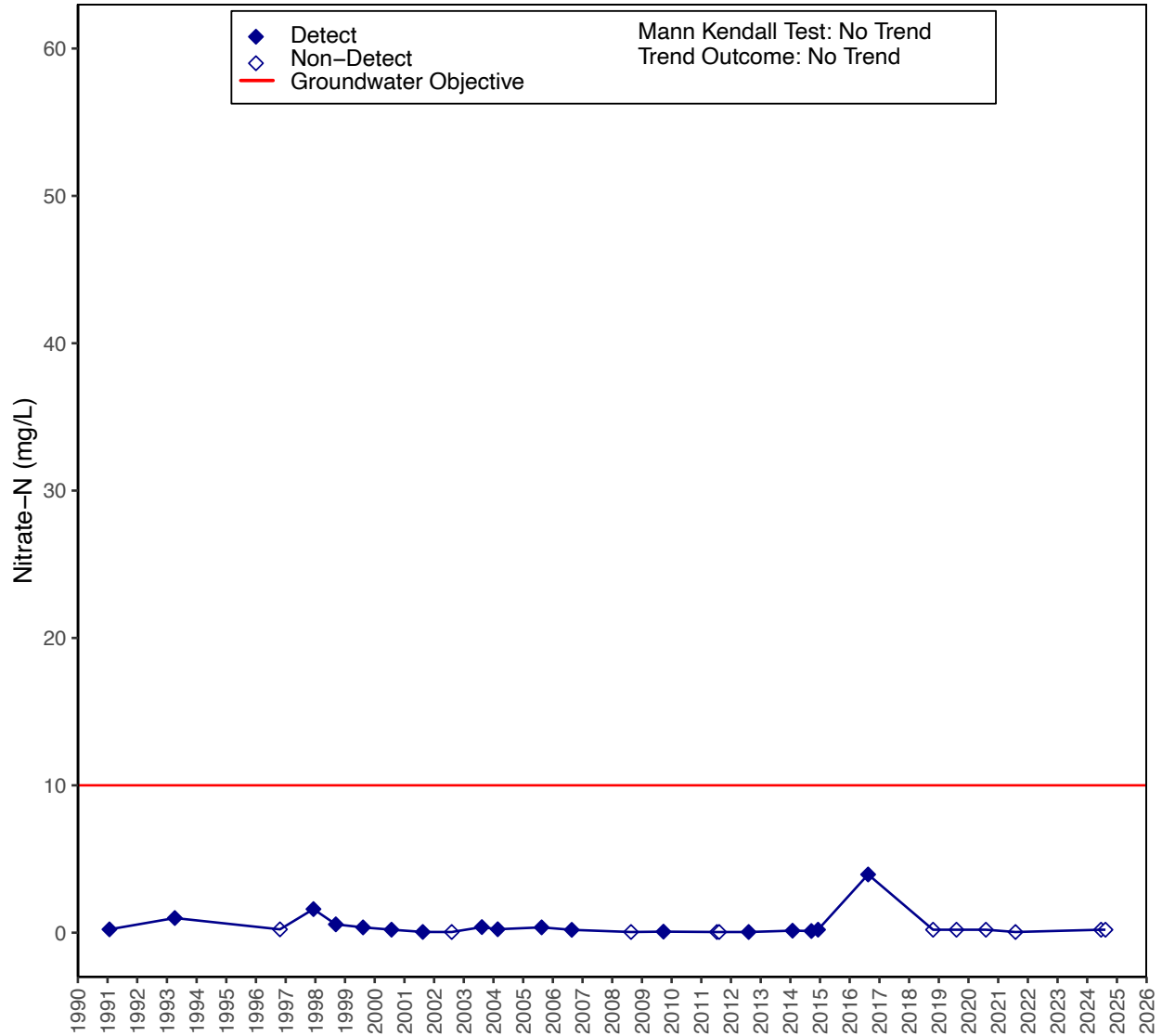
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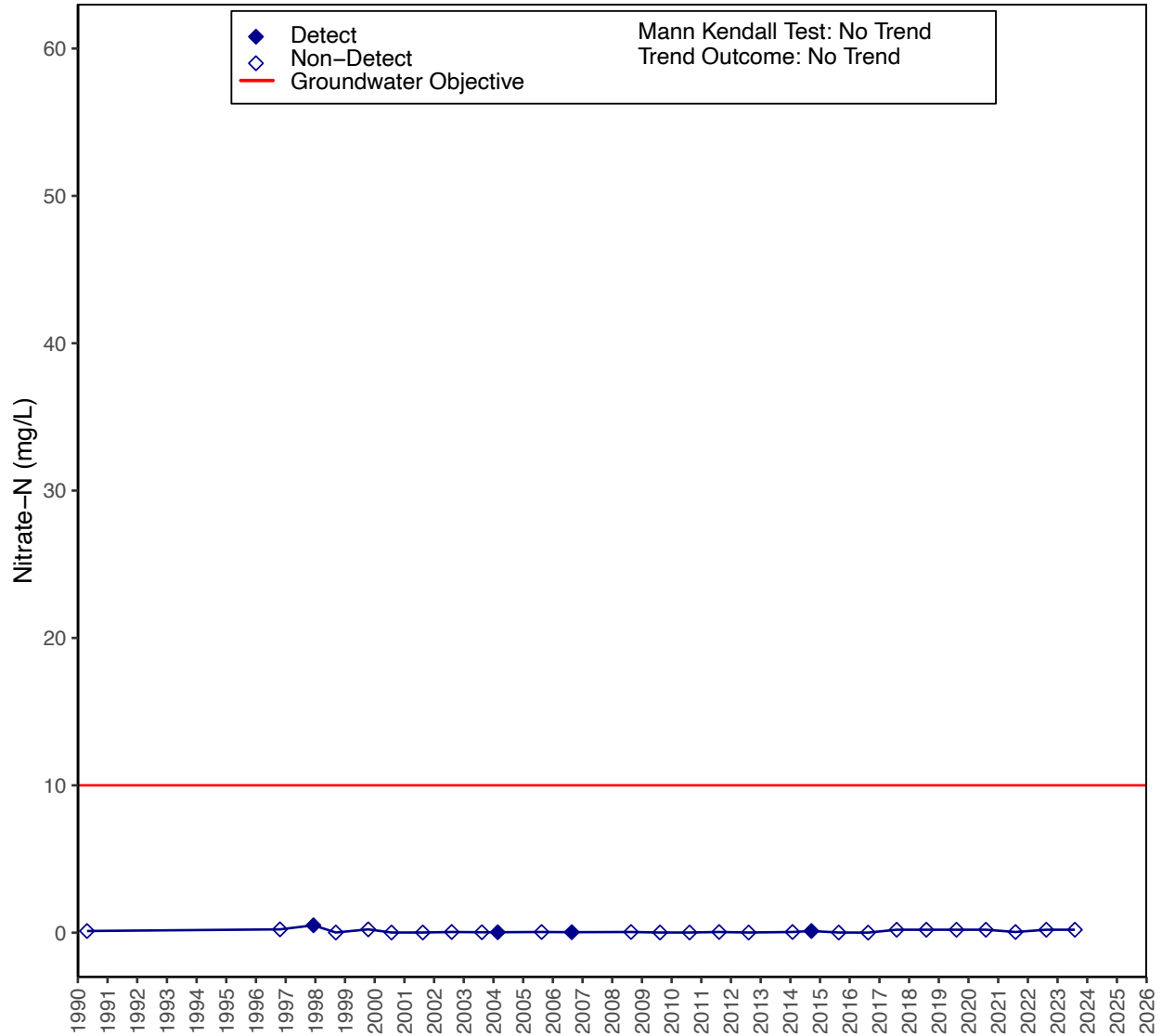
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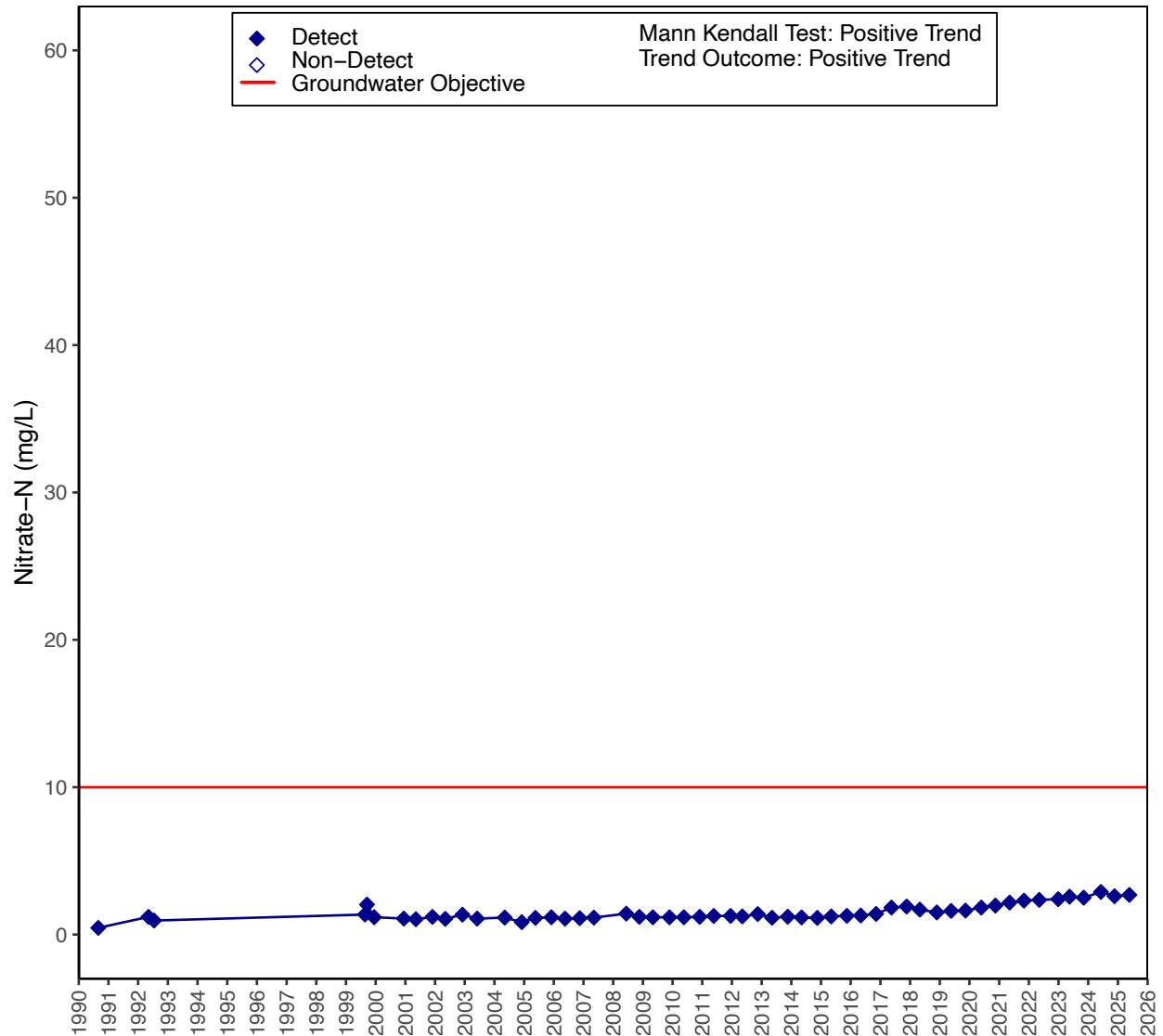
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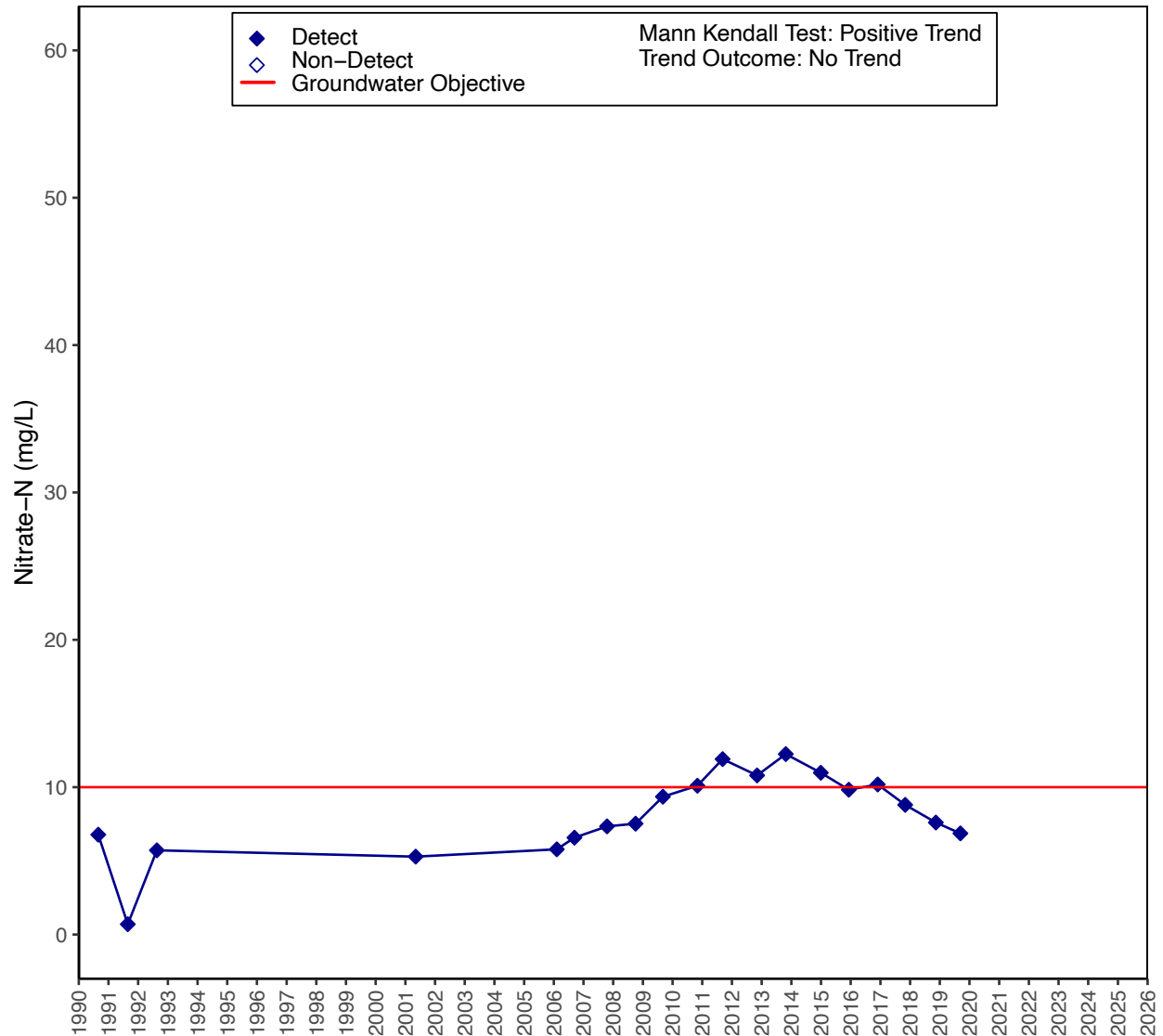
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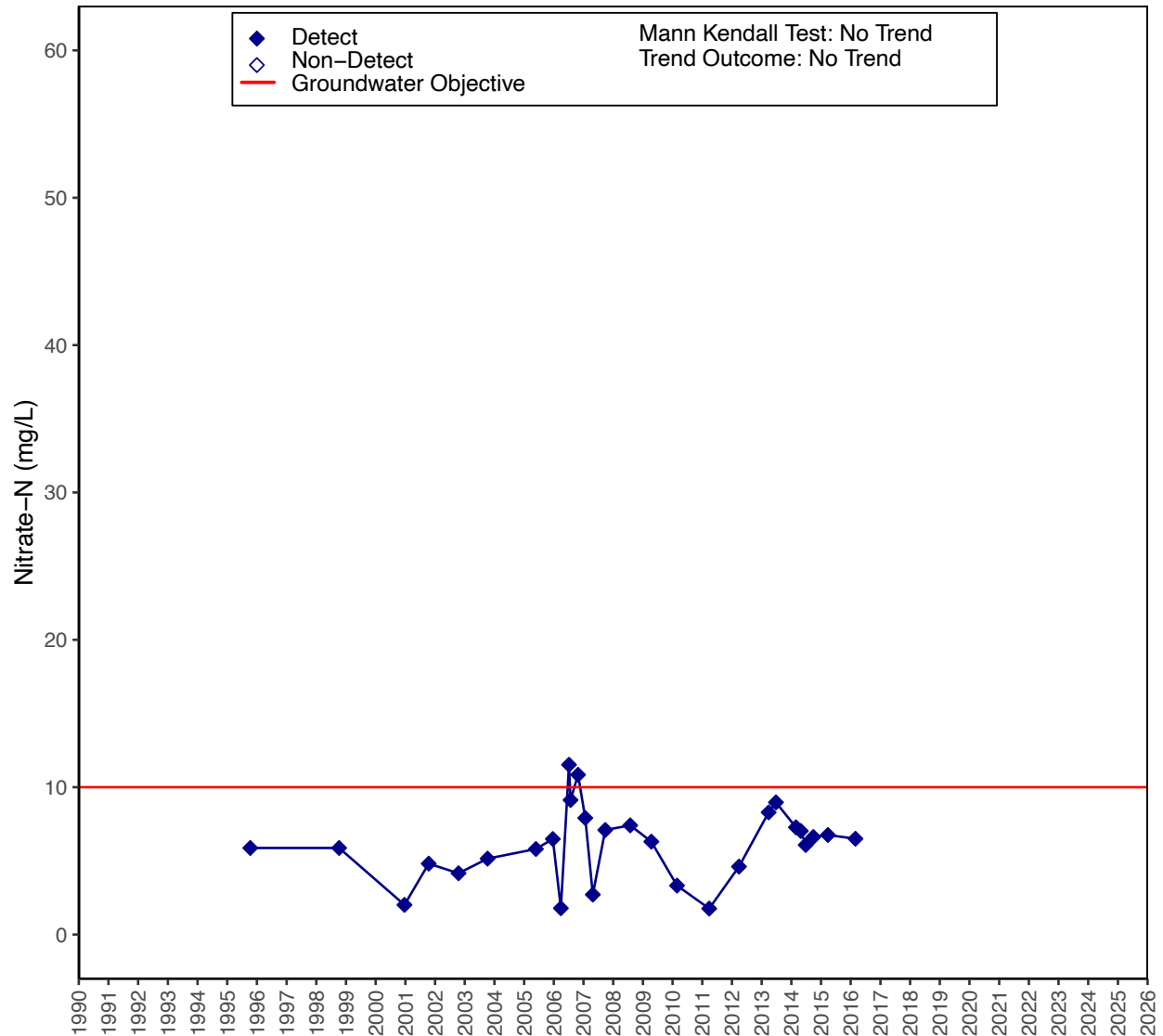
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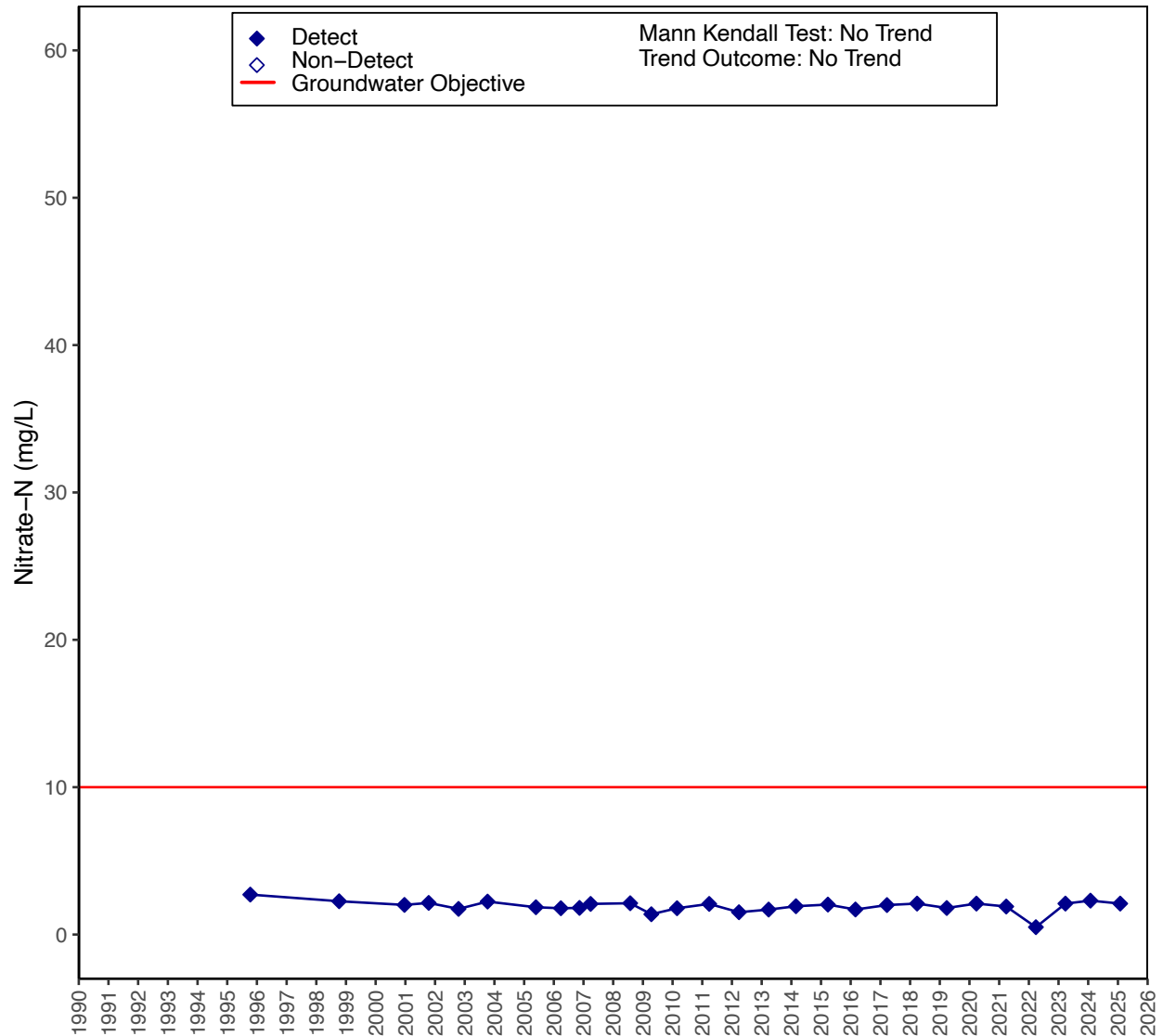
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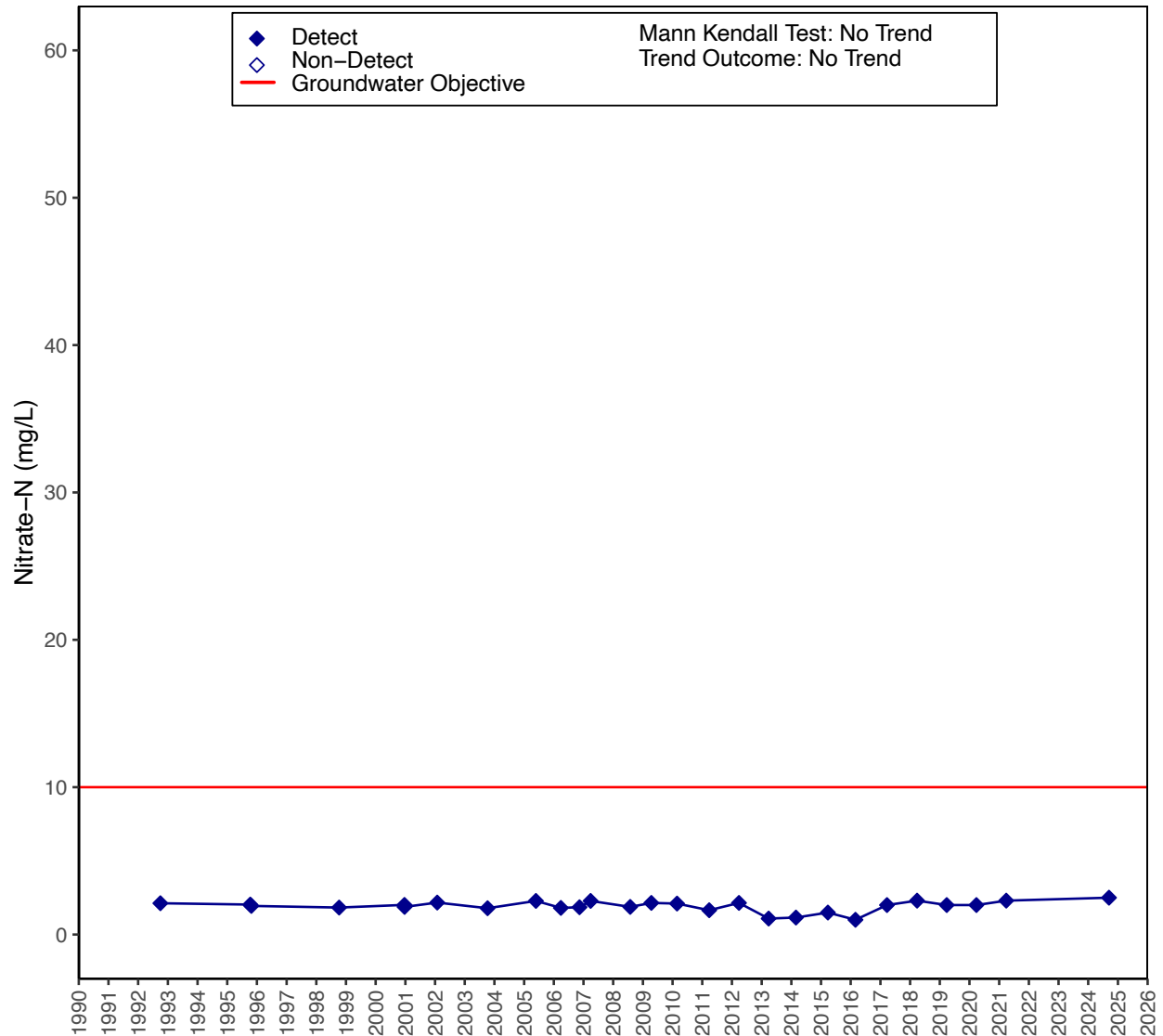
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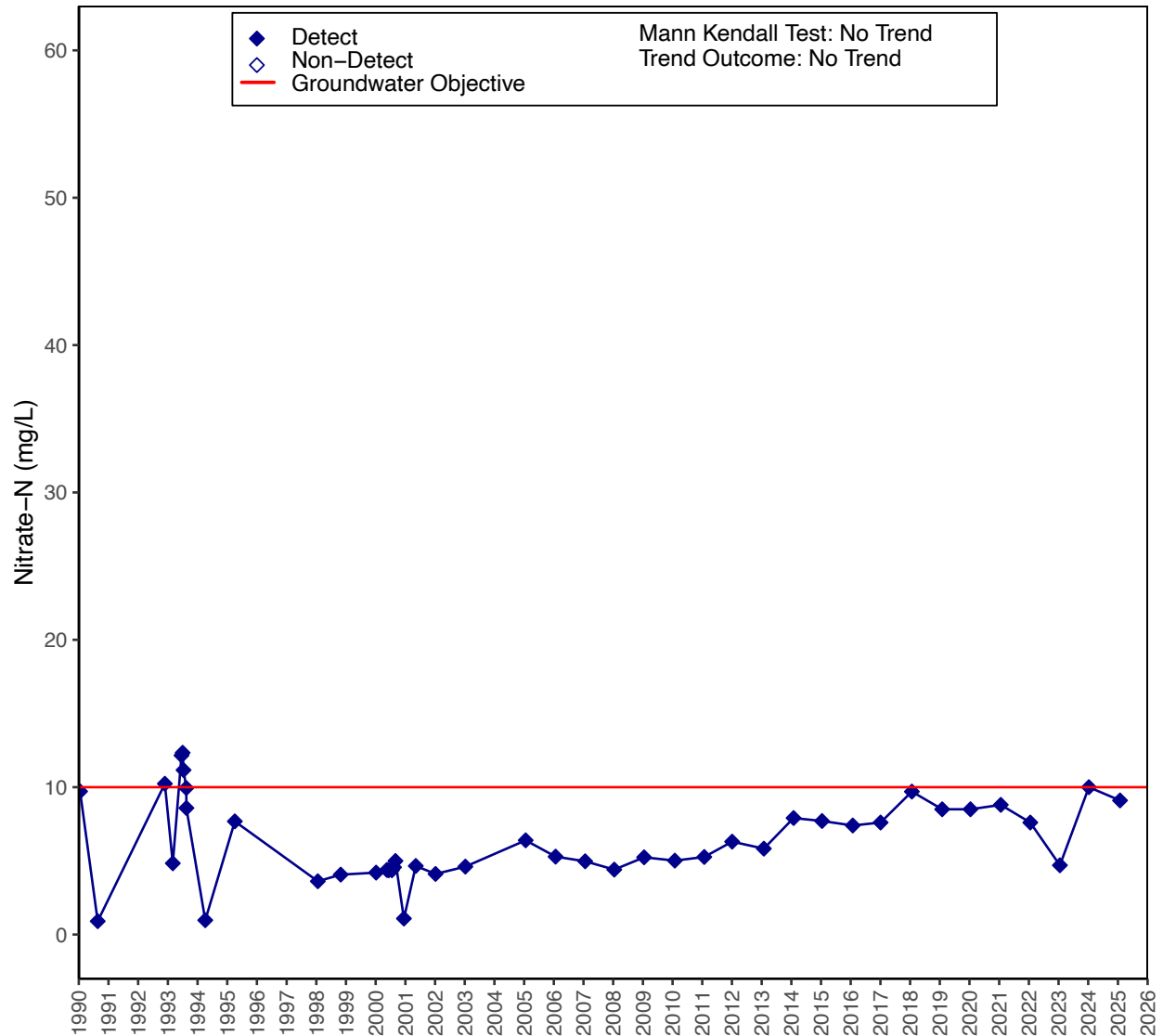
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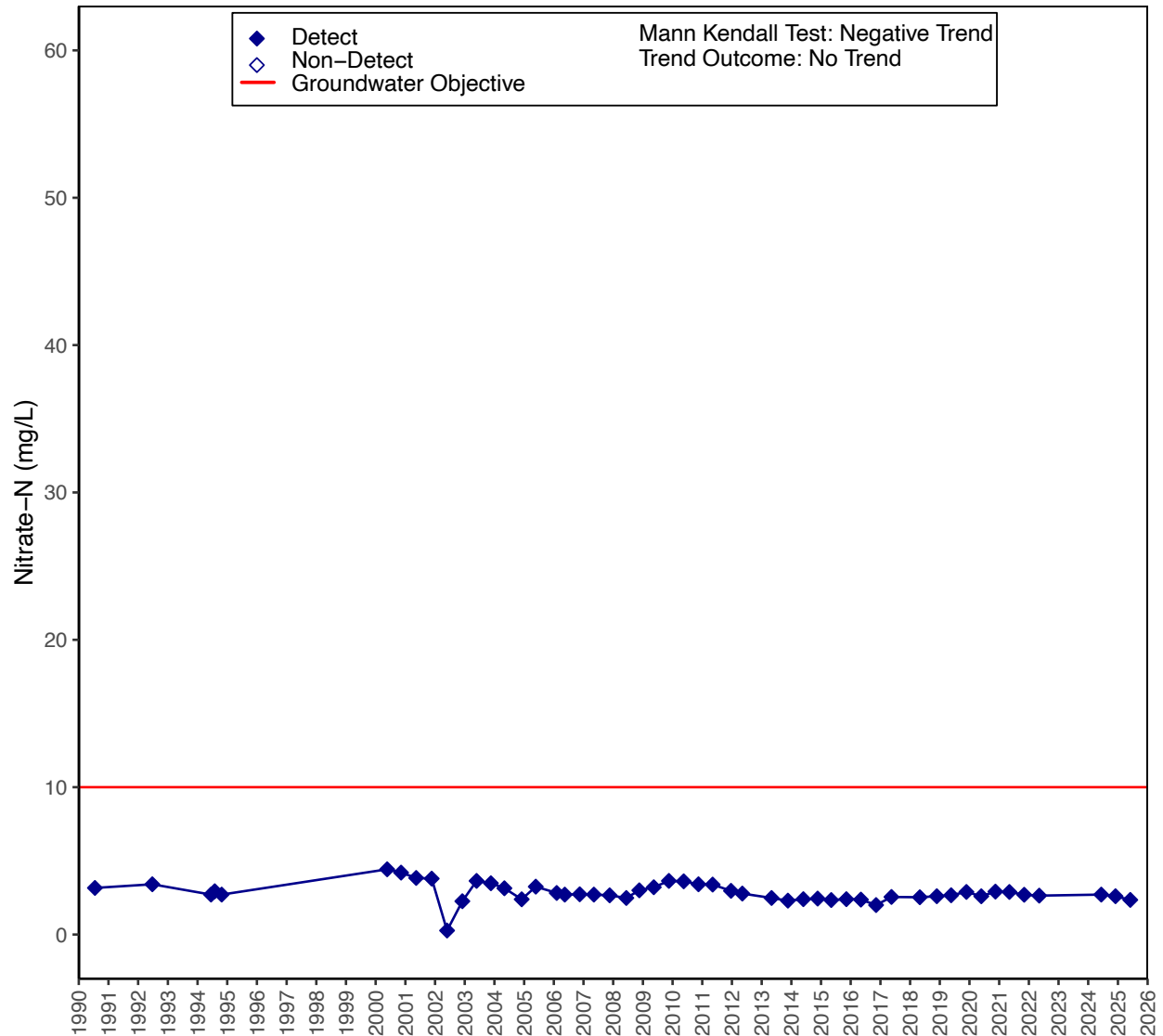
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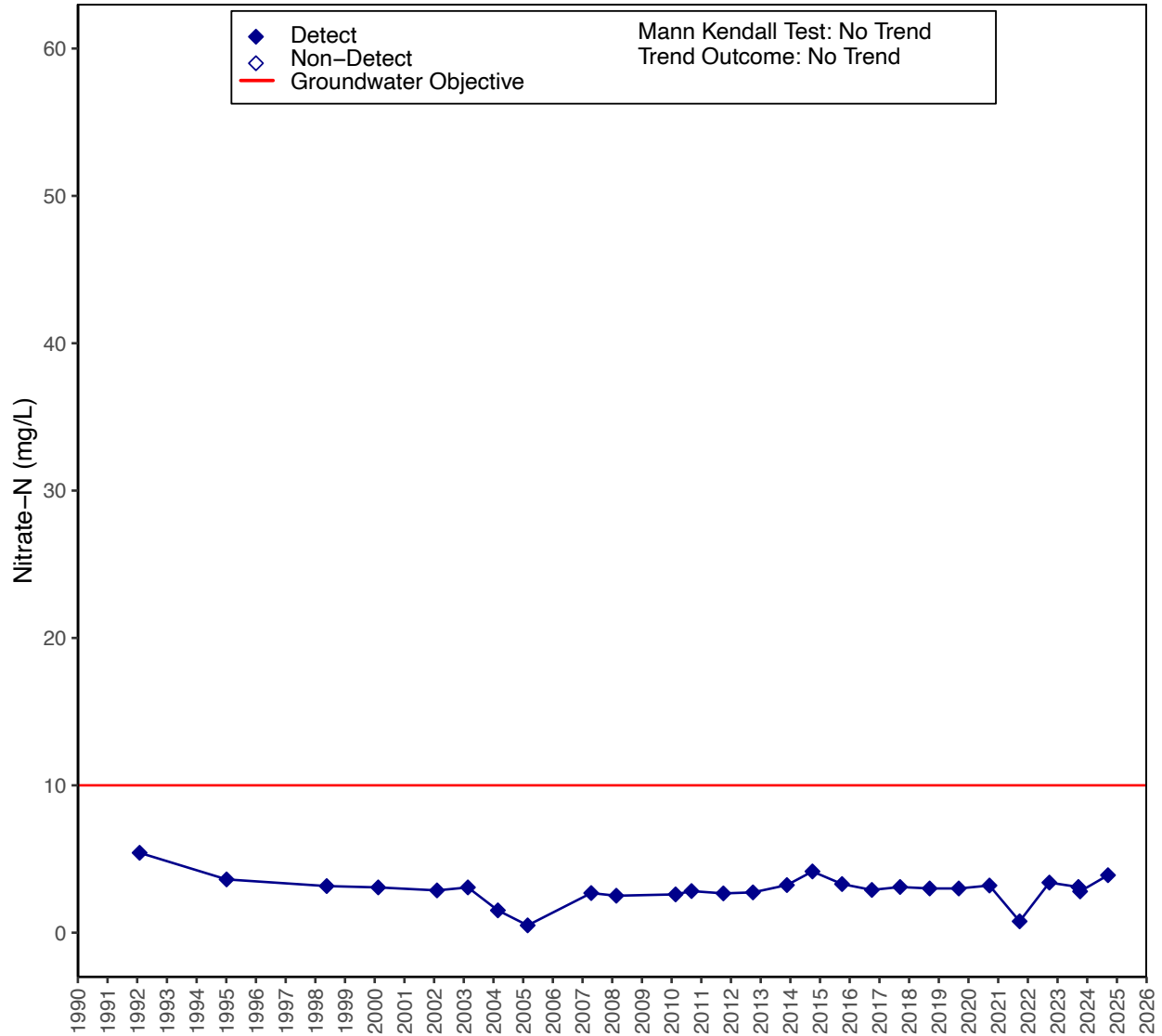
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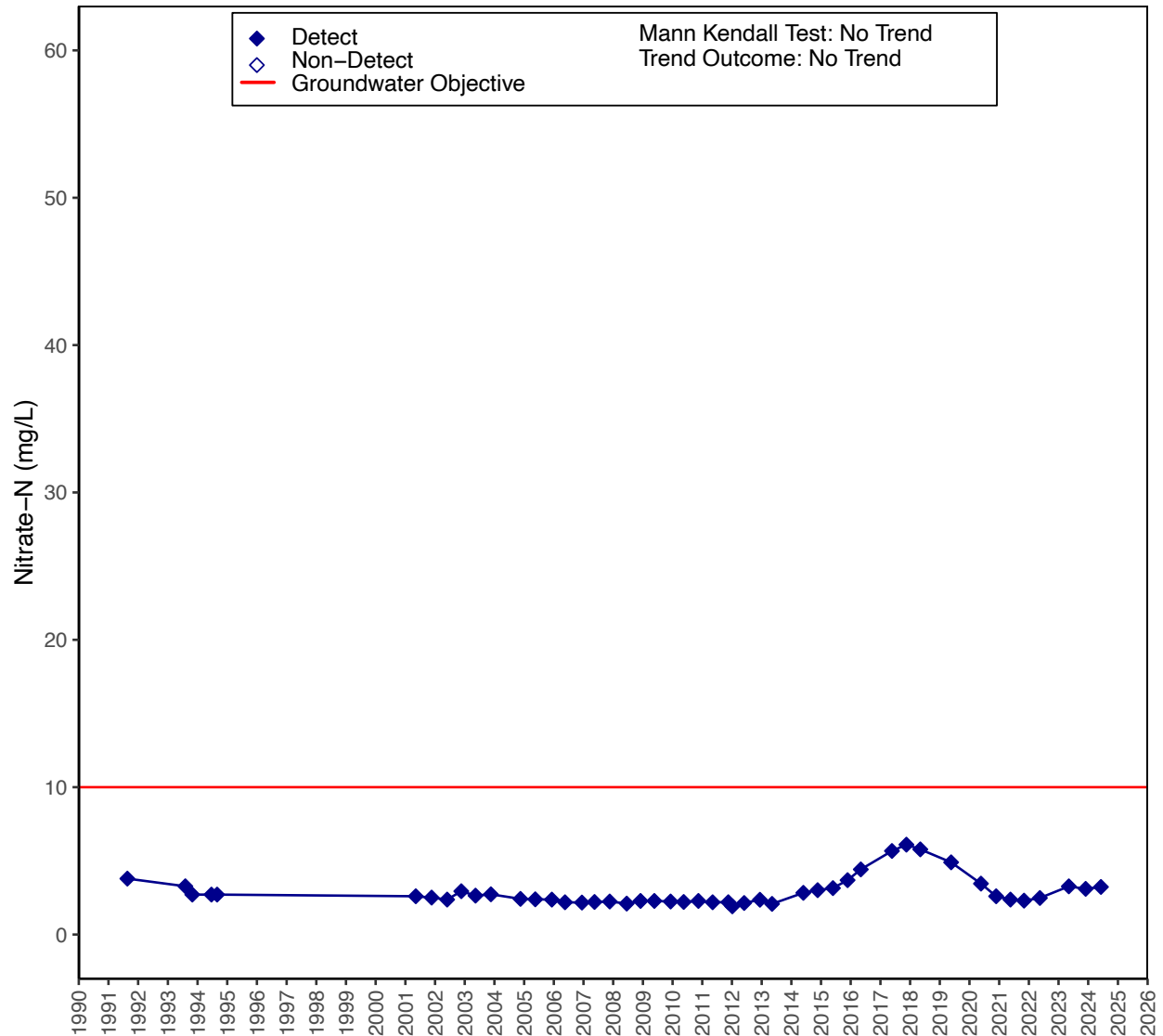
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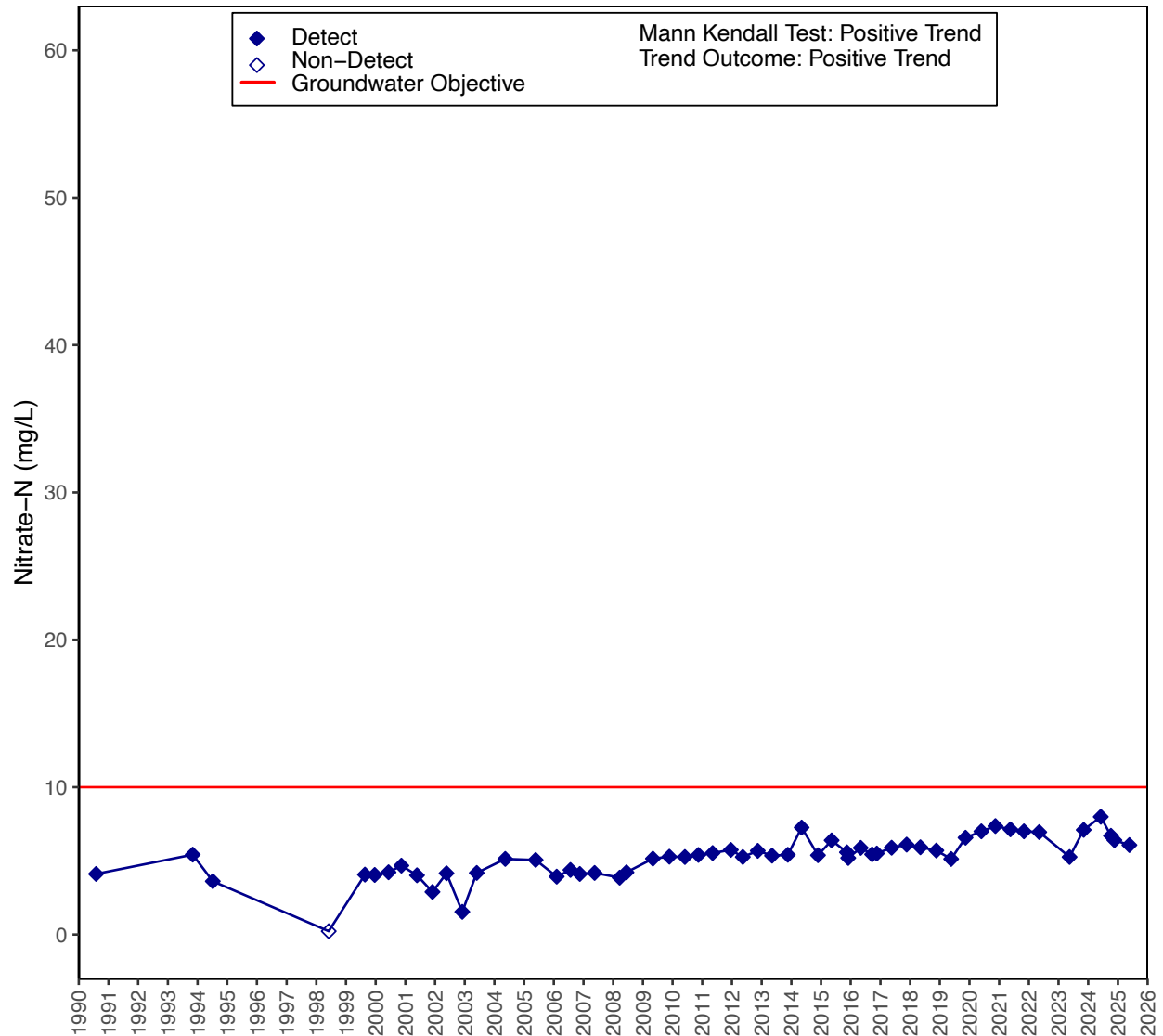
**Fillmore Basin
03N20W08F01S_F01S**



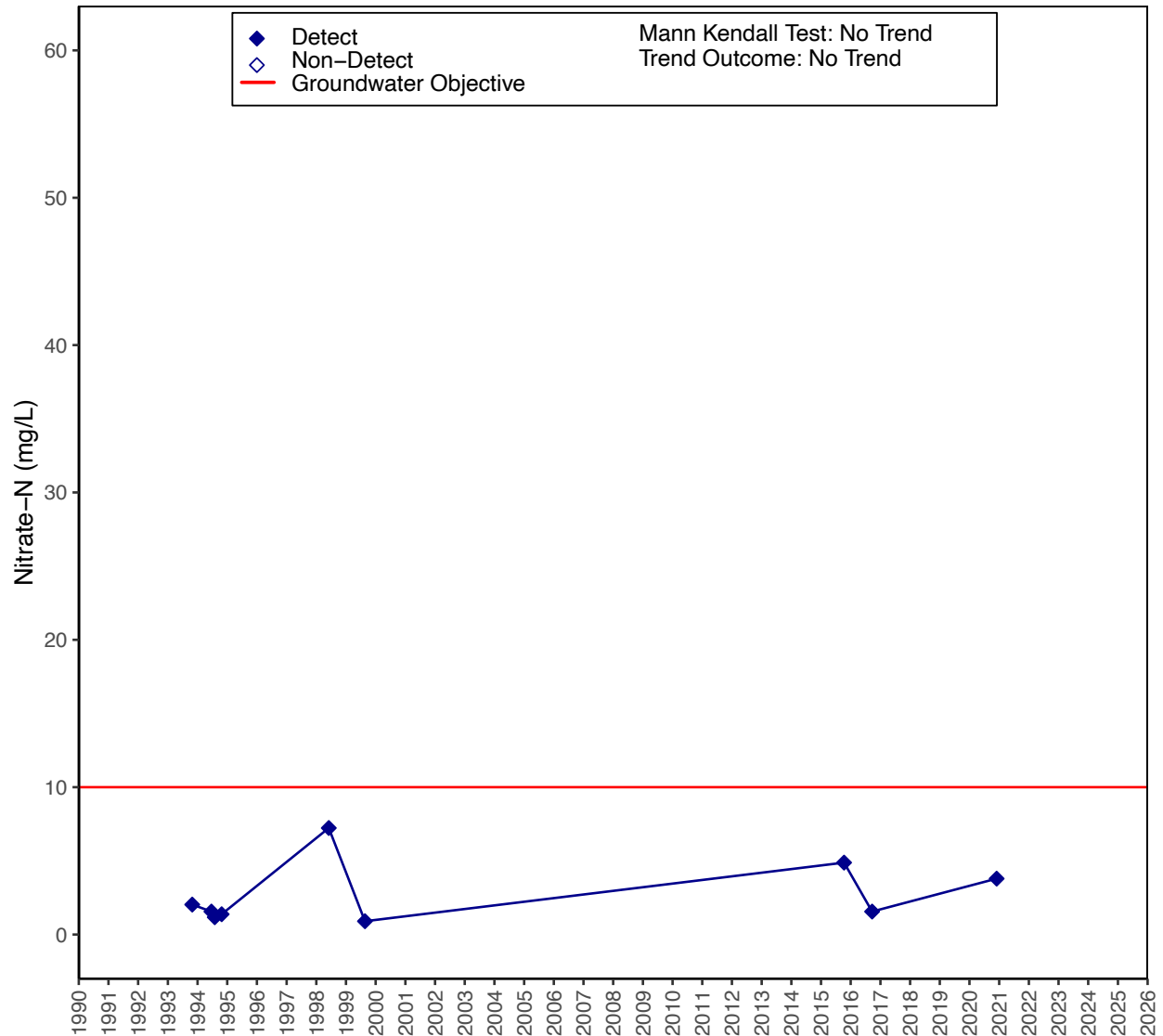
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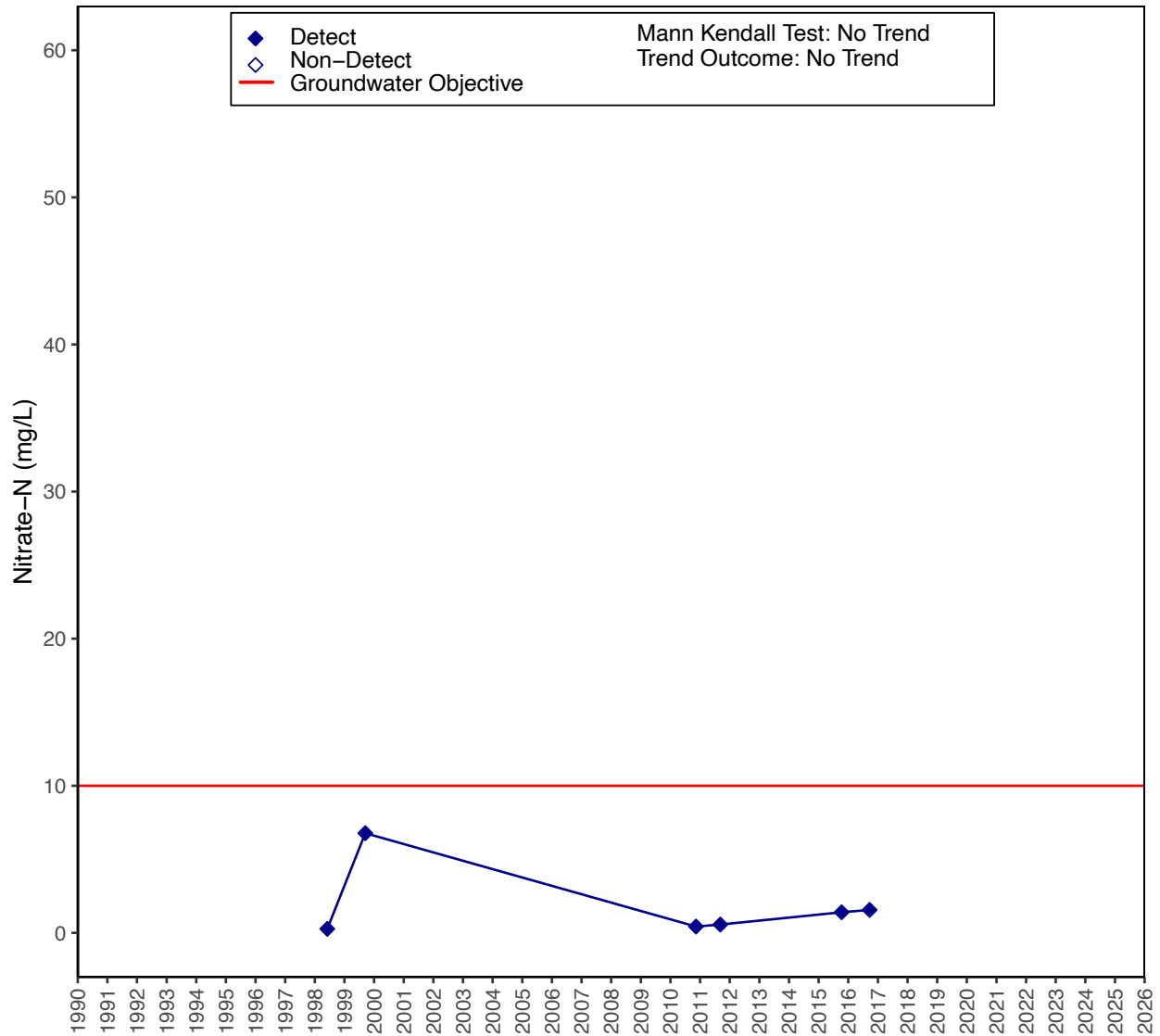
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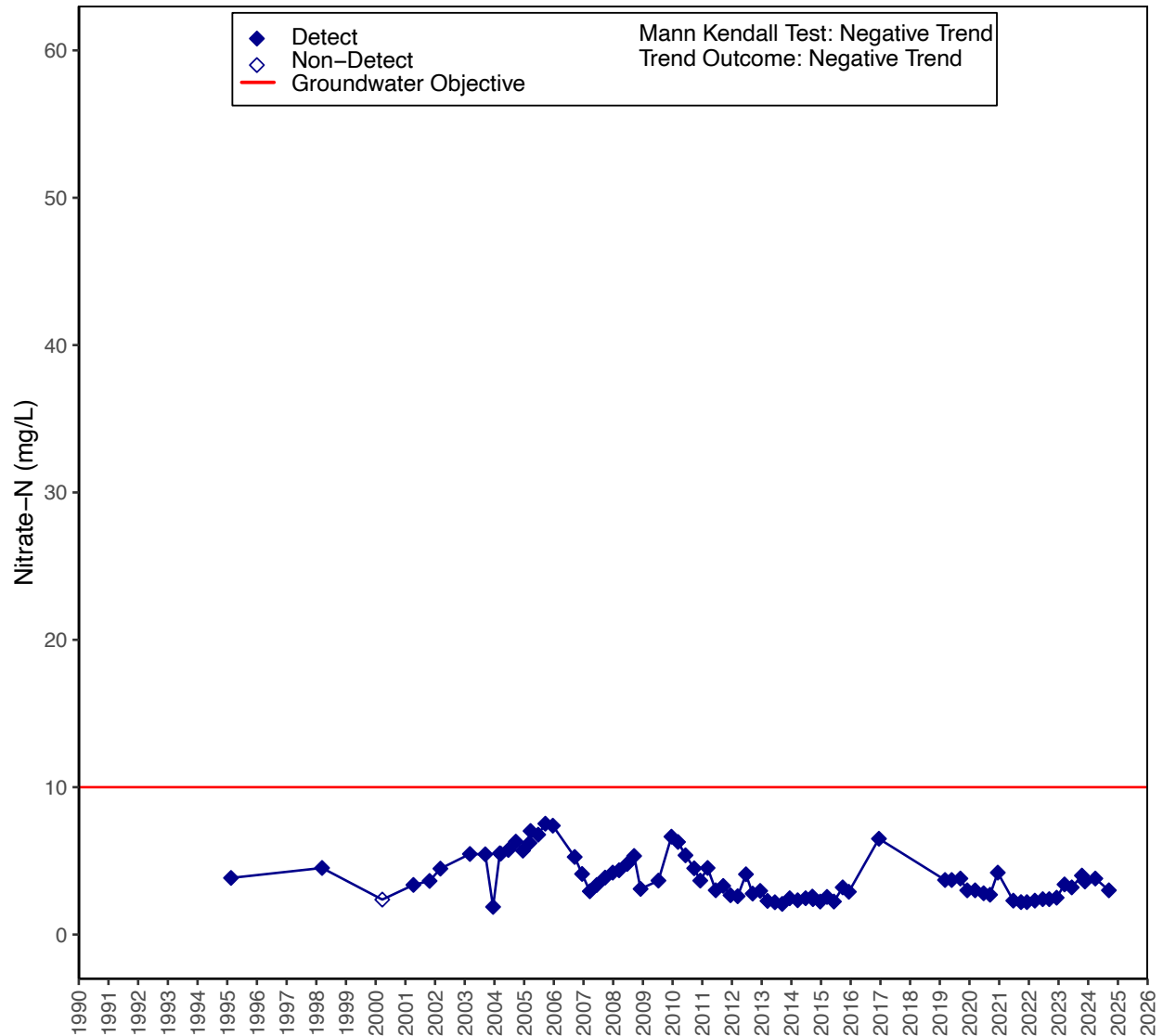
**Fillmore Basin
04N19W31R01S_R01S**



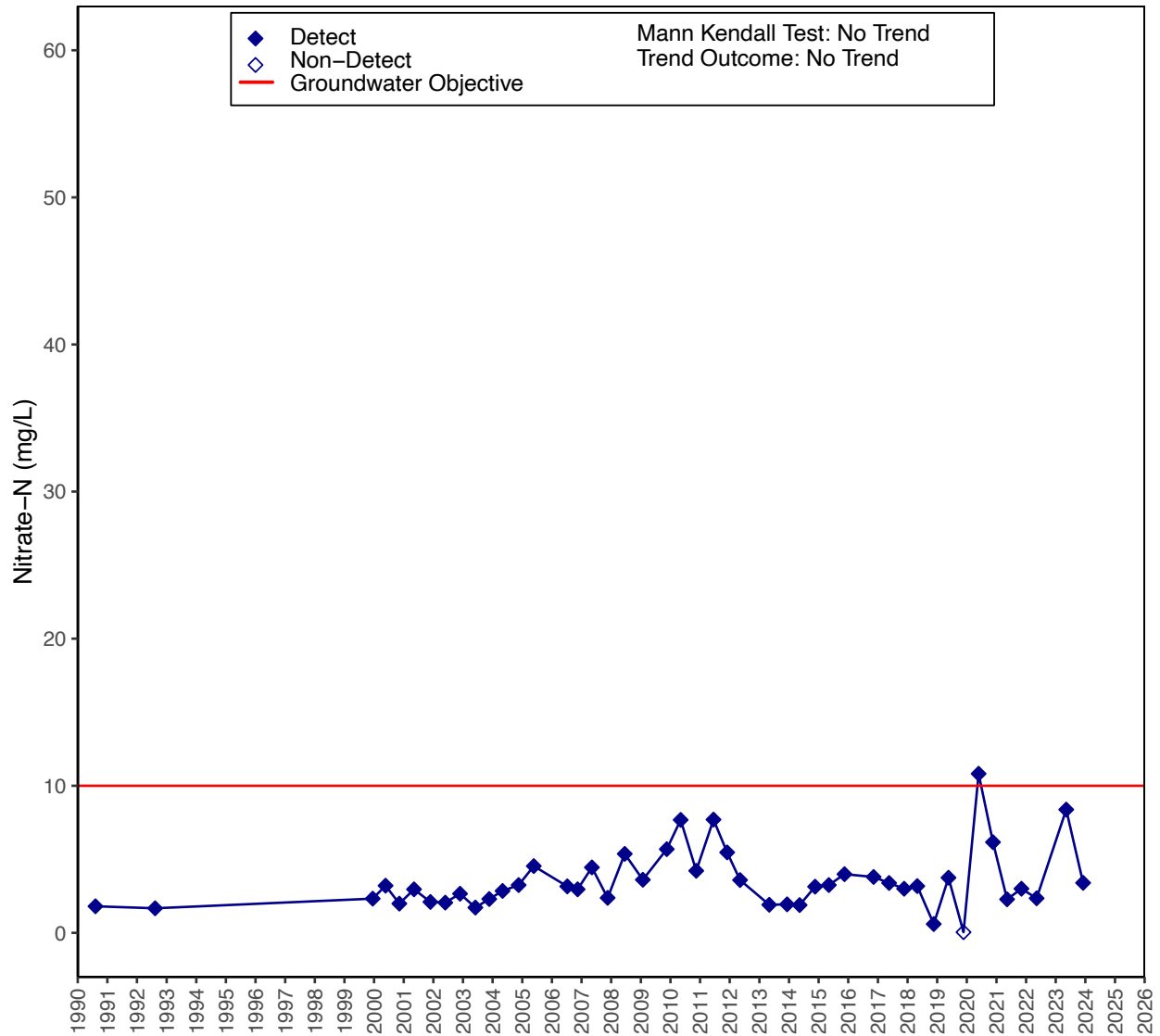
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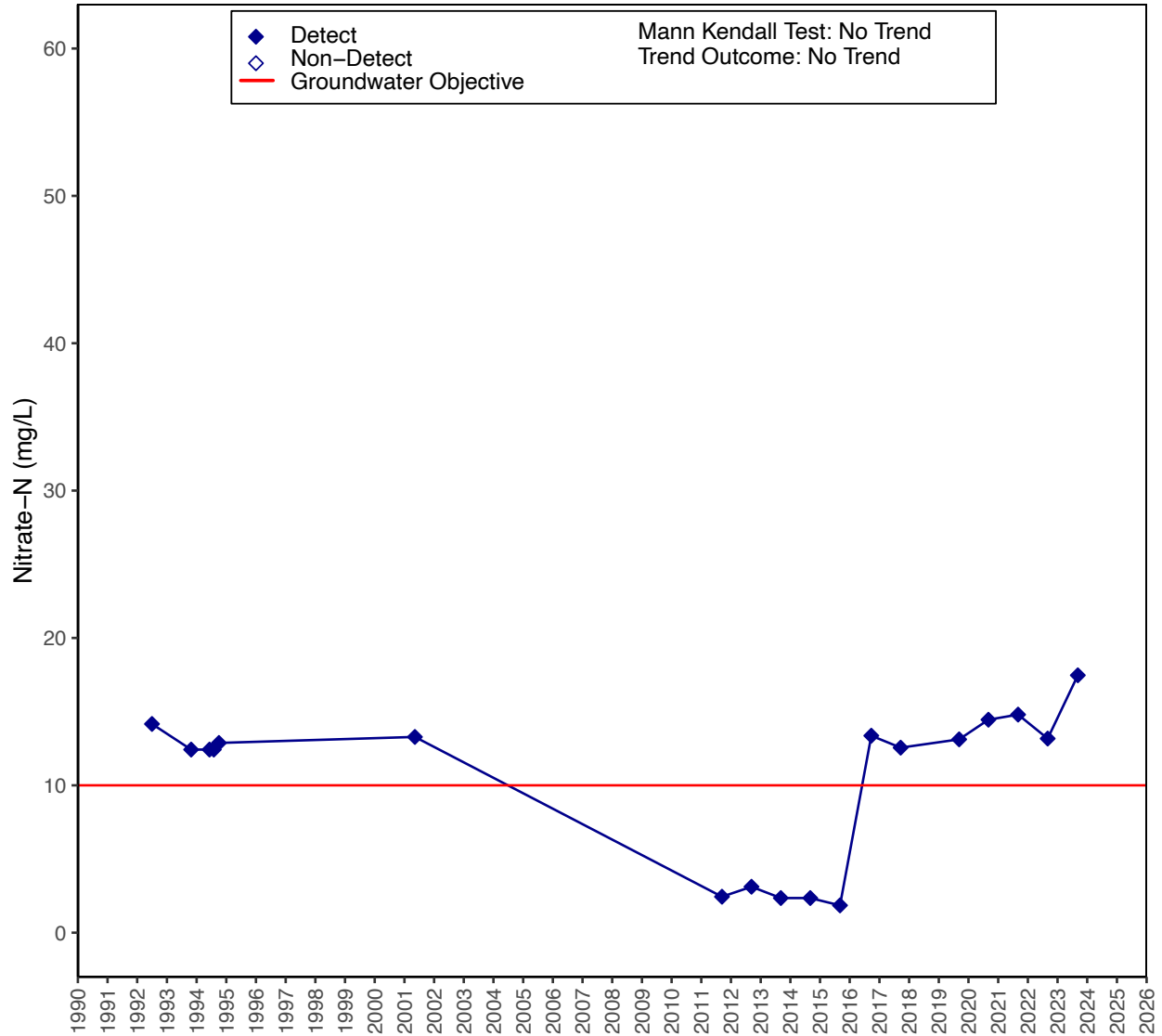
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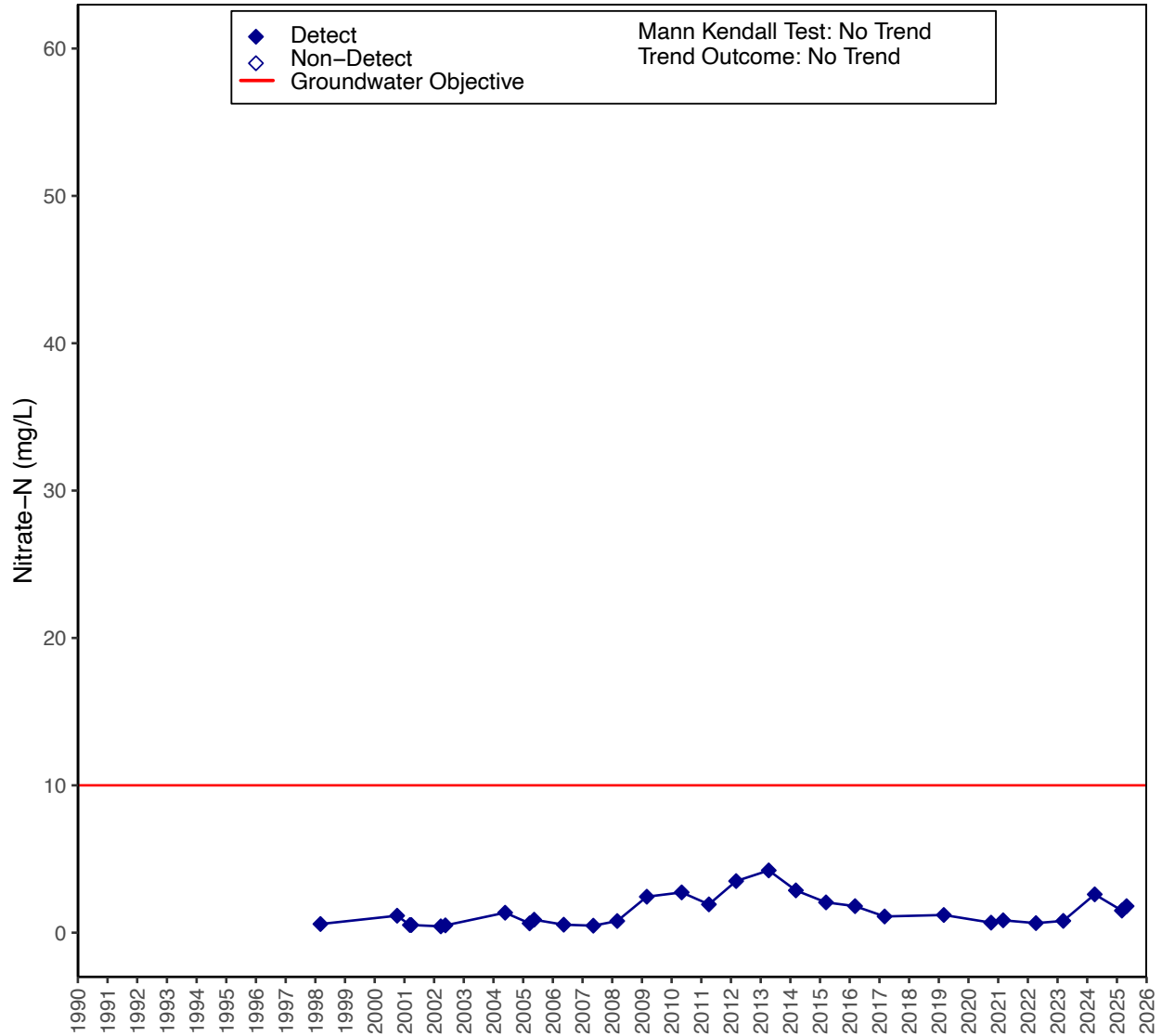
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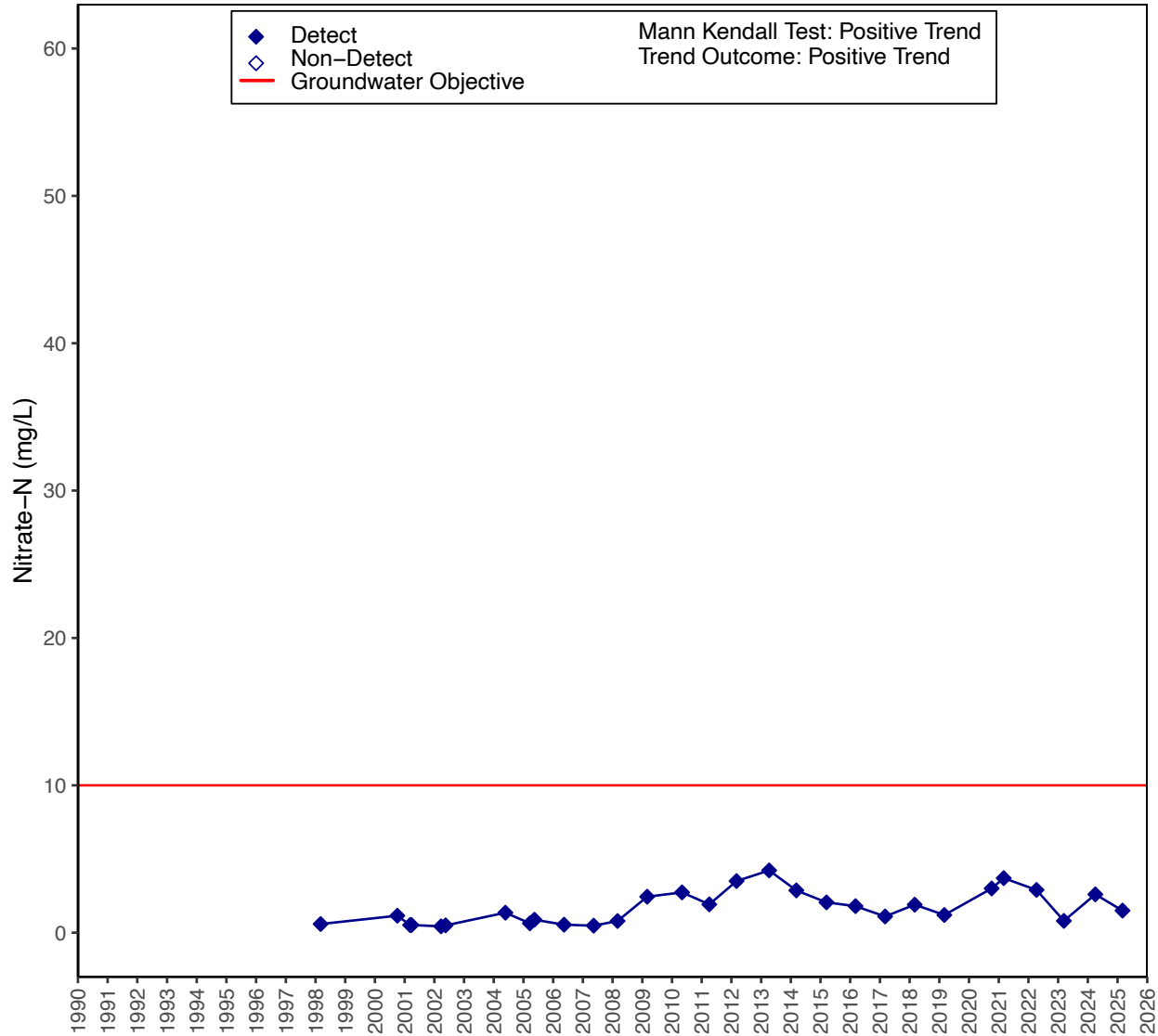
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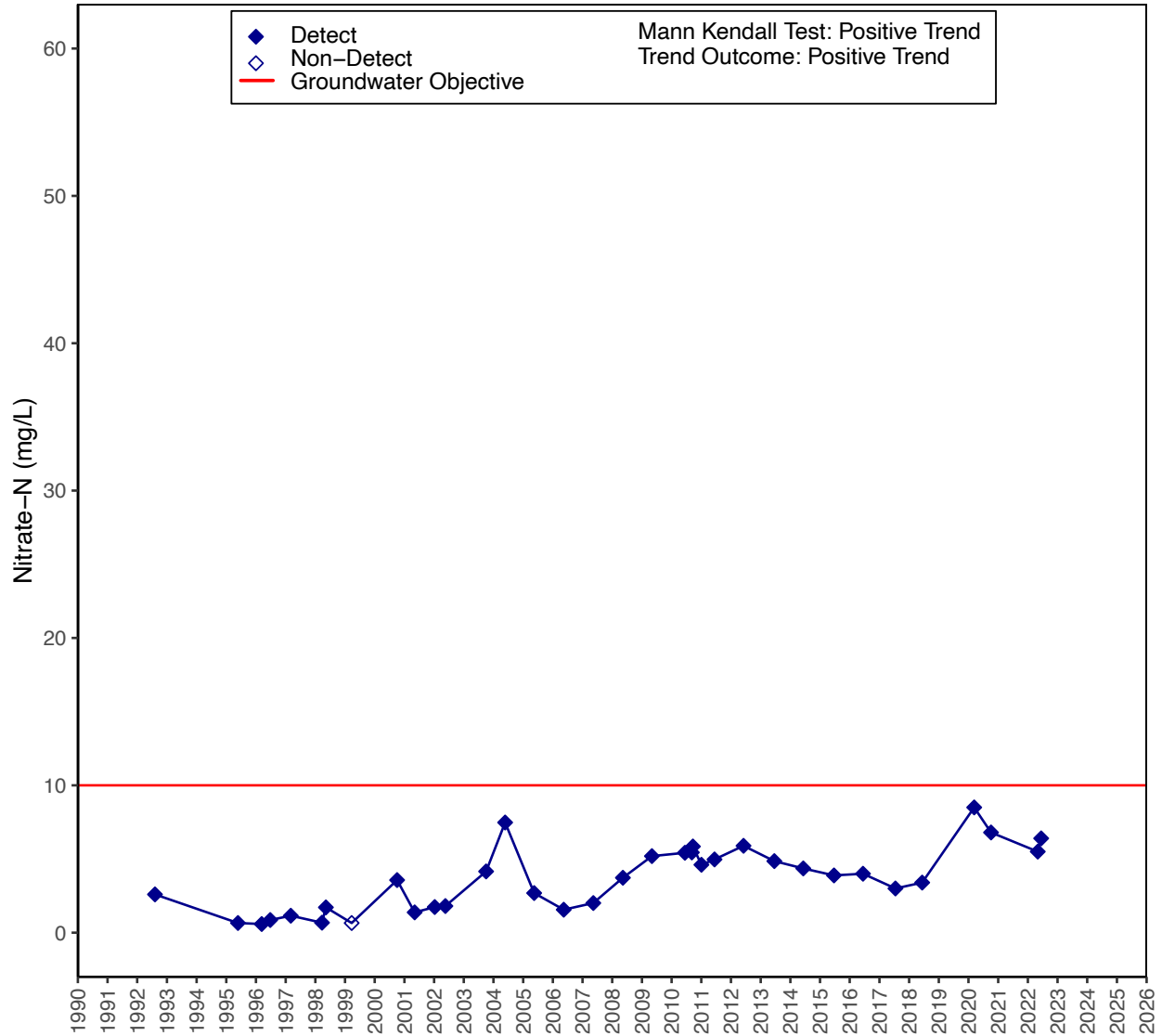
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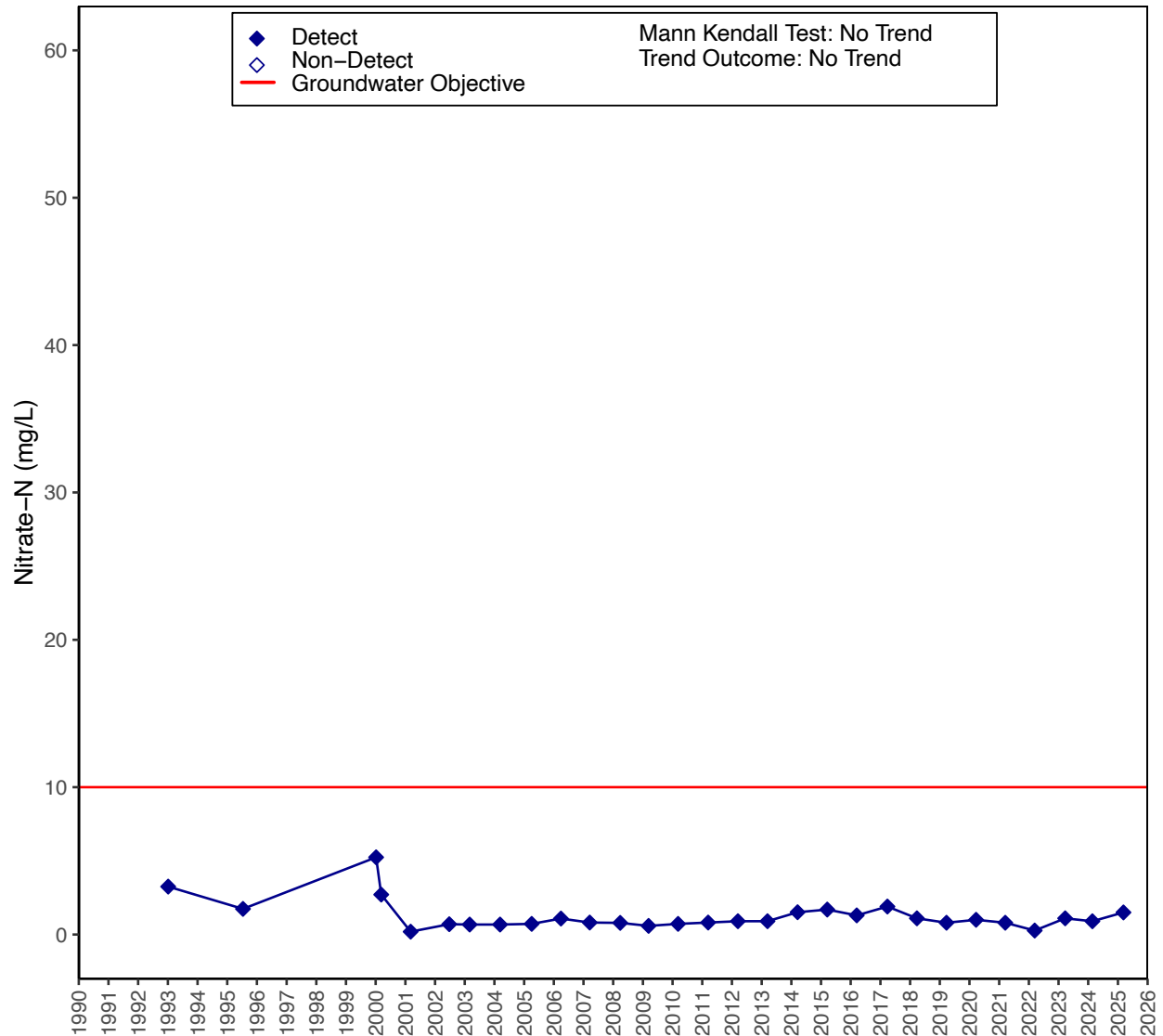
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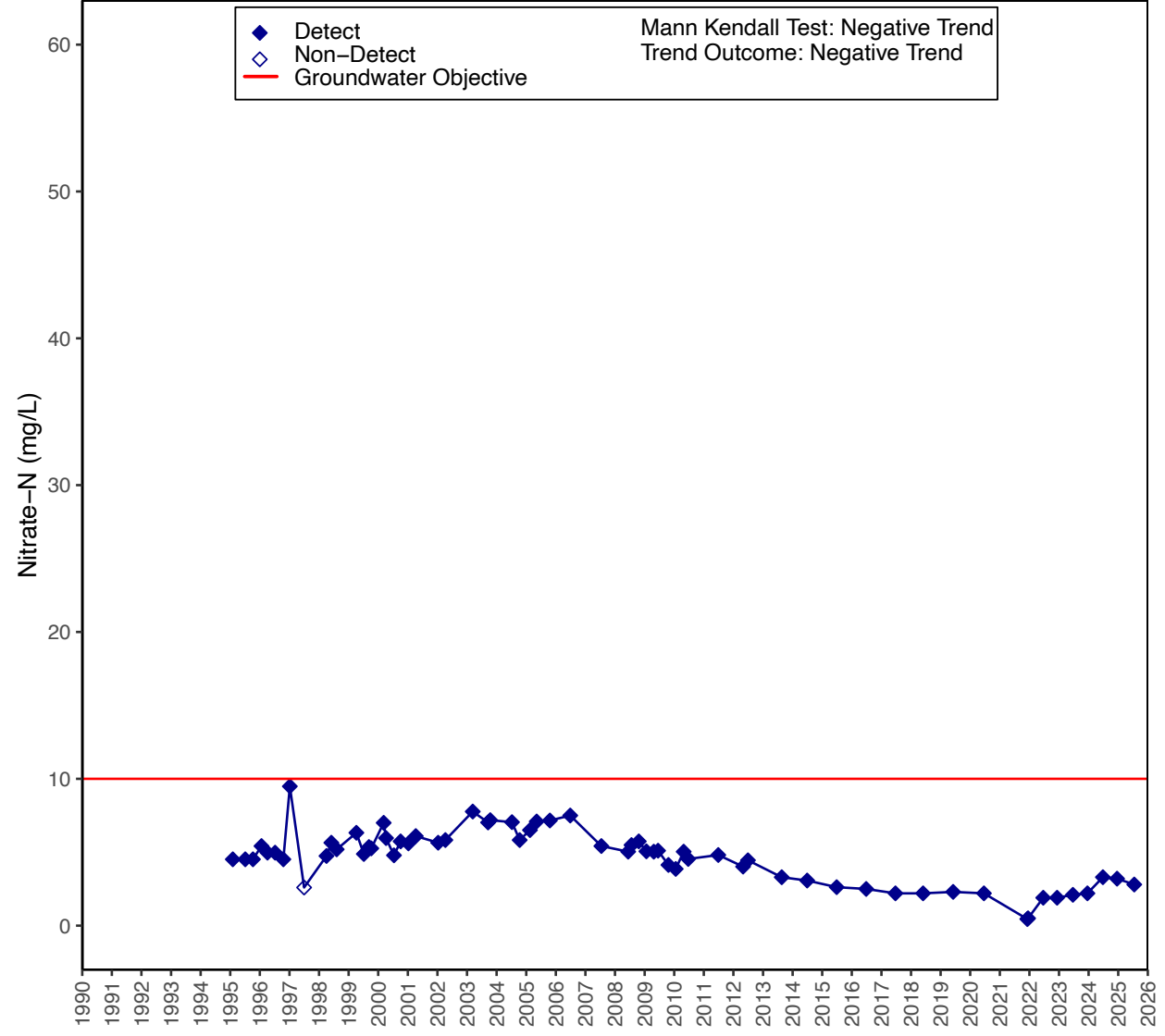
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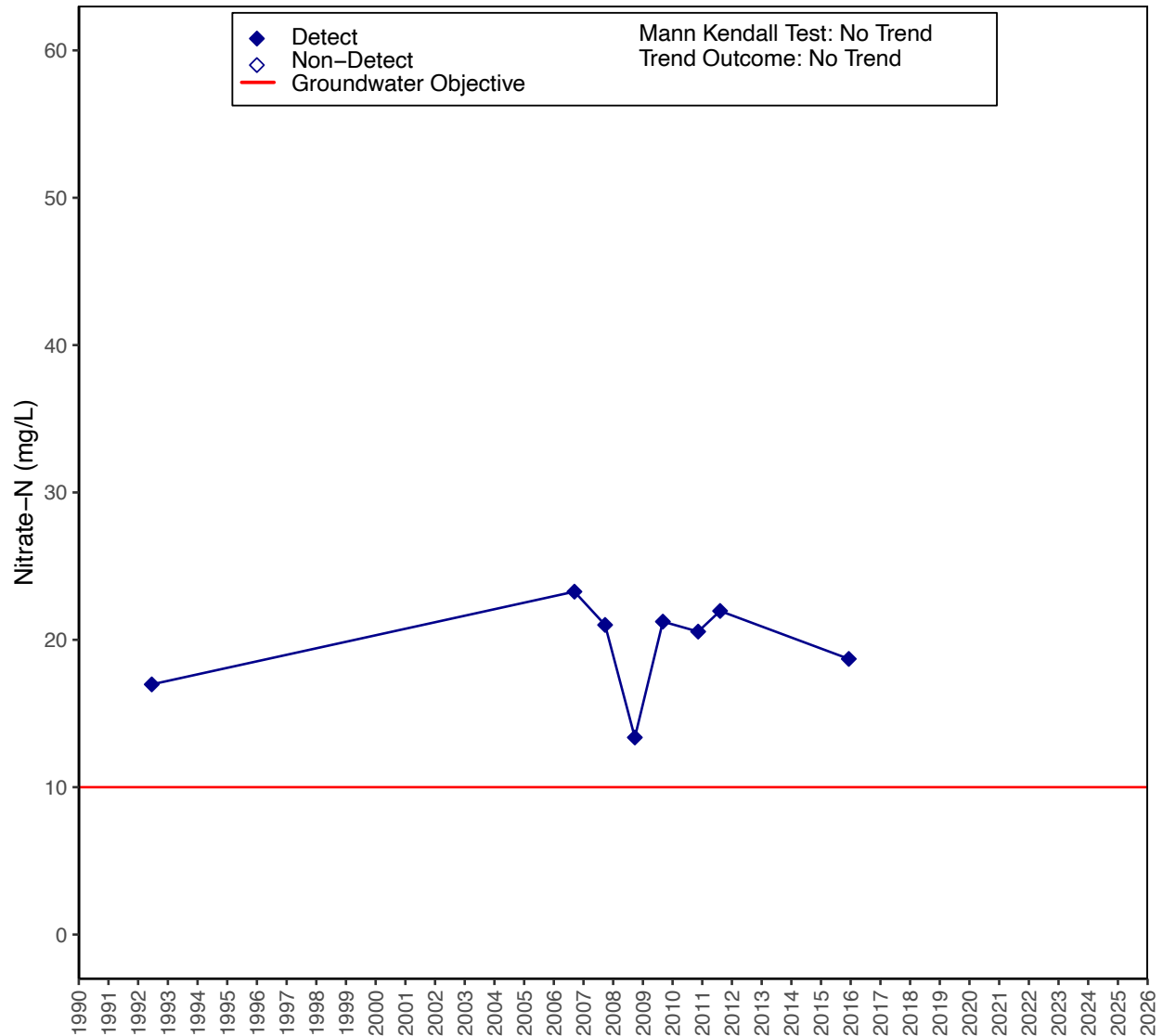
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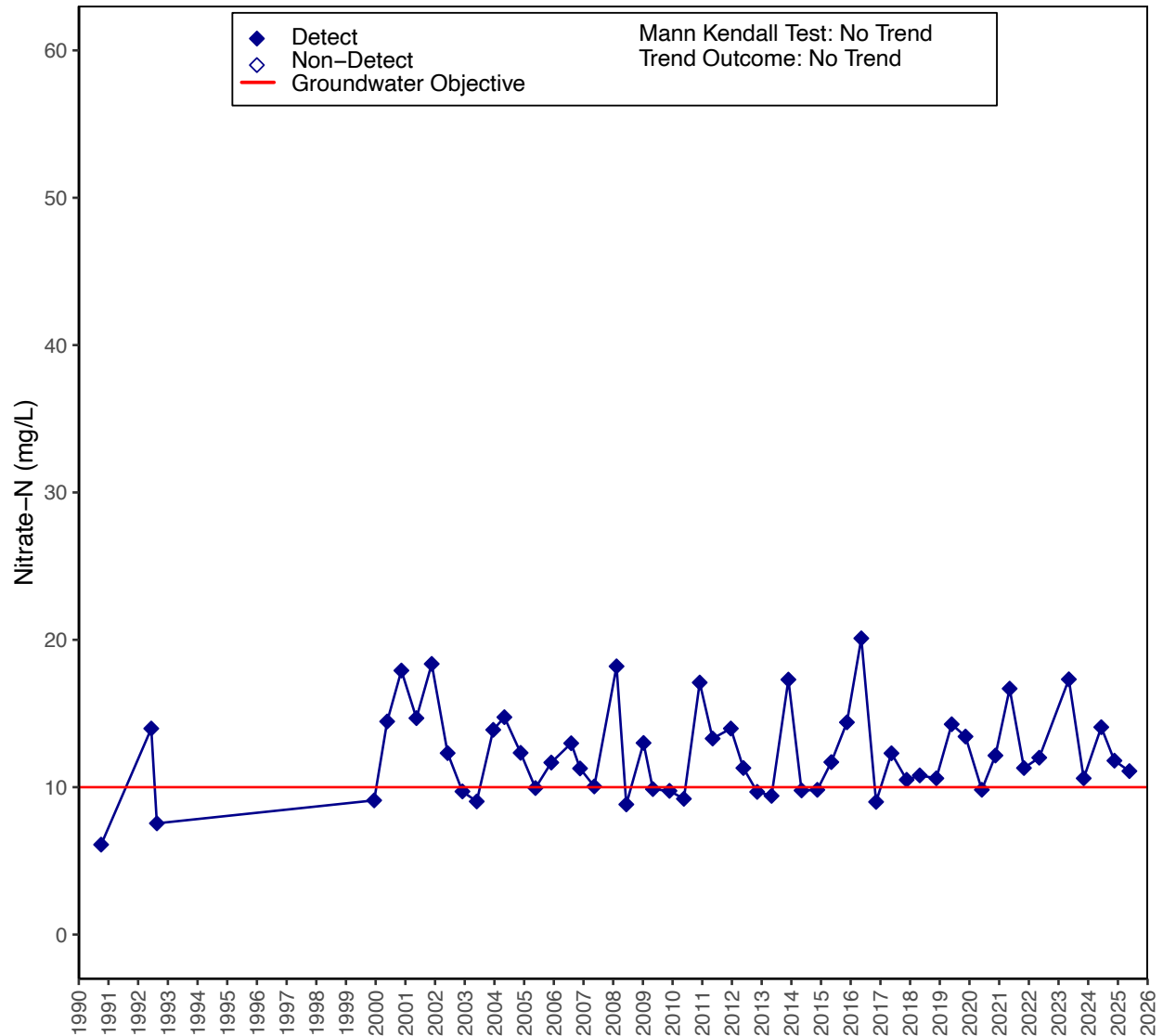
**Fillmore Basin
04N20W26G03S_G03S**



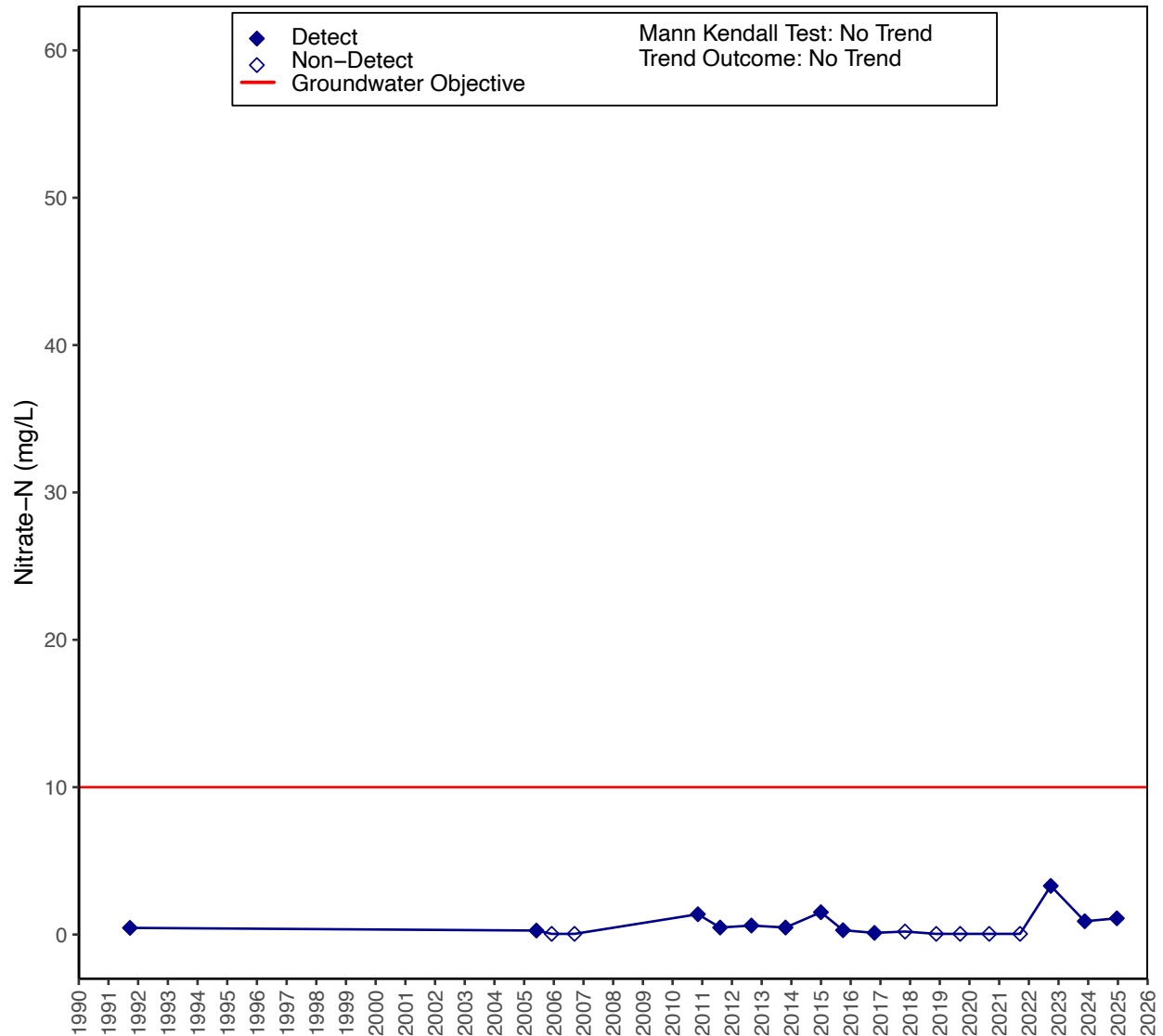
**Fillmore Basin
04N20W32R01S_R01S**



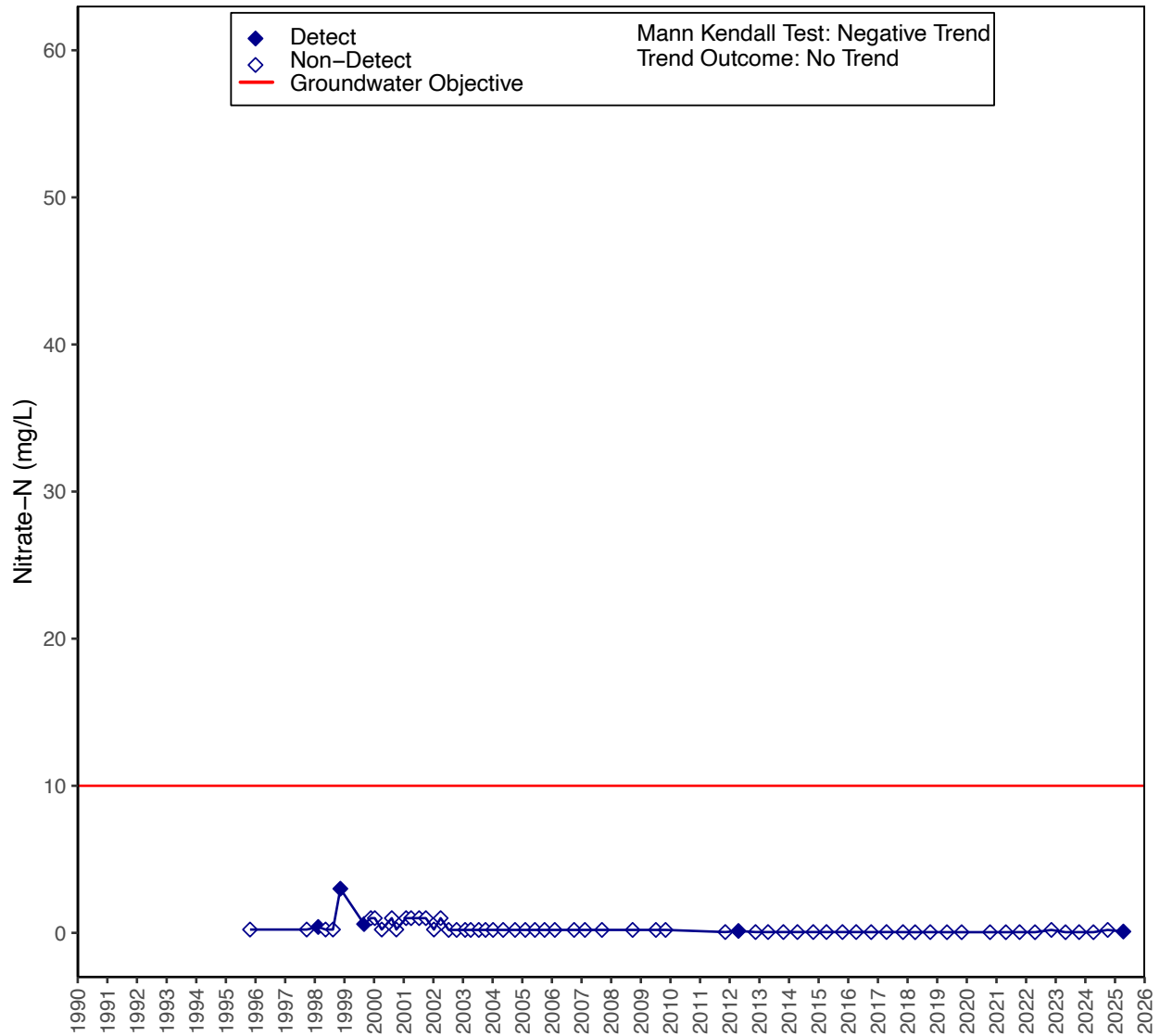
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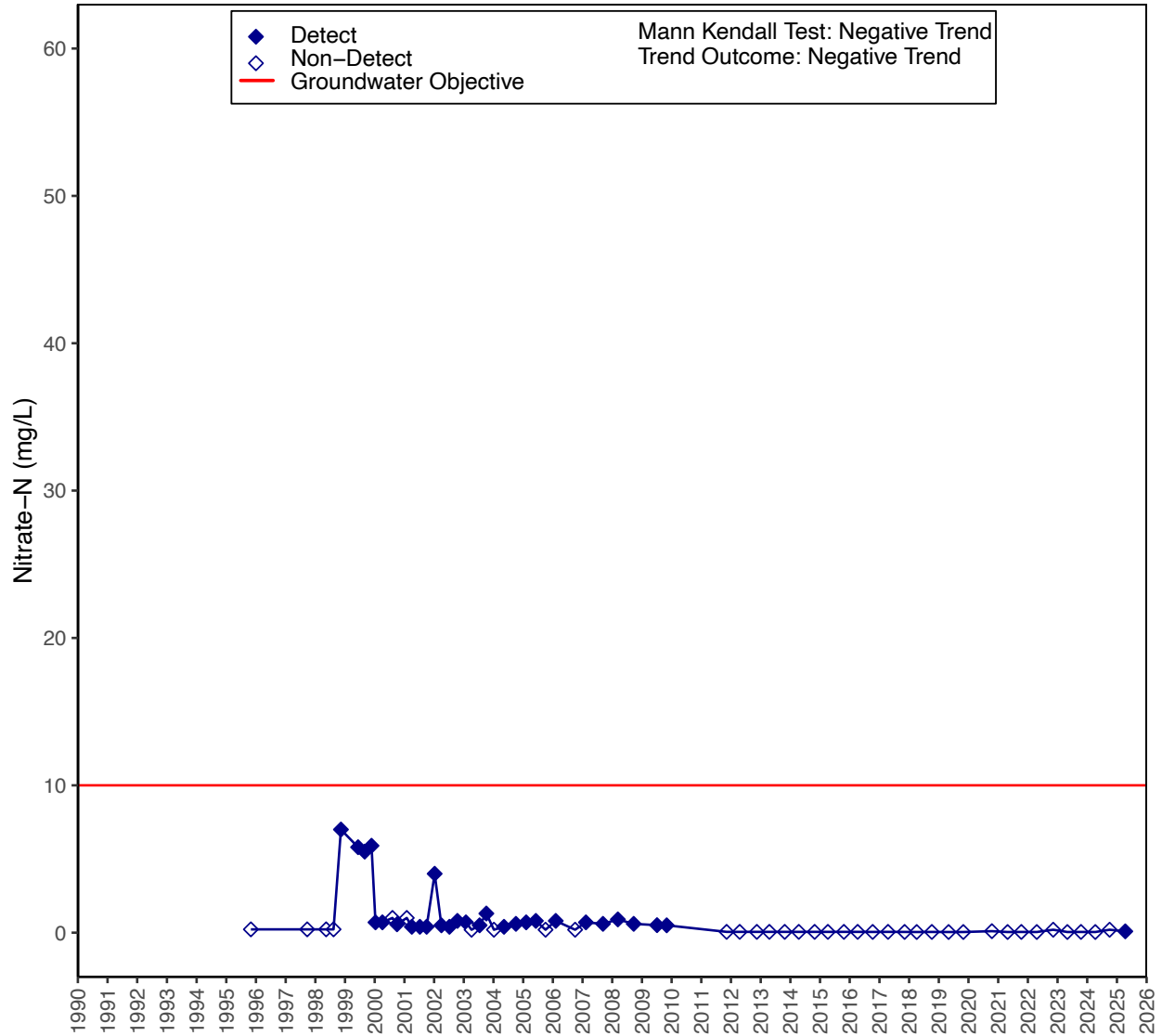
Lower Ventura River Basin 02N23W05K01S_K01S



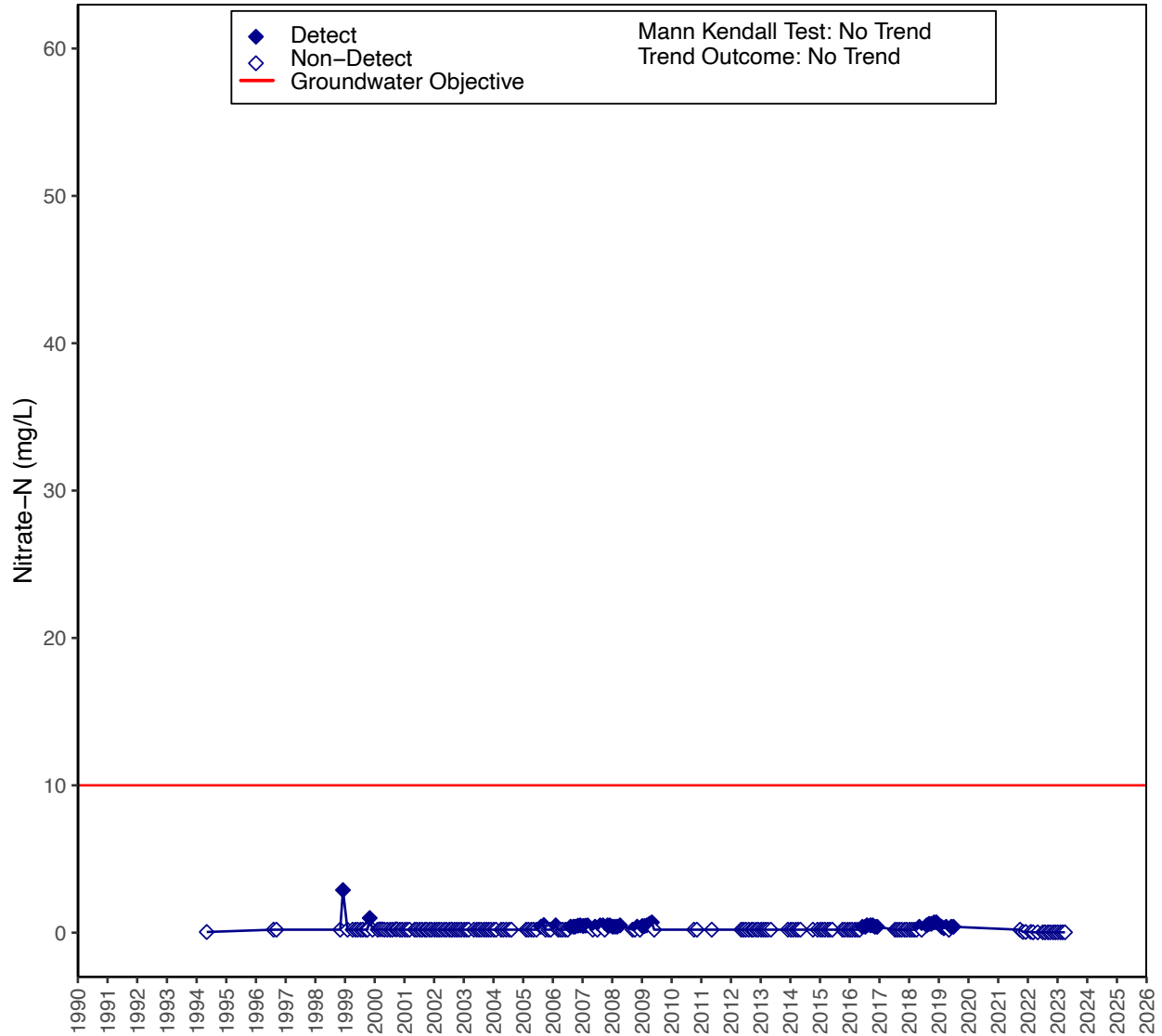
Mound Basin
02N22W07M01S_M01S



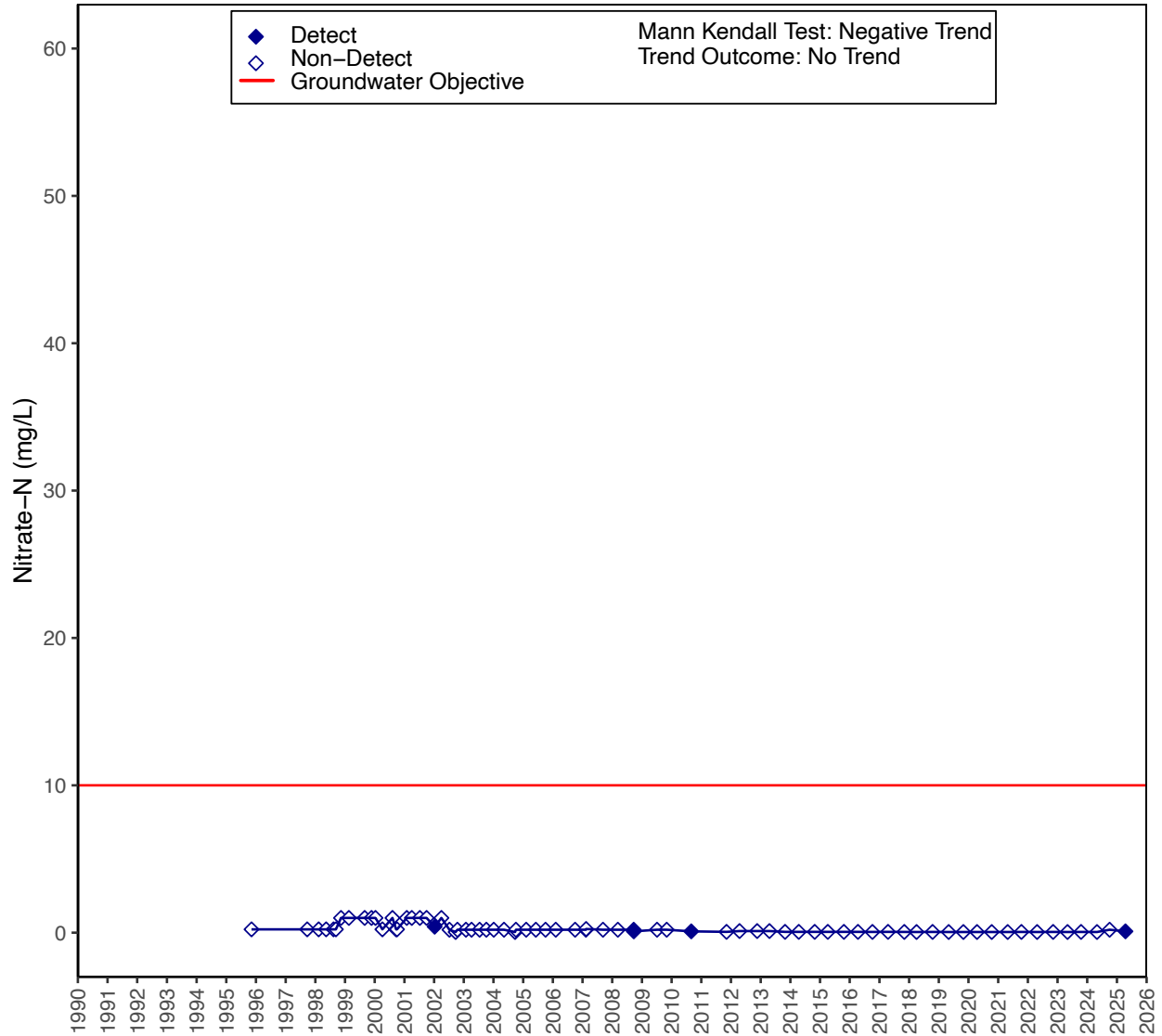
Mound Basin
02N22W07M02S_M02S



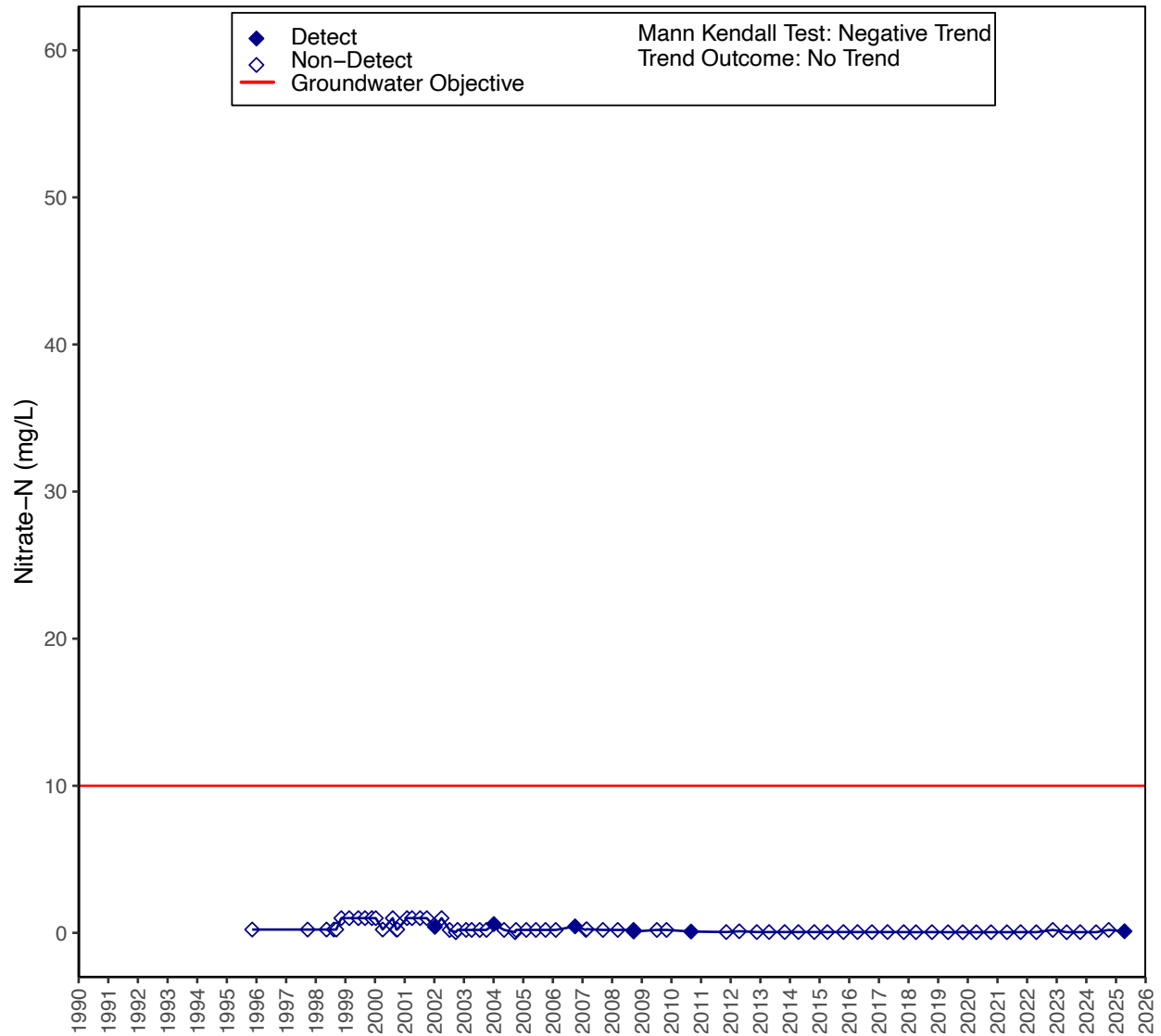
**Mound Basin
02N22W08F01S_F01S**



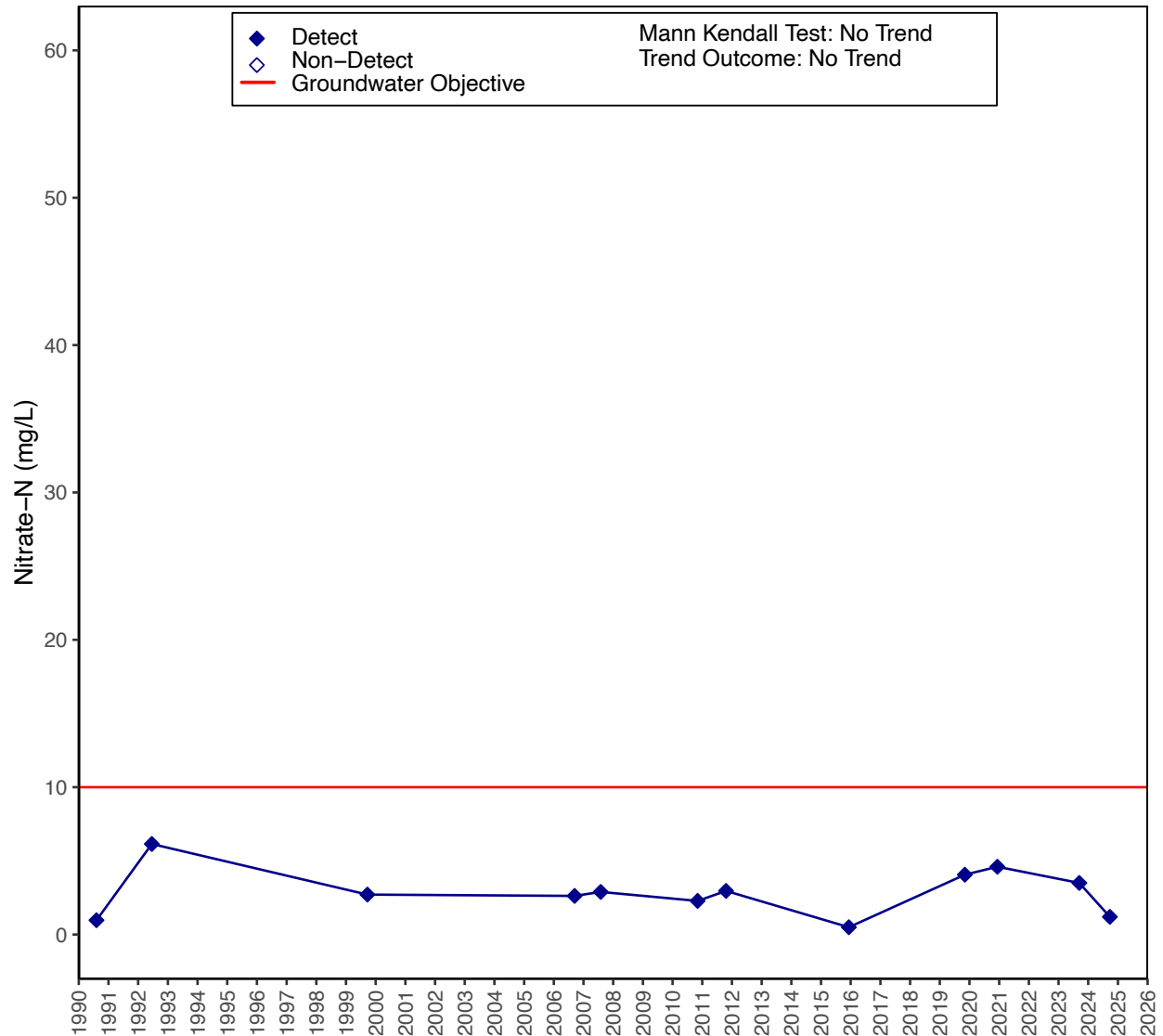
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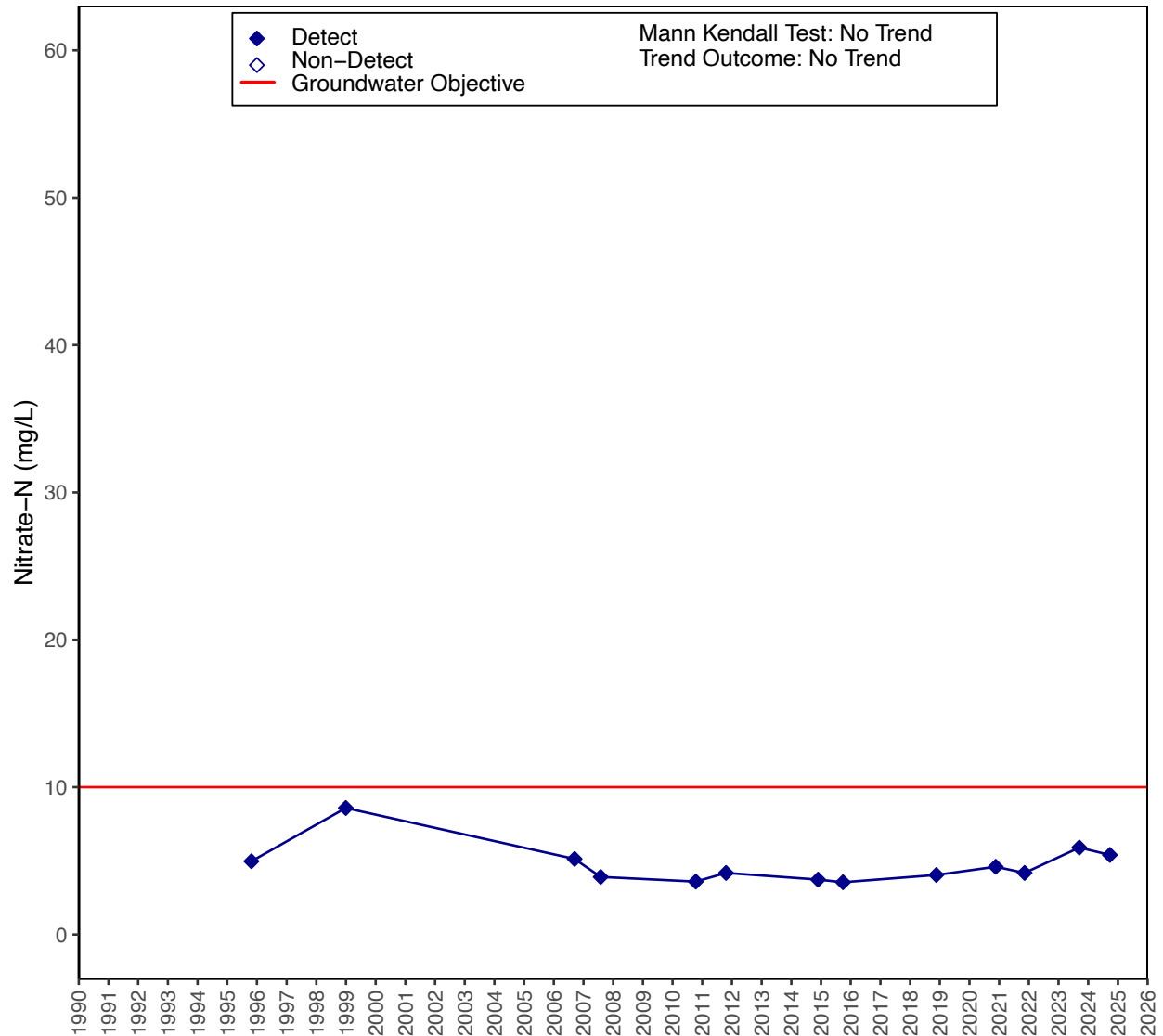
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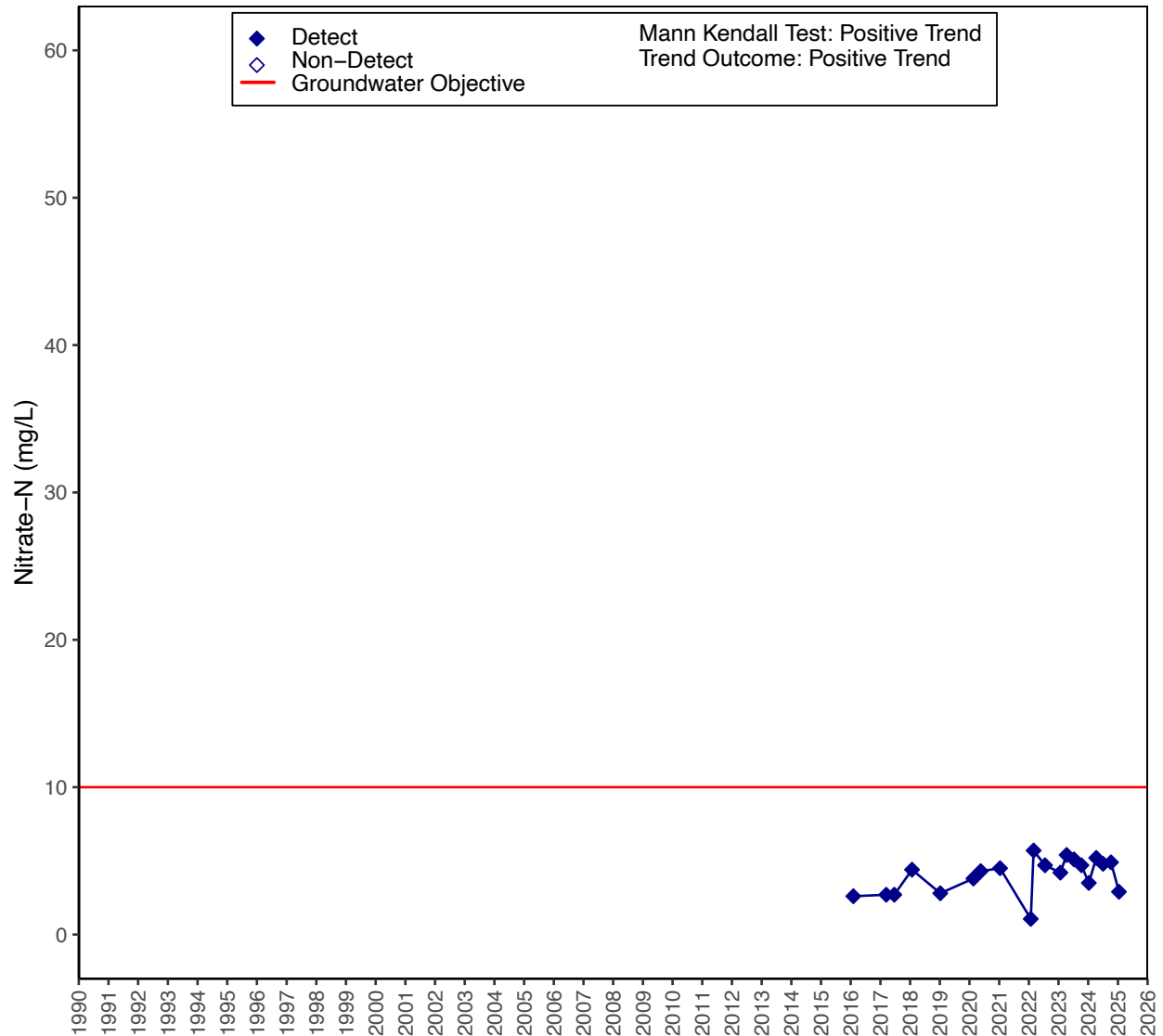
**Ojai Valley Basin
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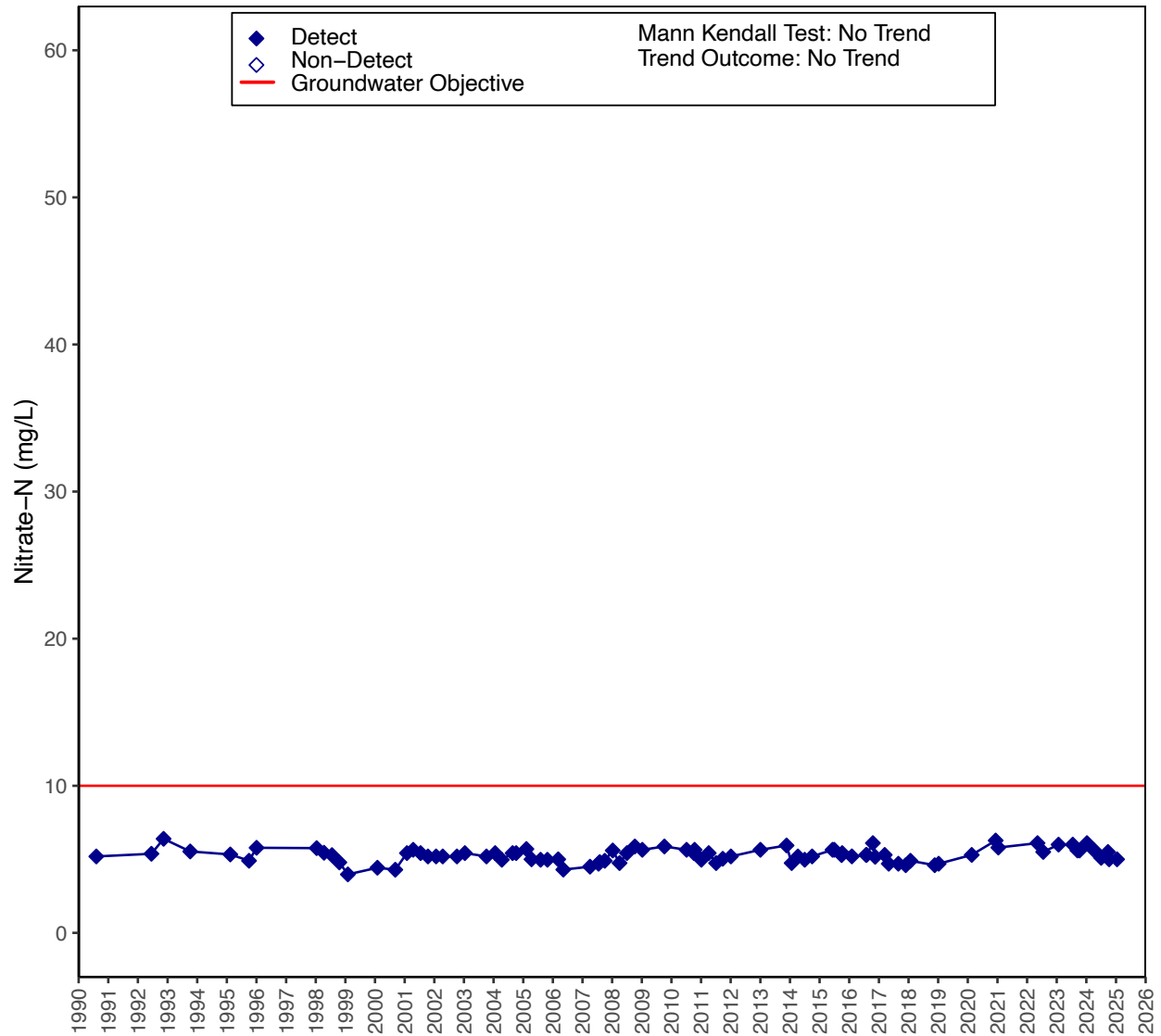
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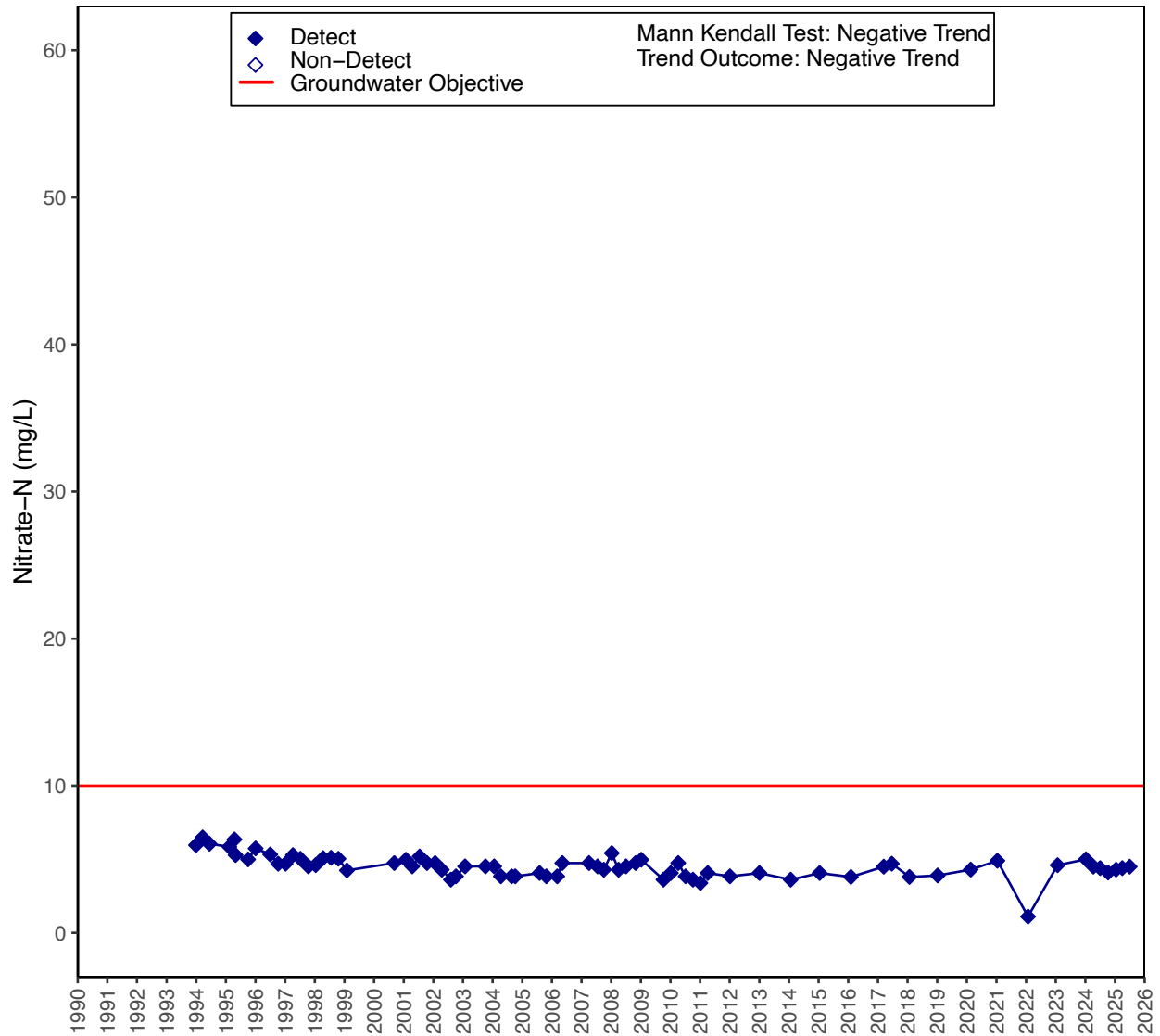
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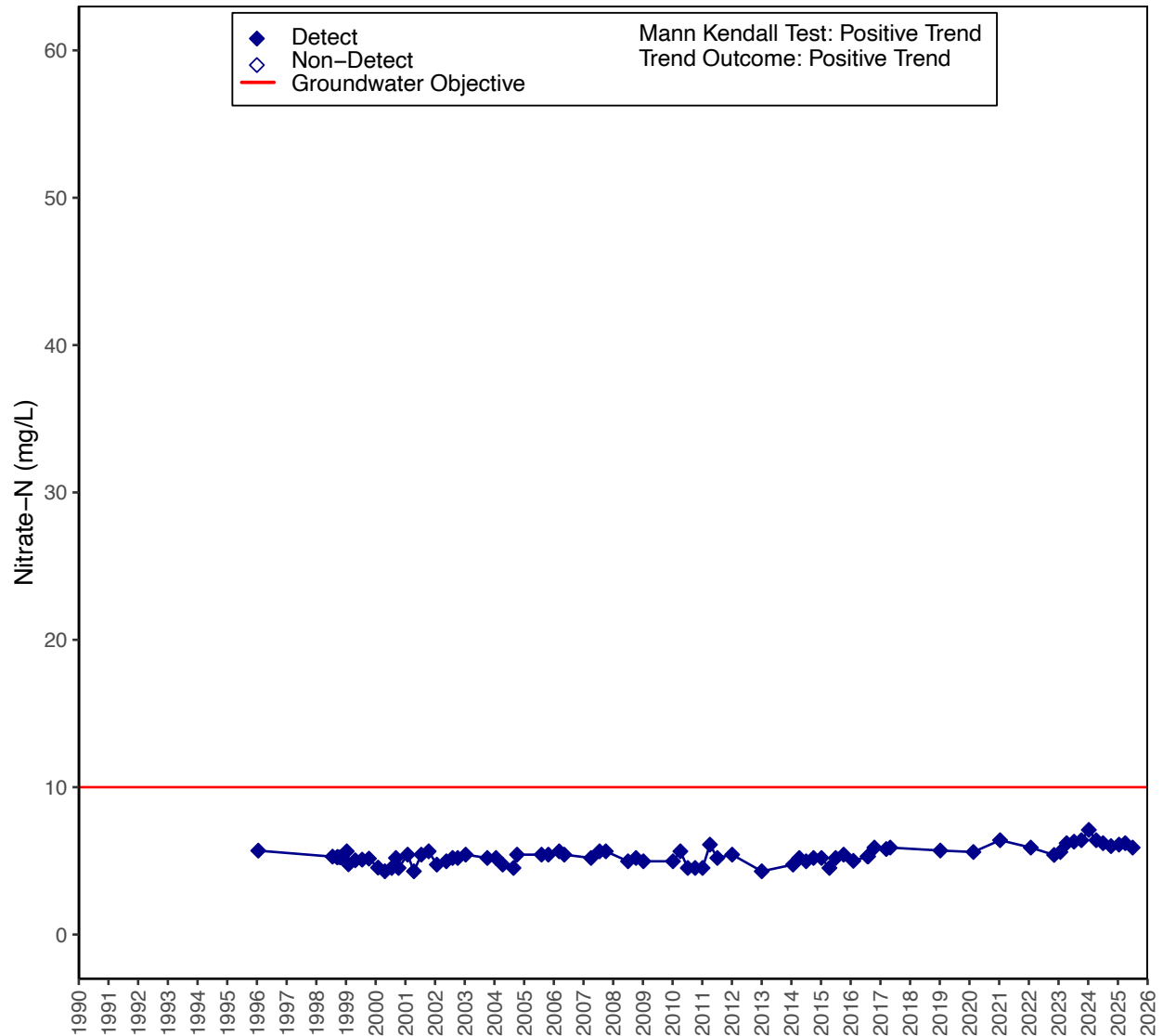
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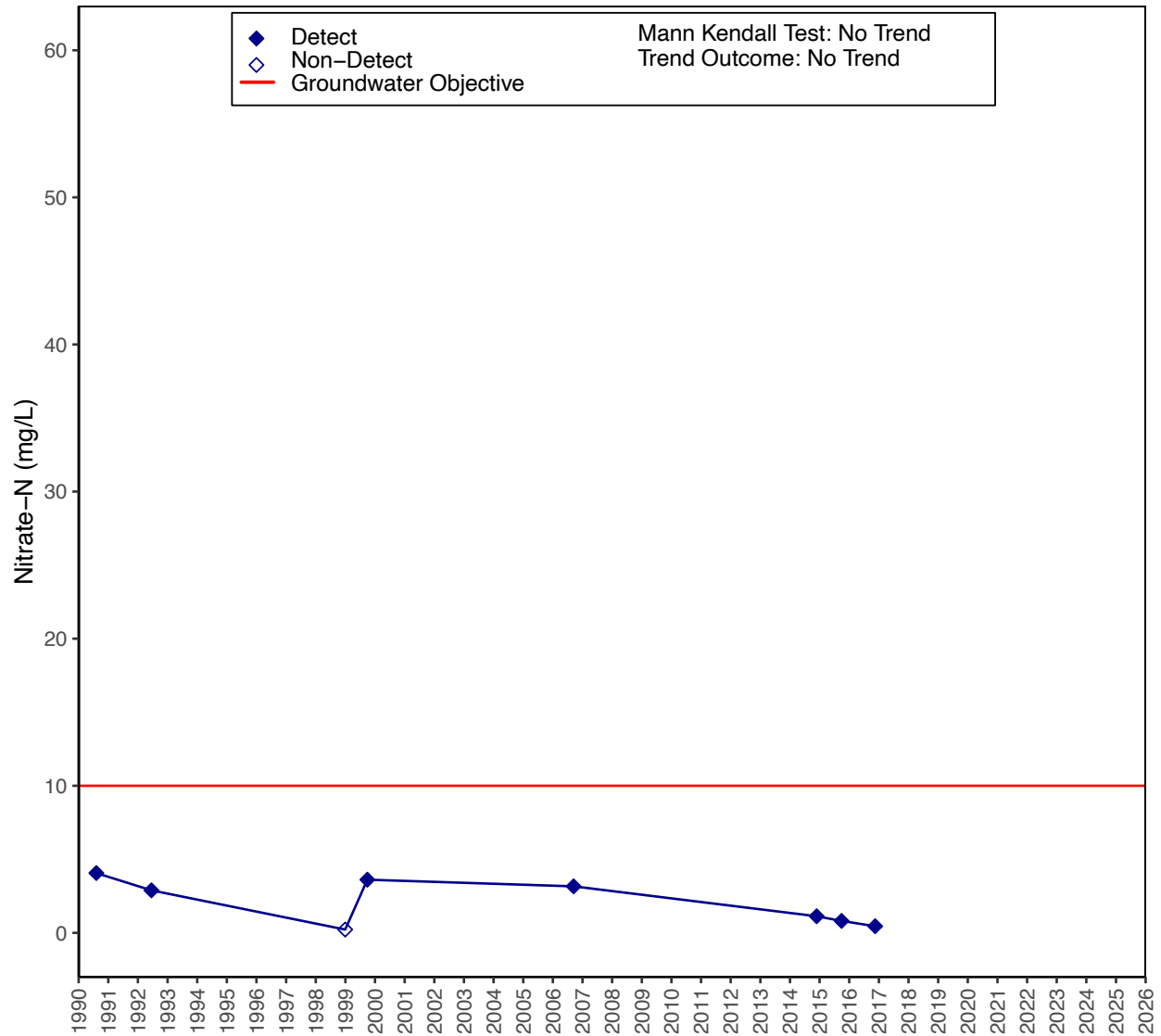
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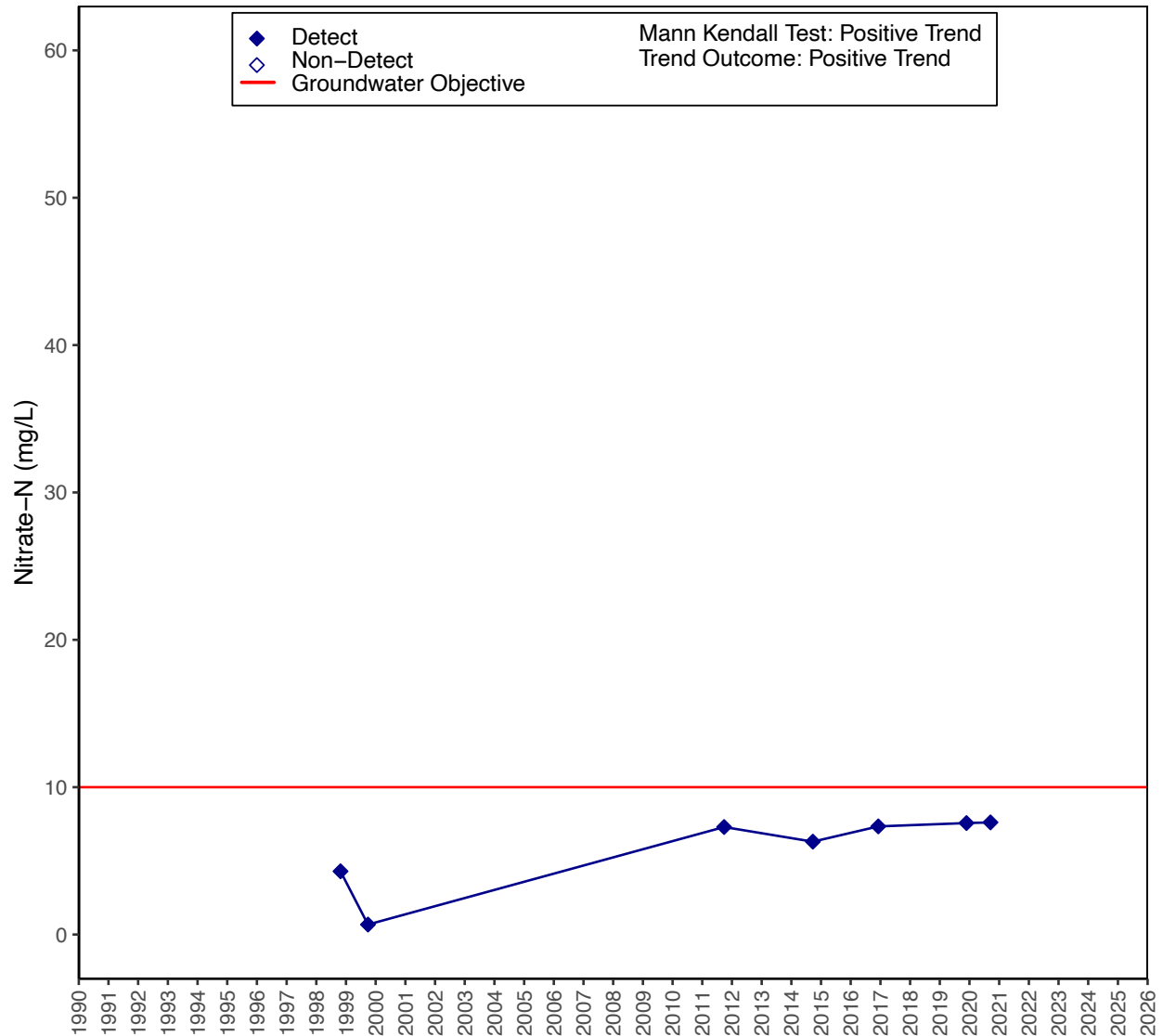
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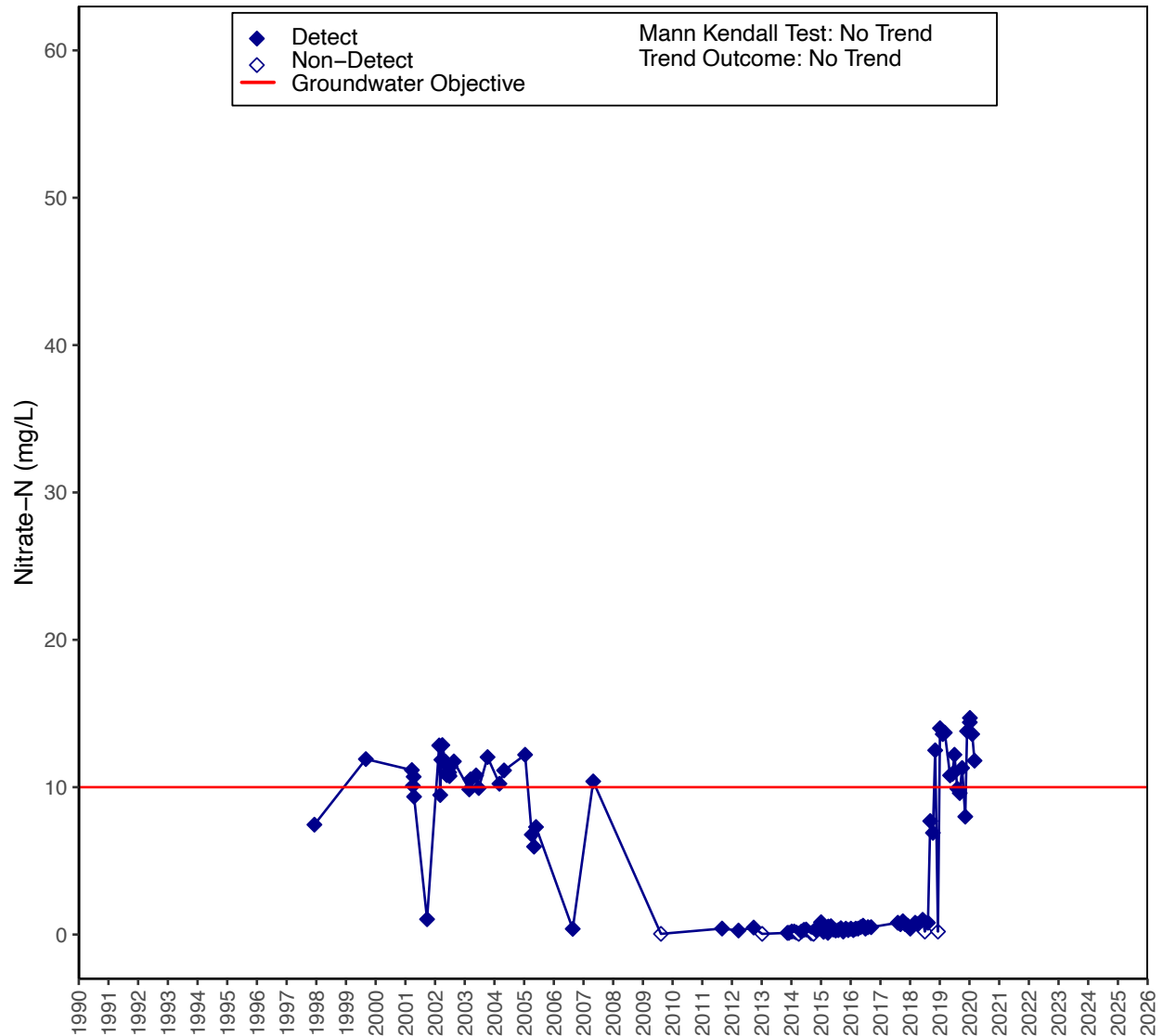
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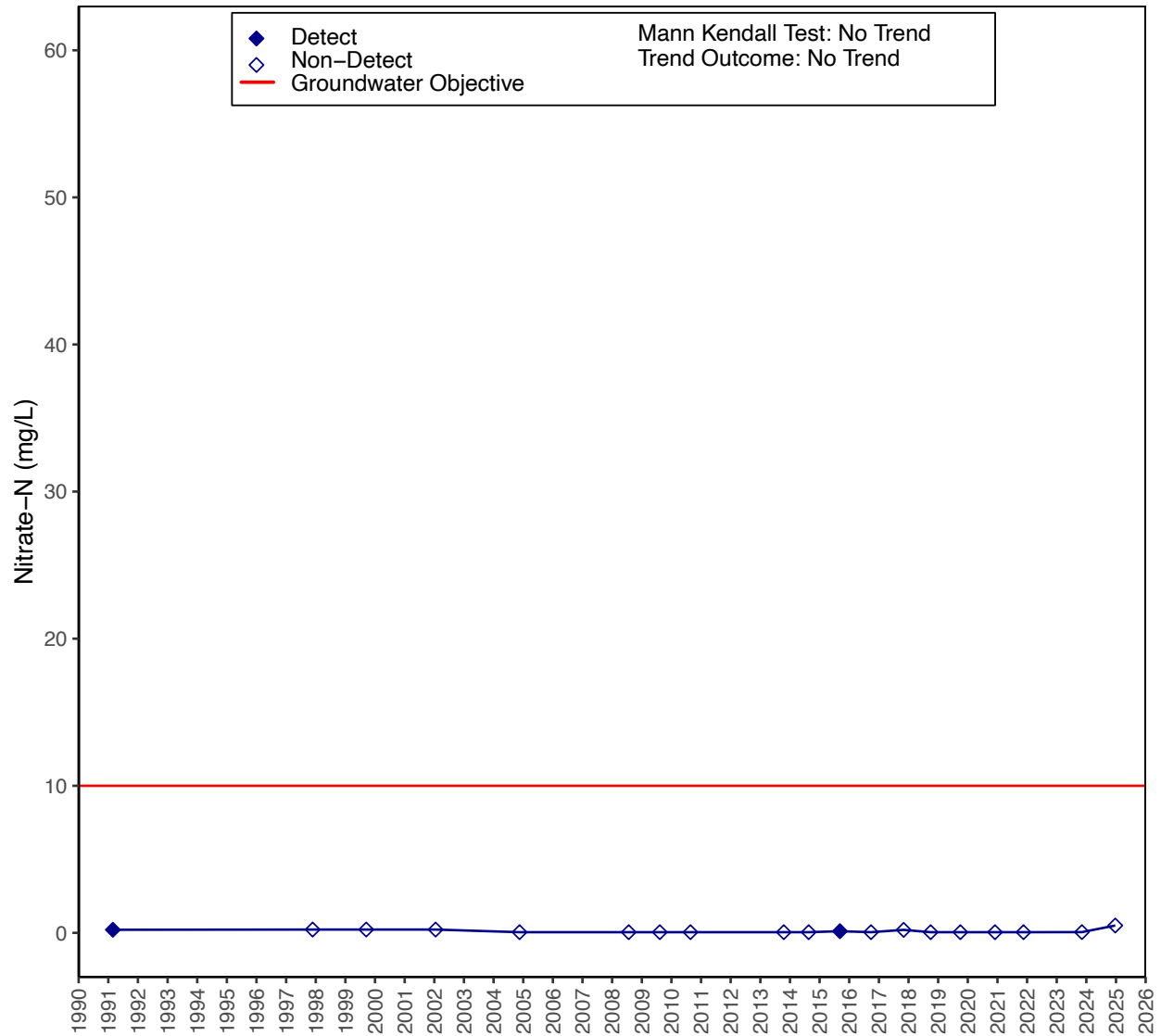
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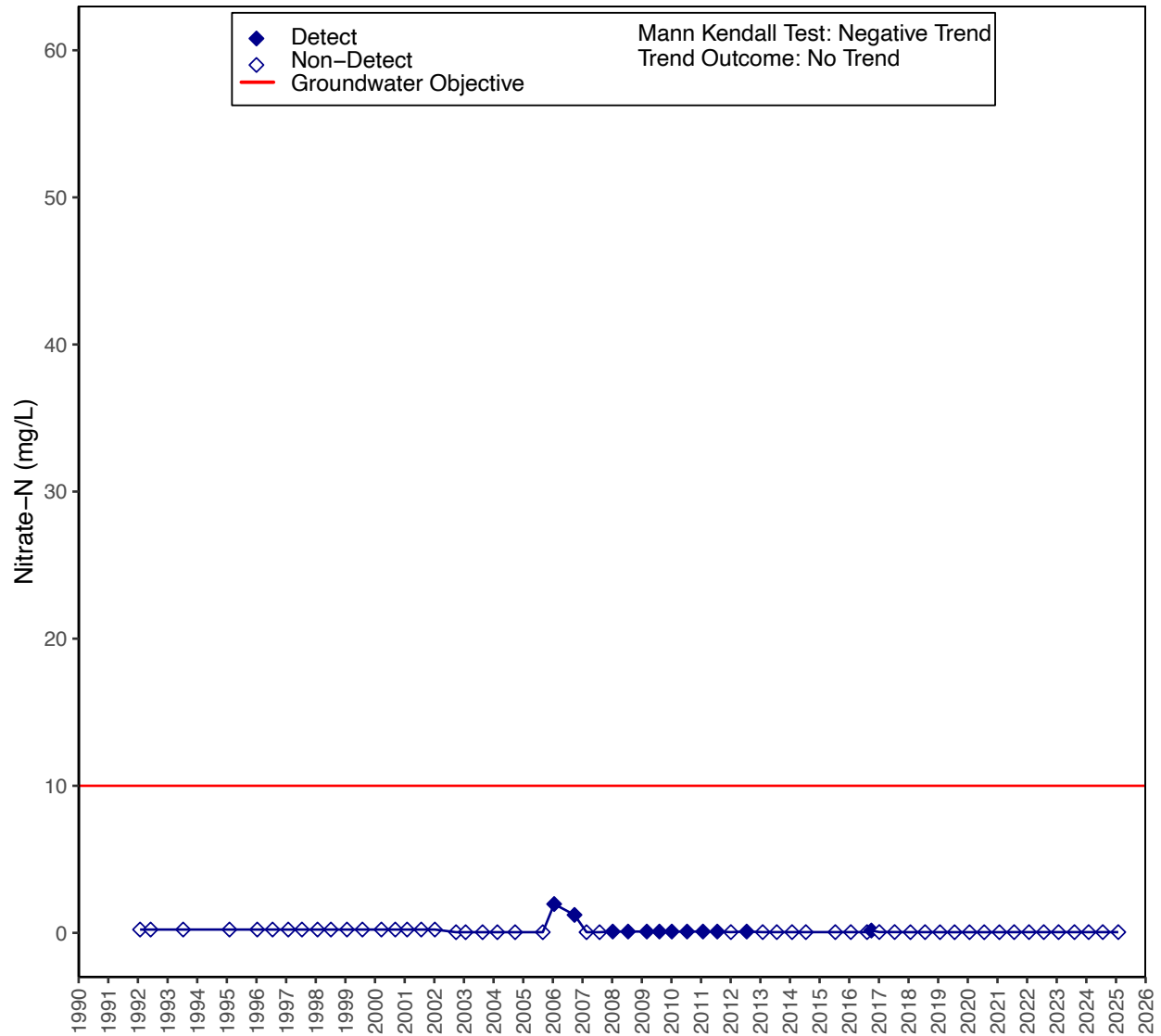
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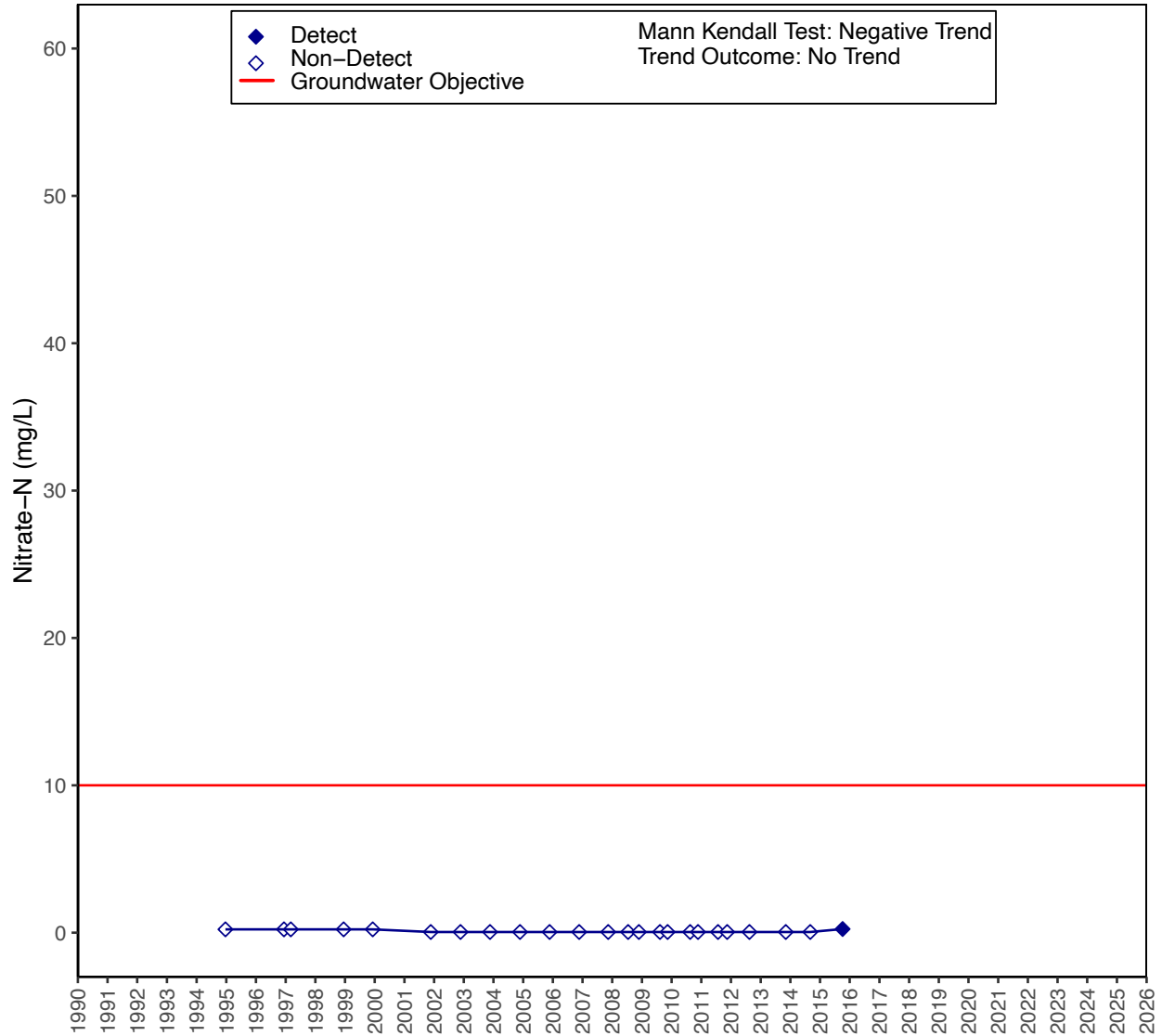
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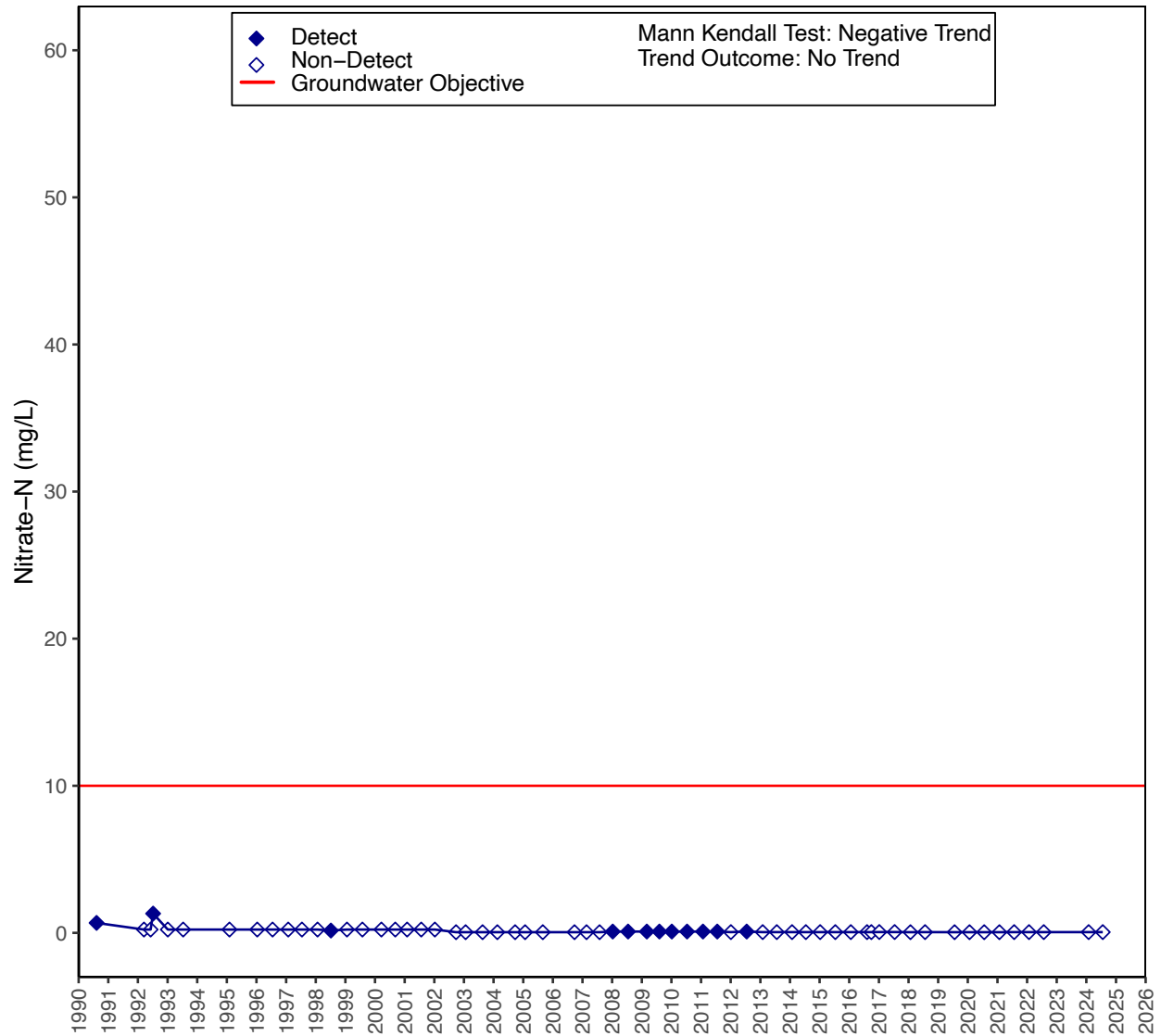
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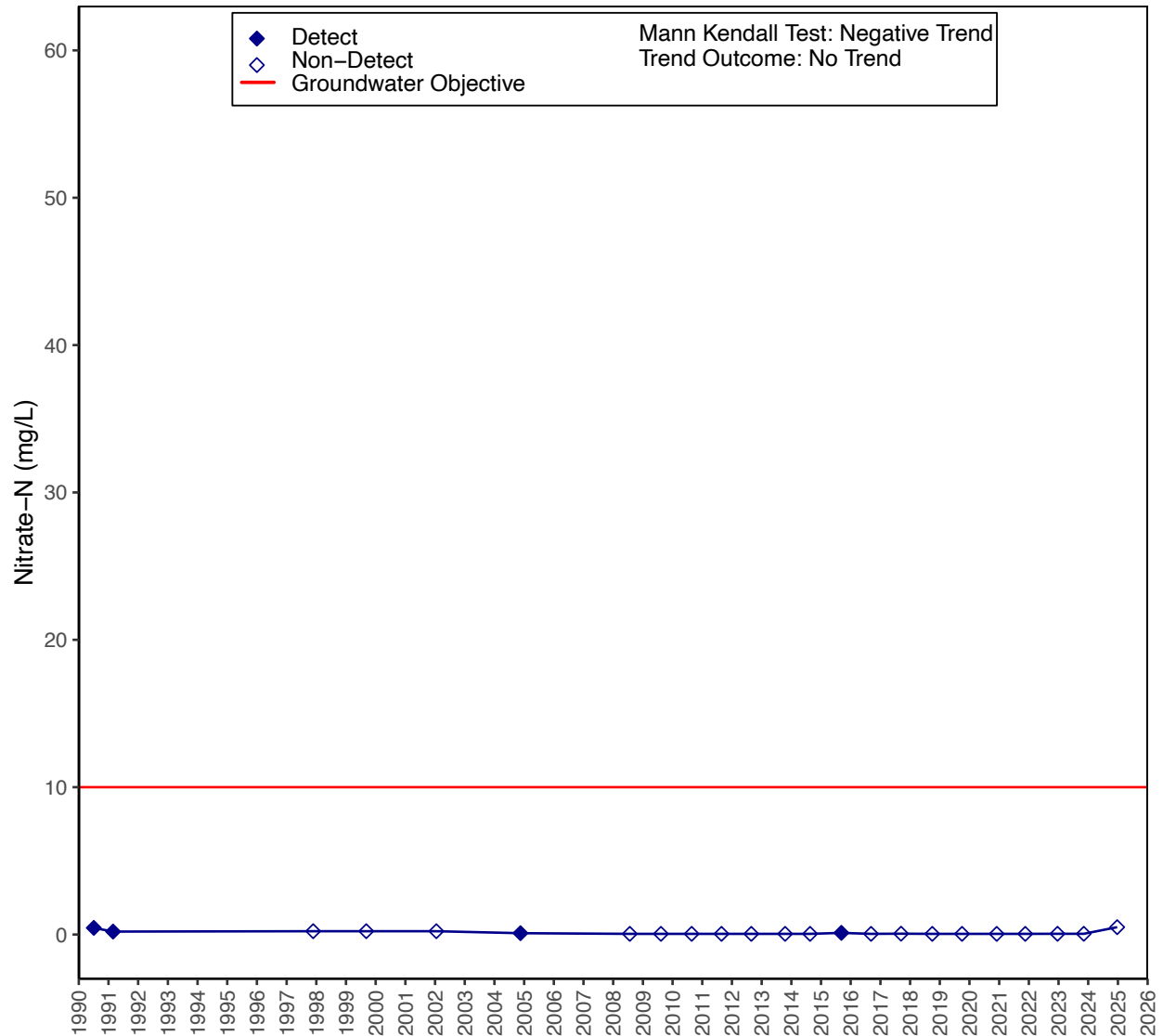
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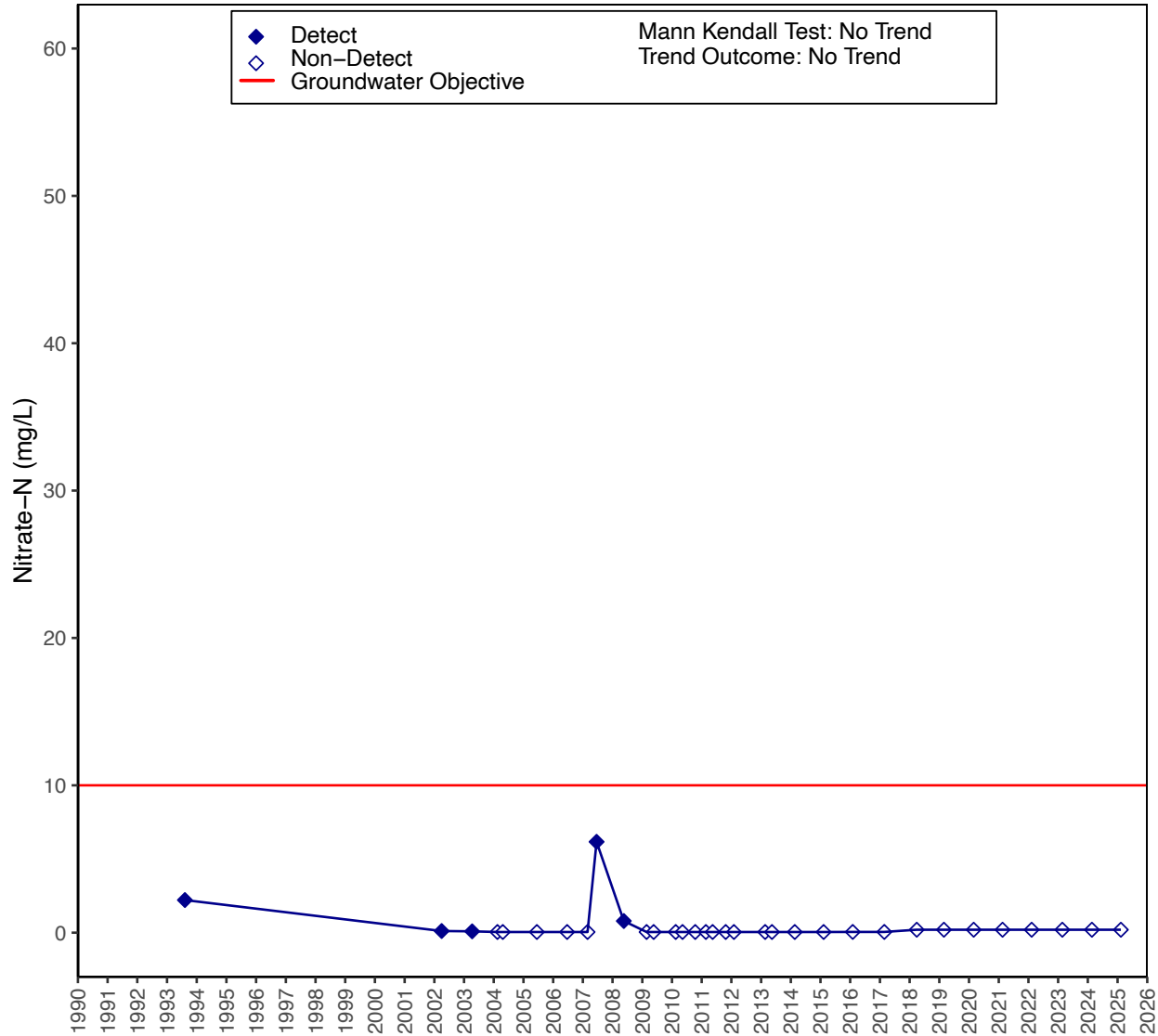
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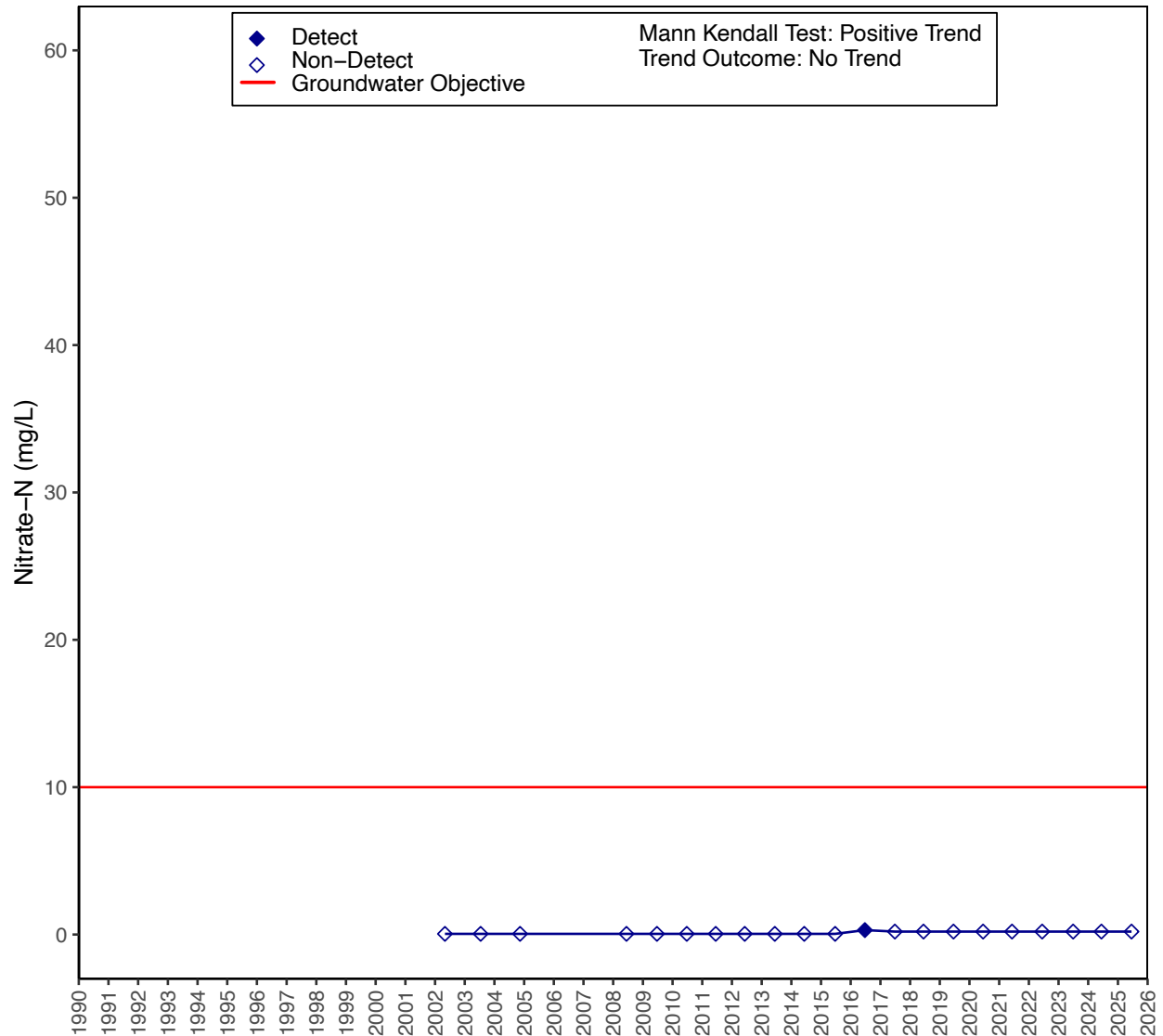
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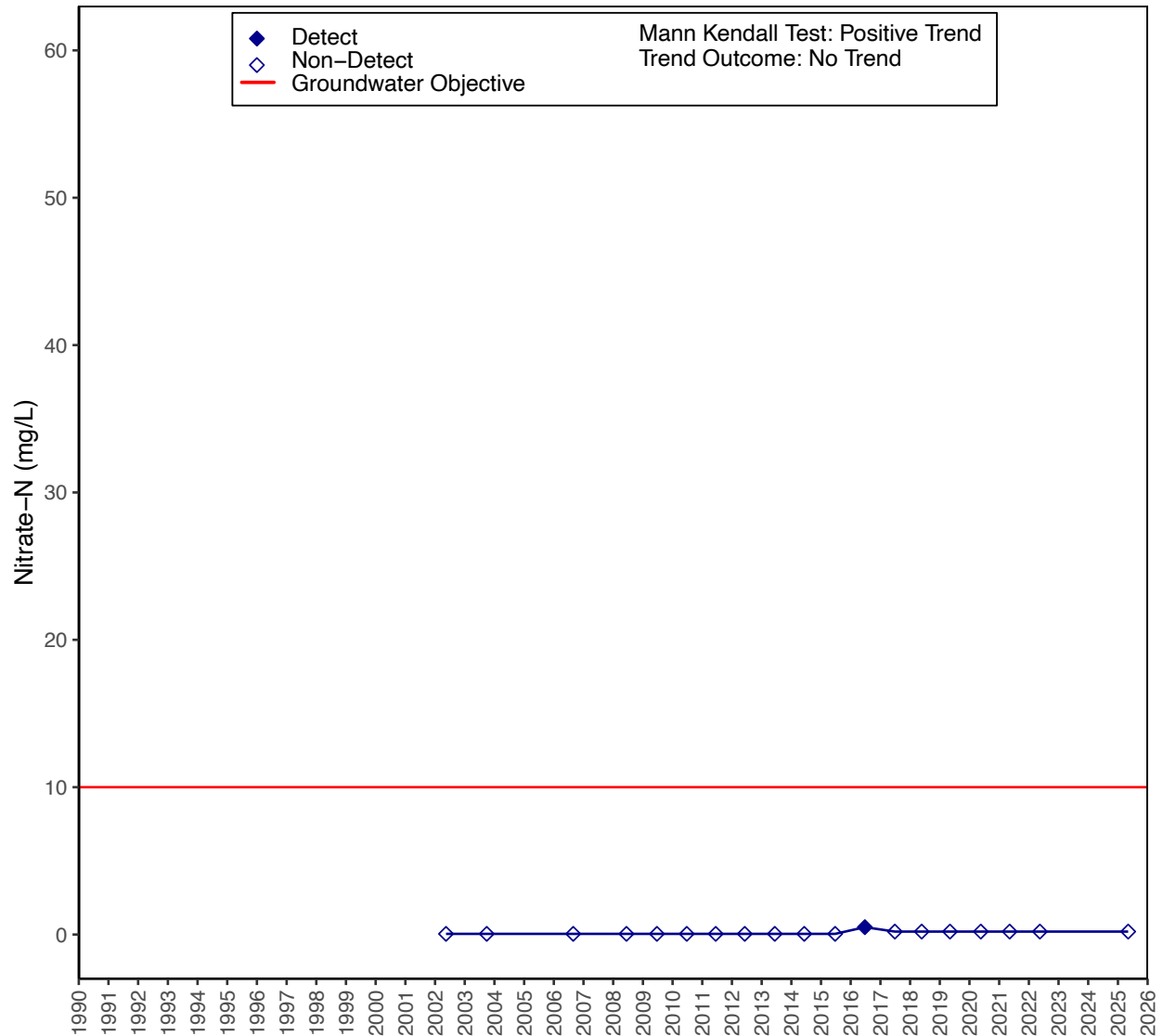
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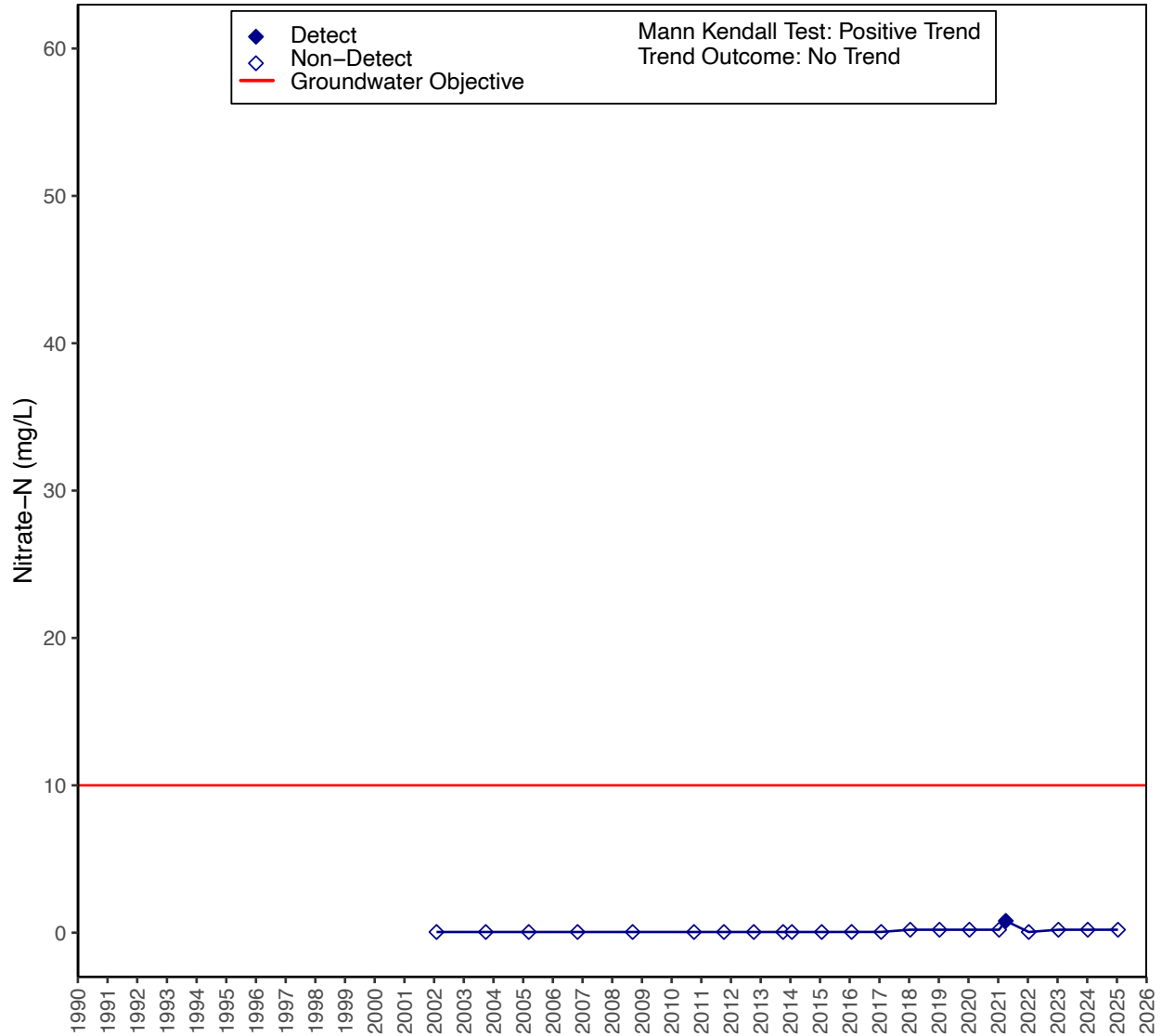
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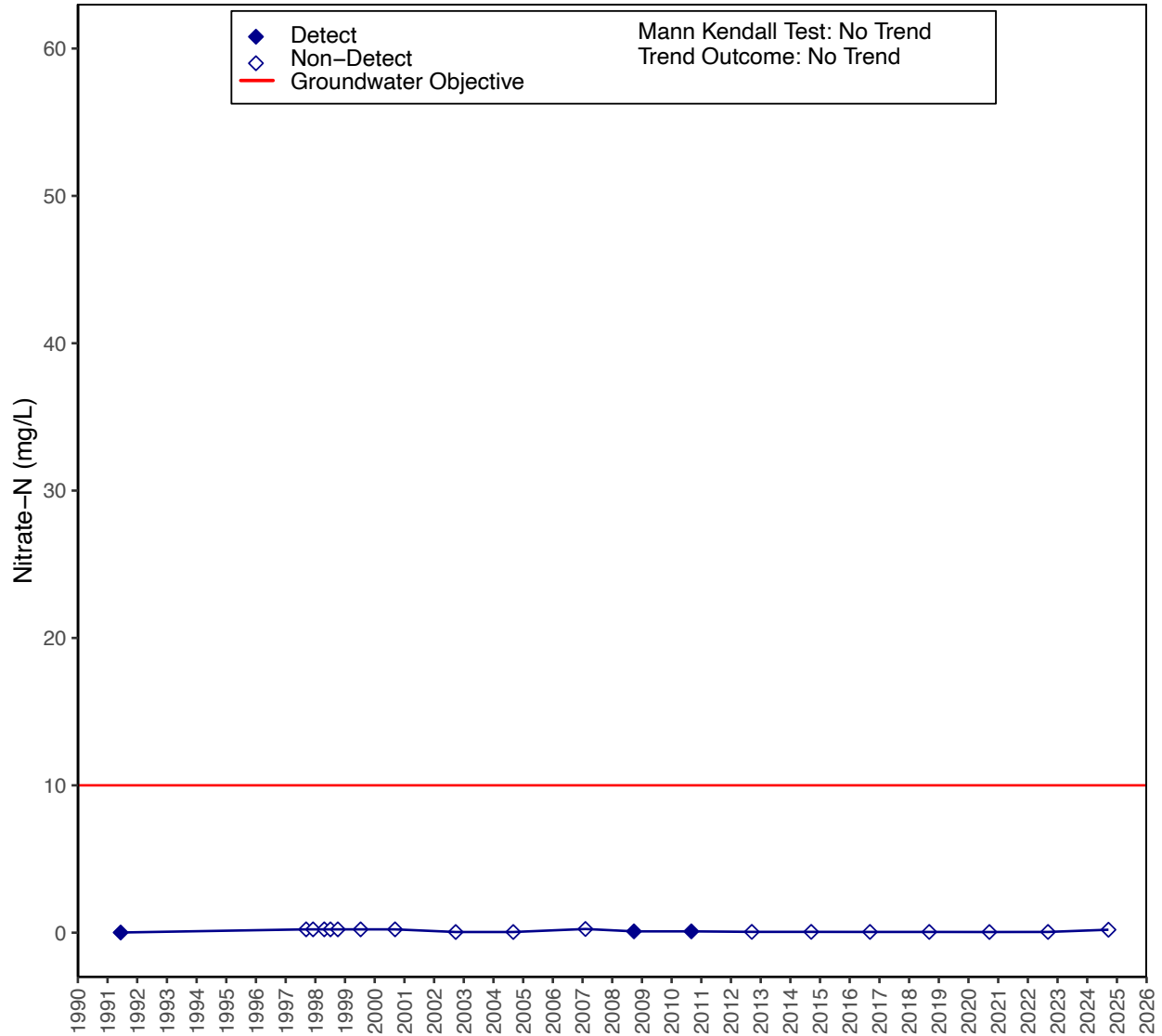
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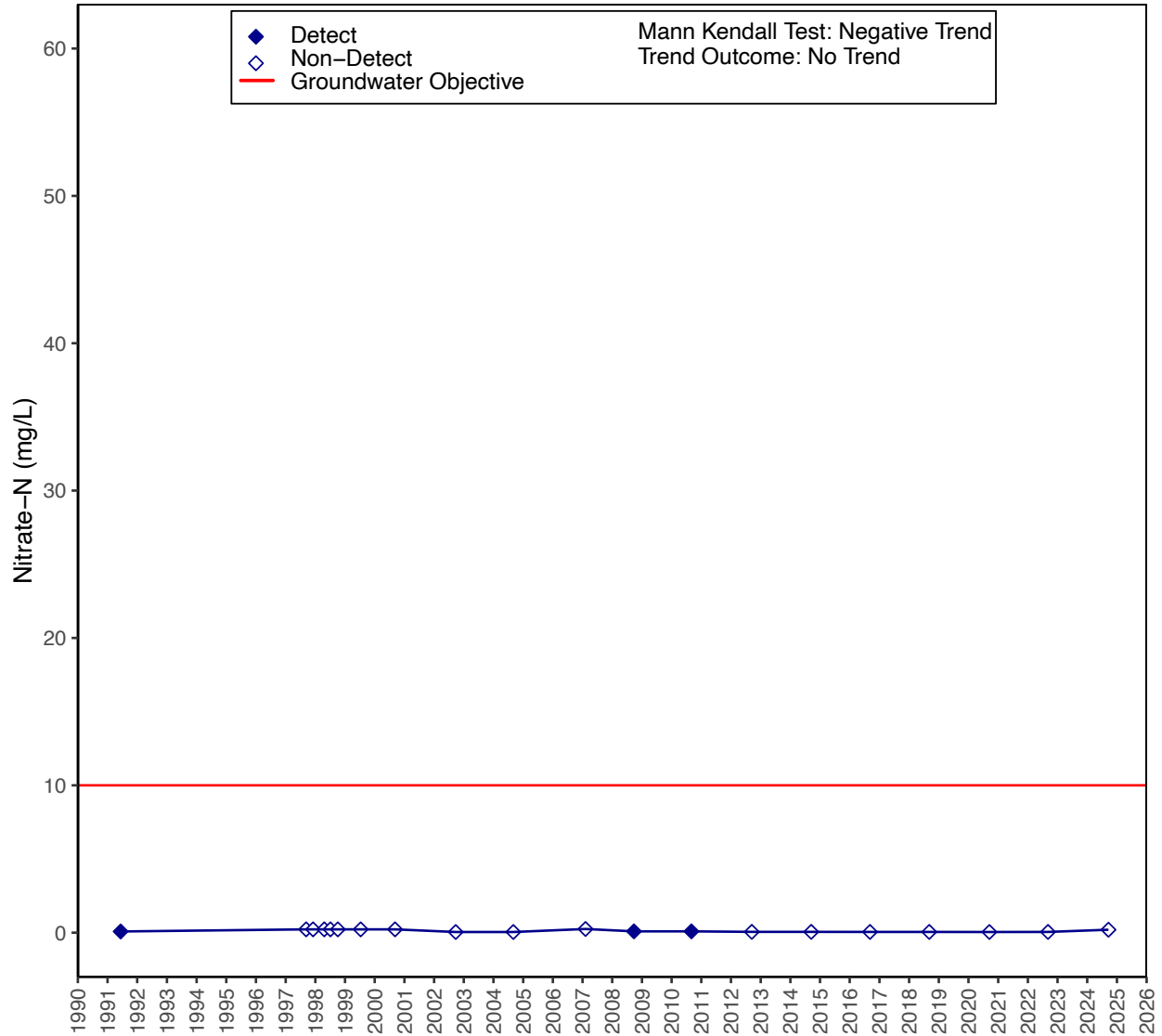
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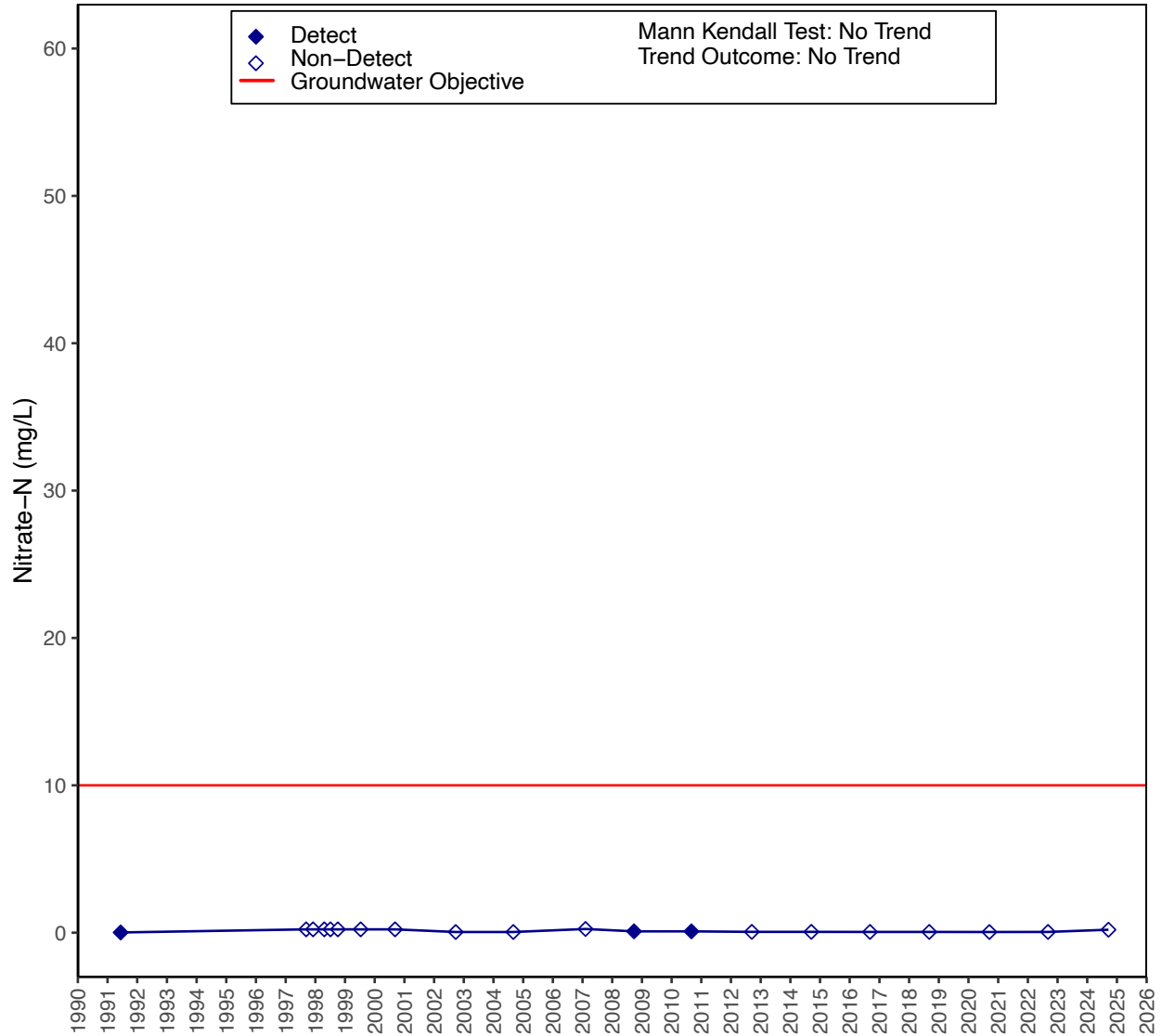
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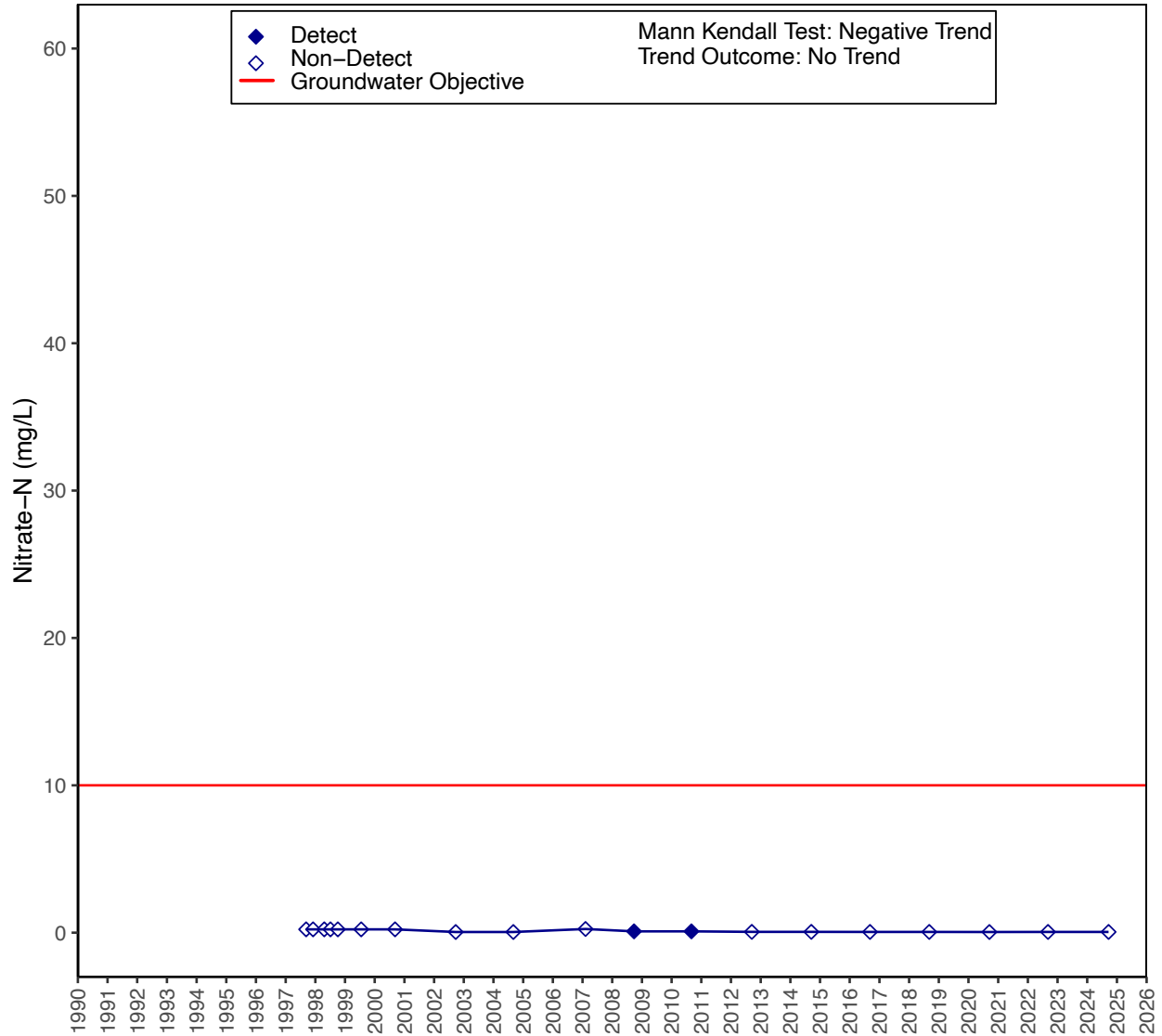
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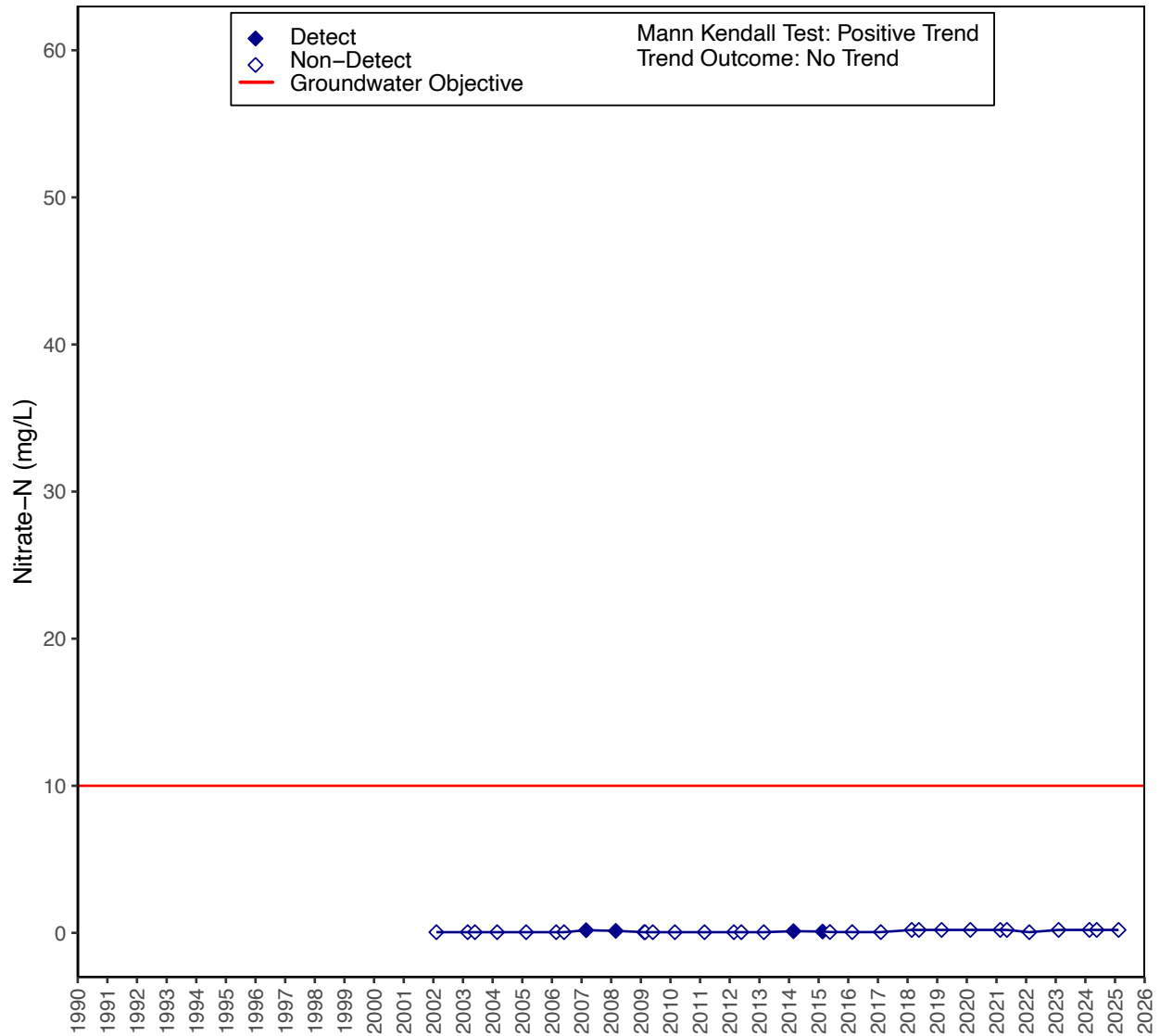
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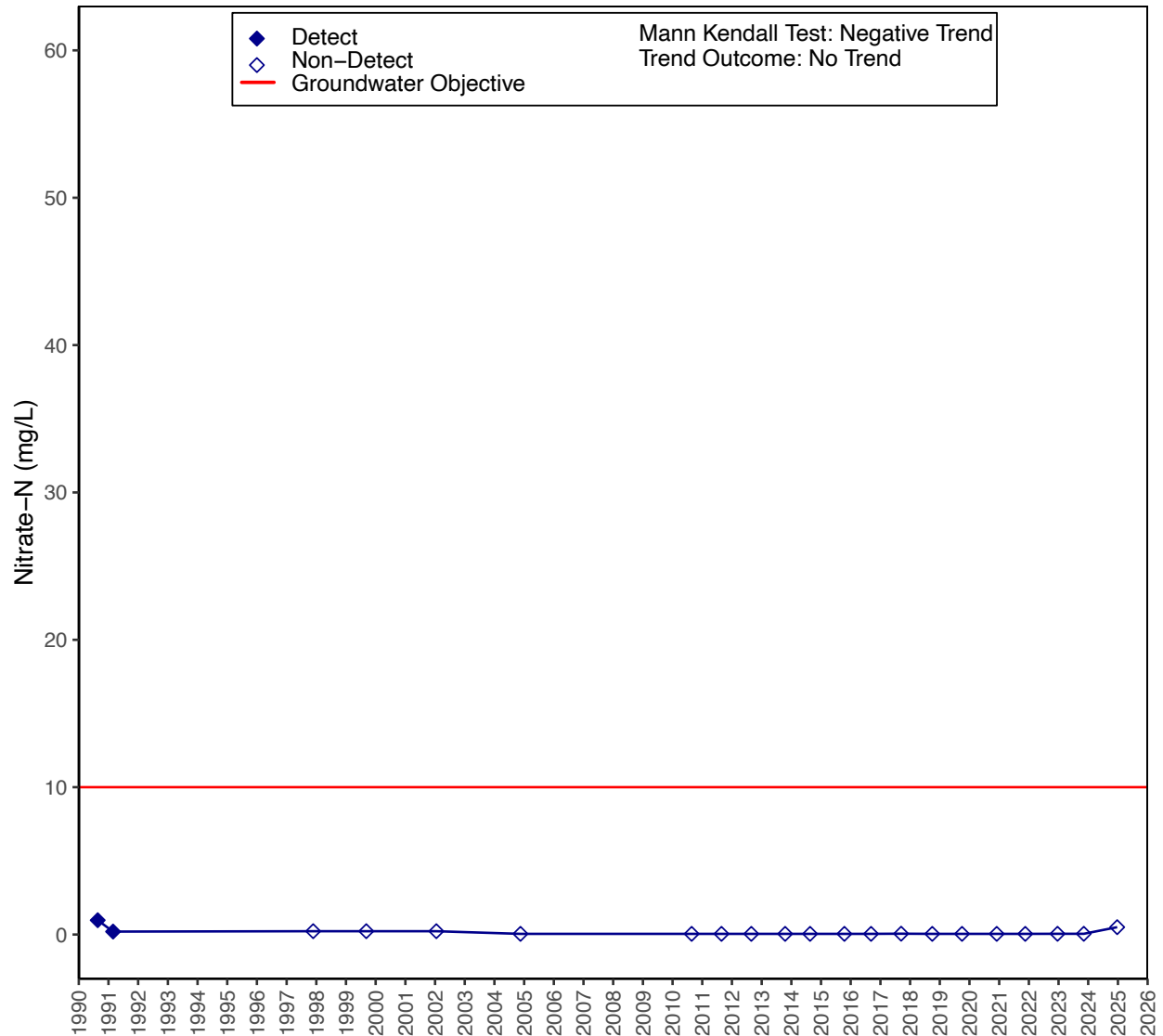
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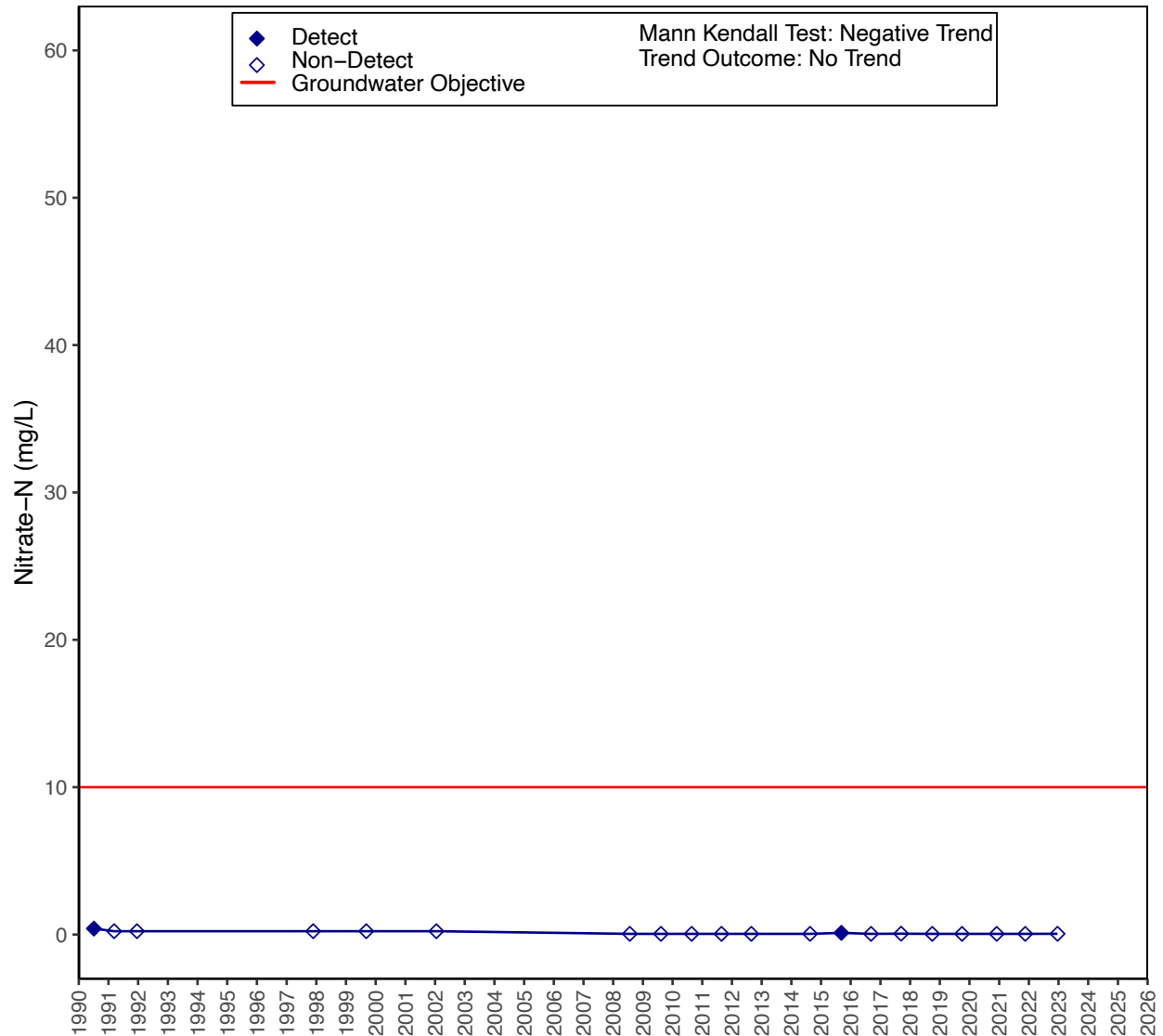
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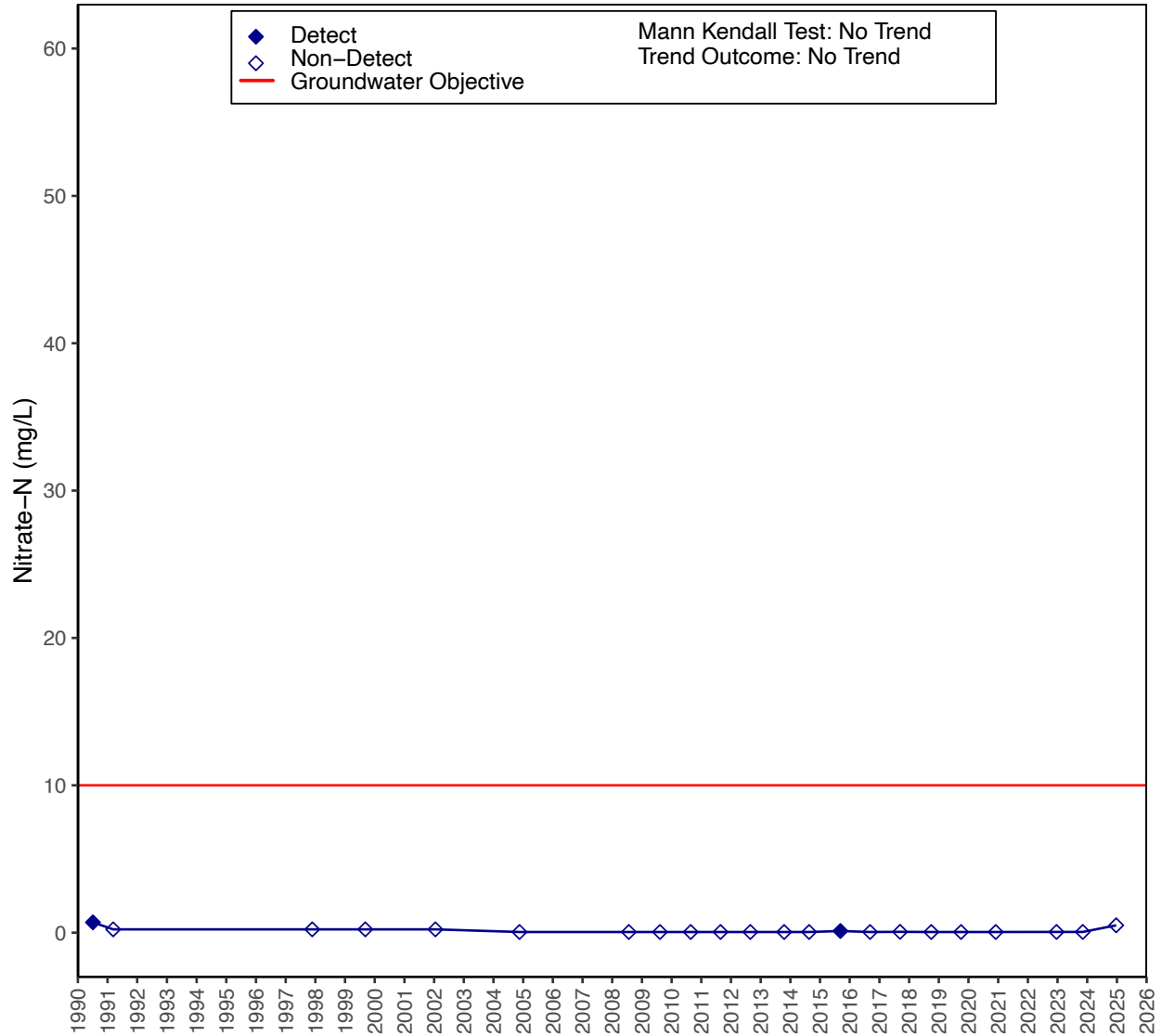
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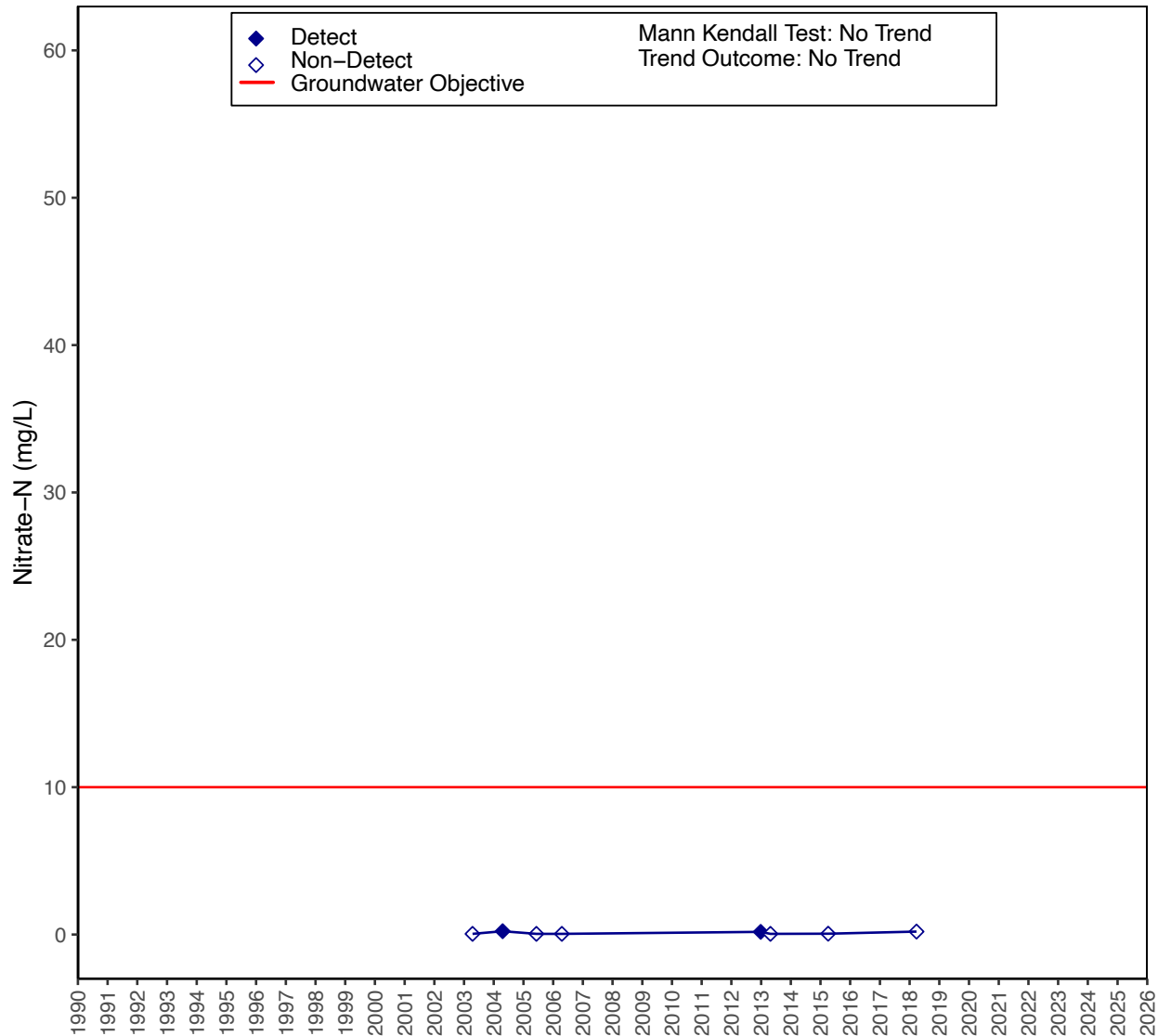
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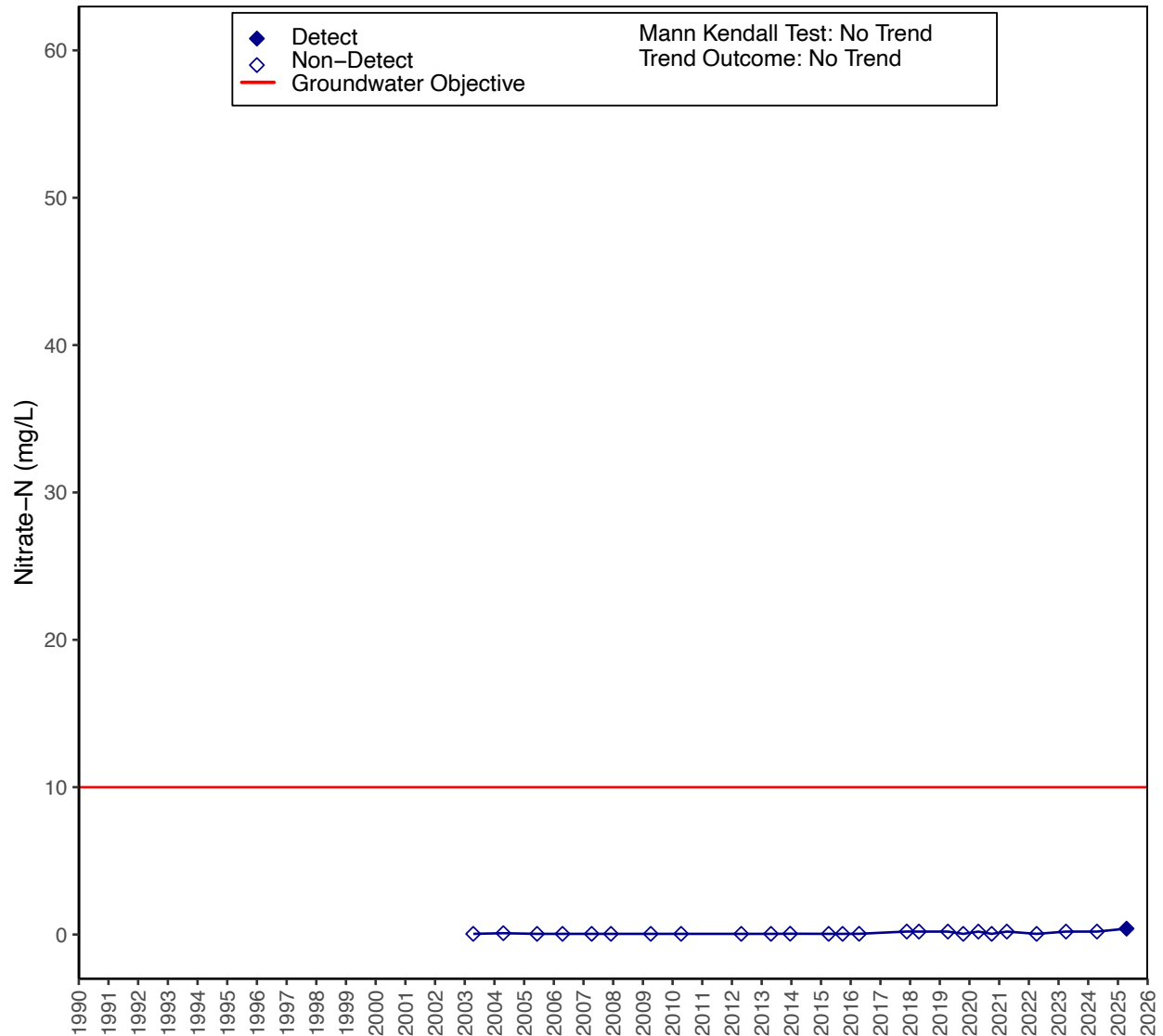
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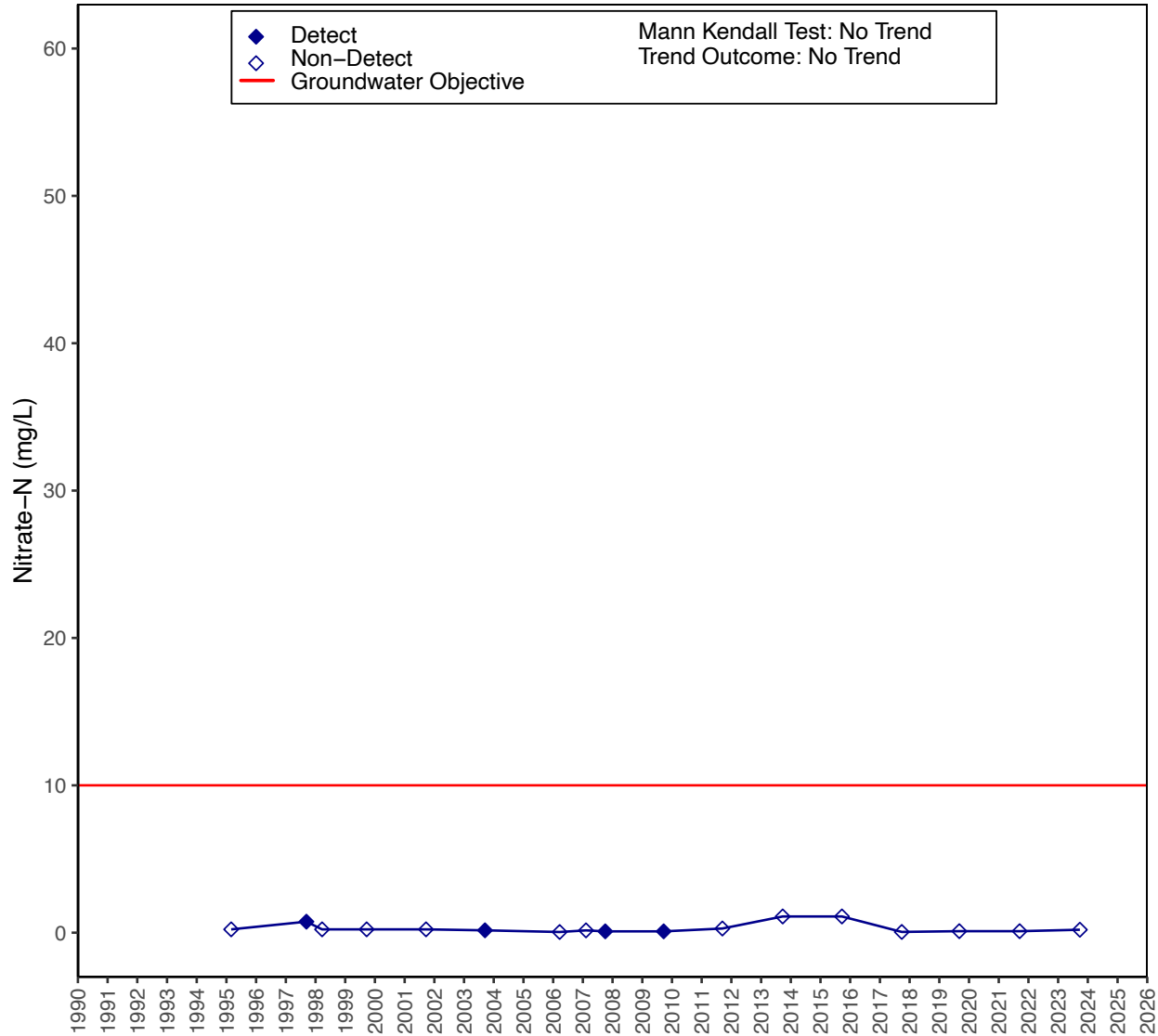
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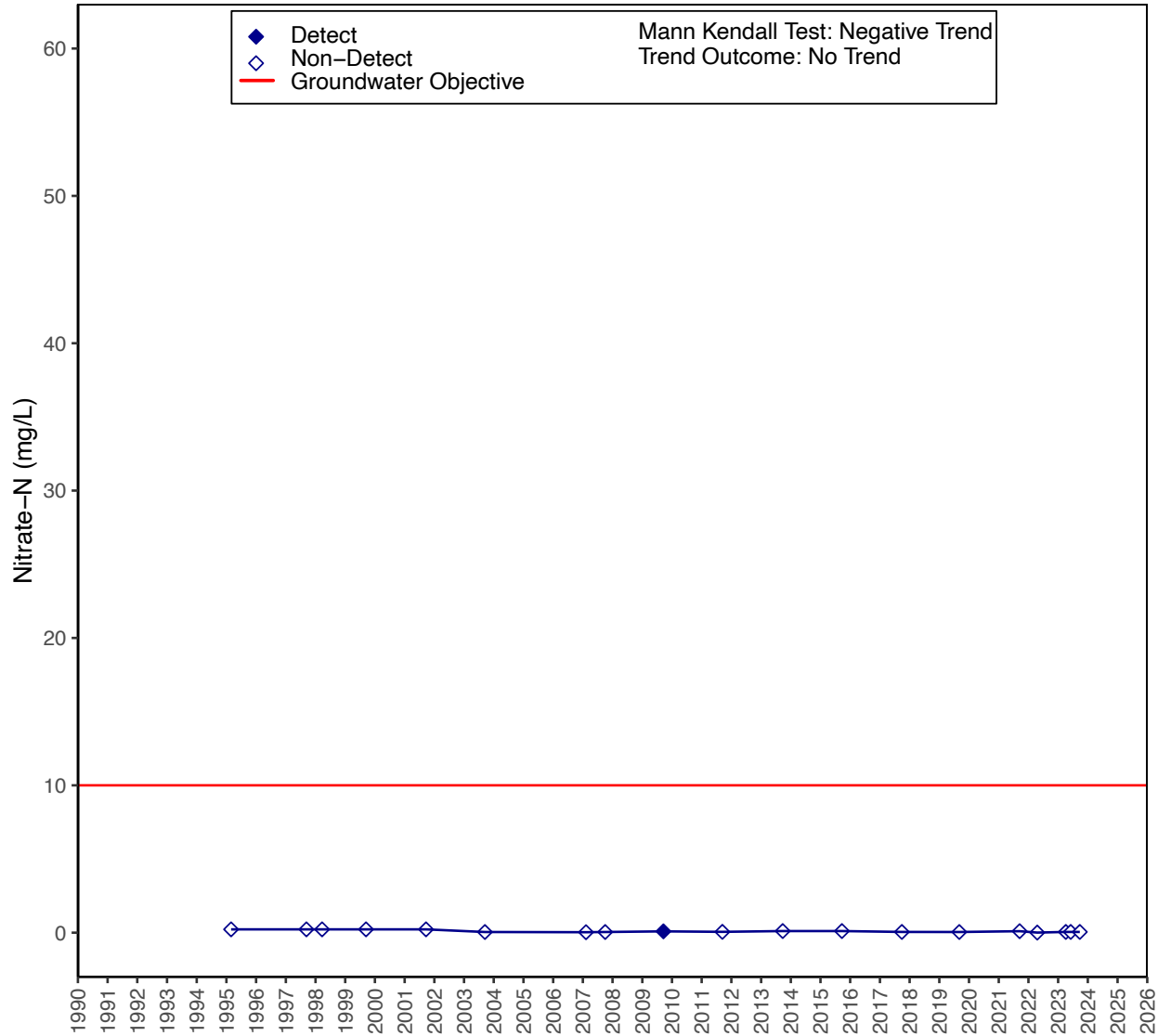
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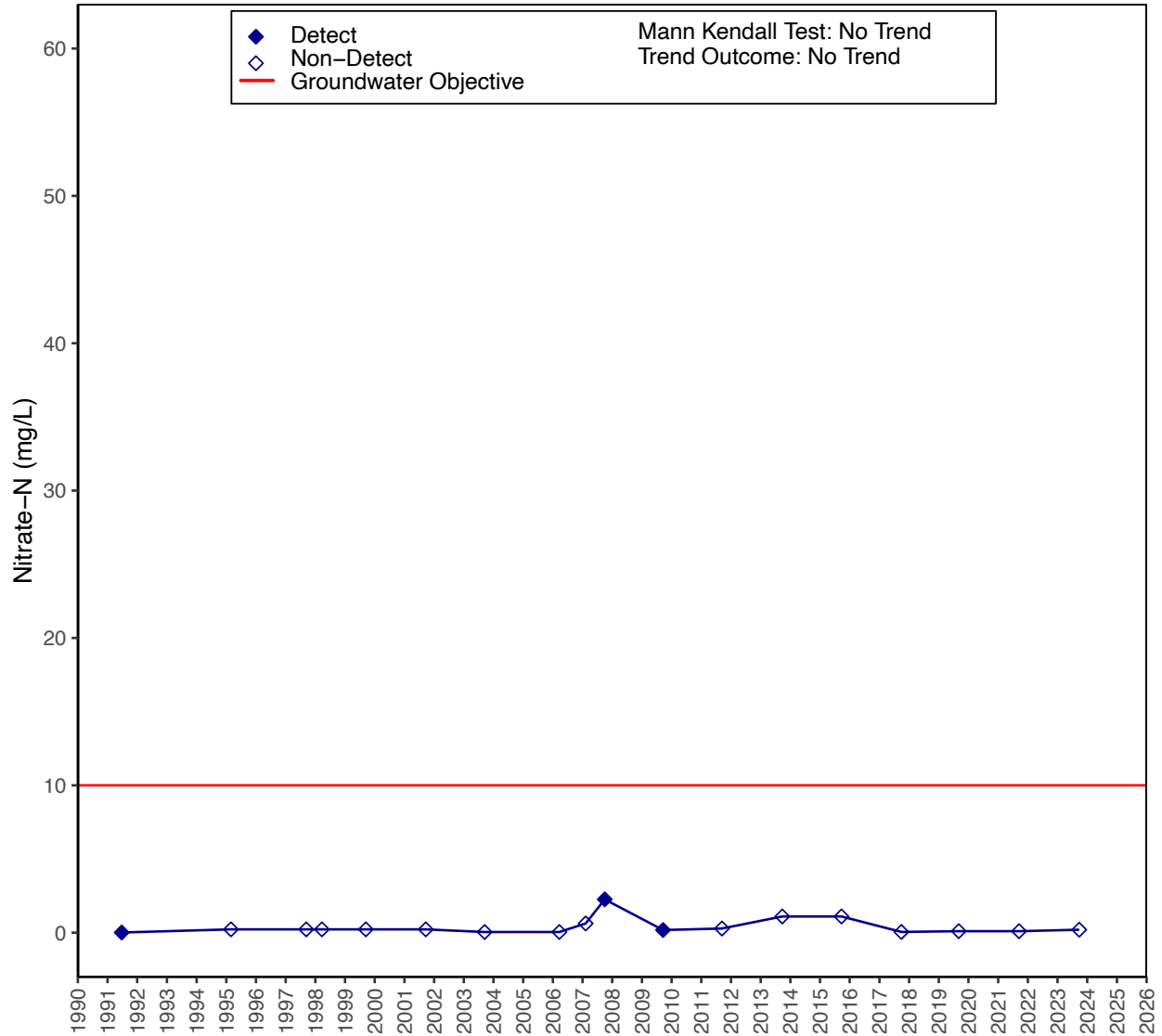
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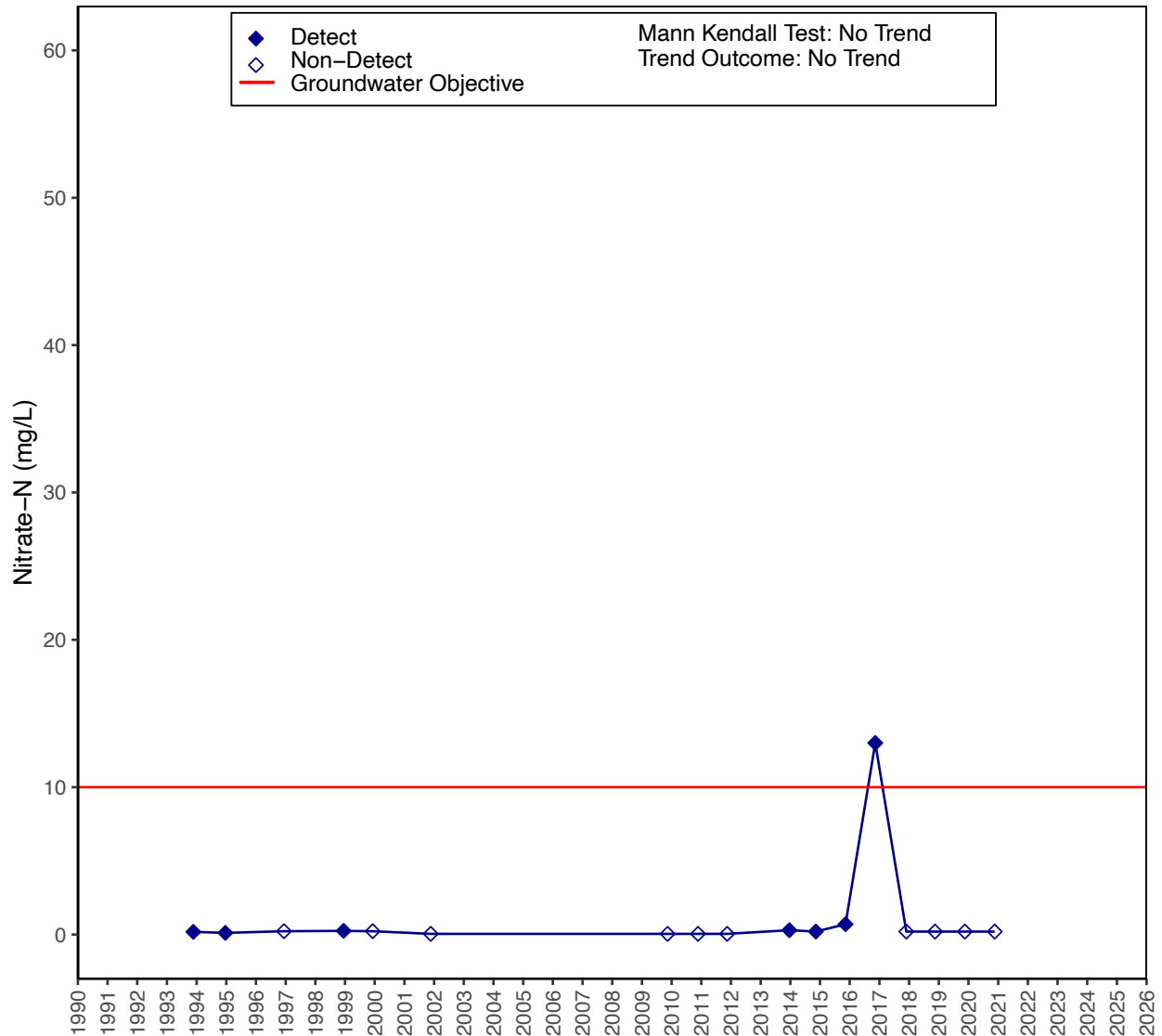
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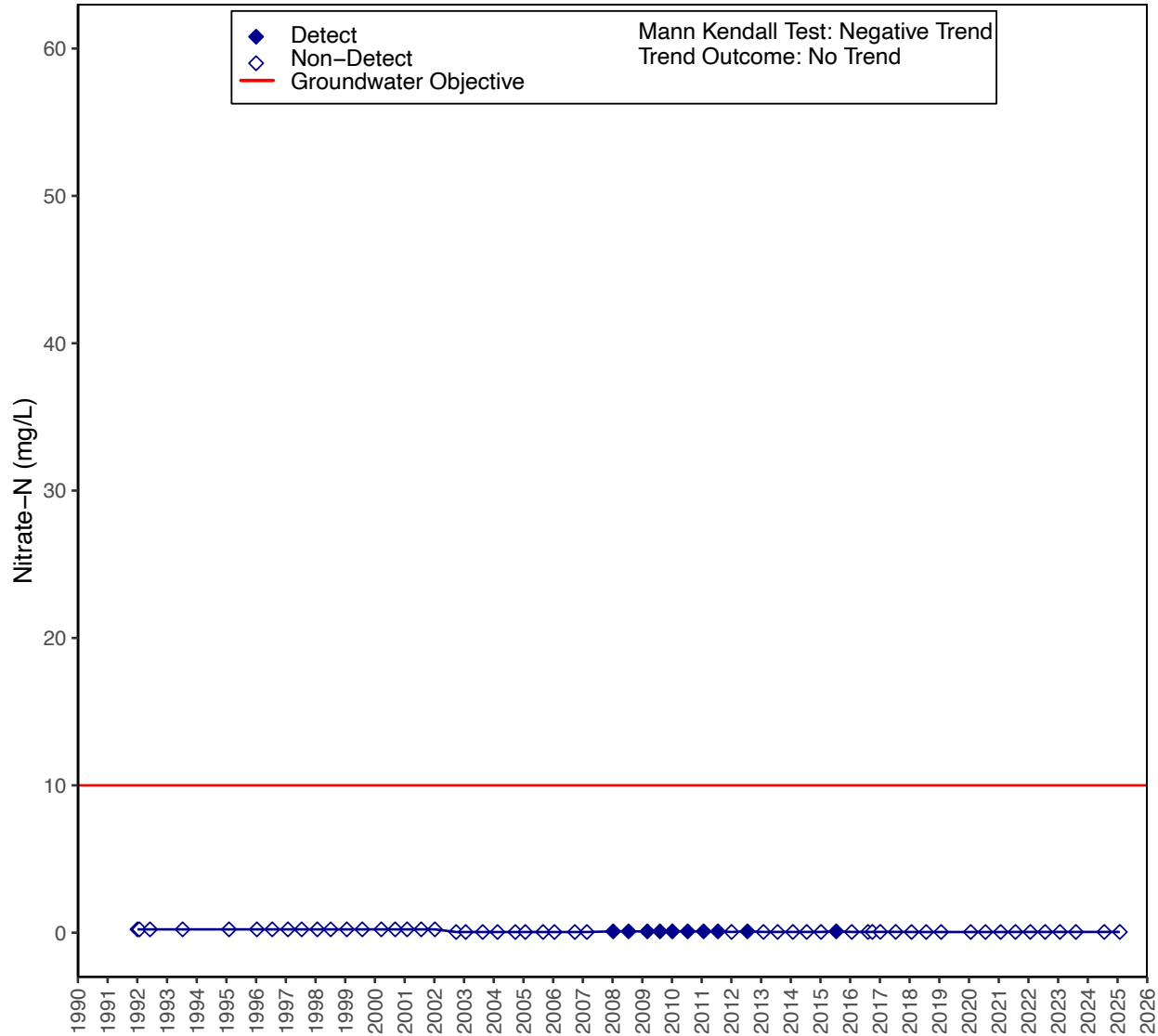
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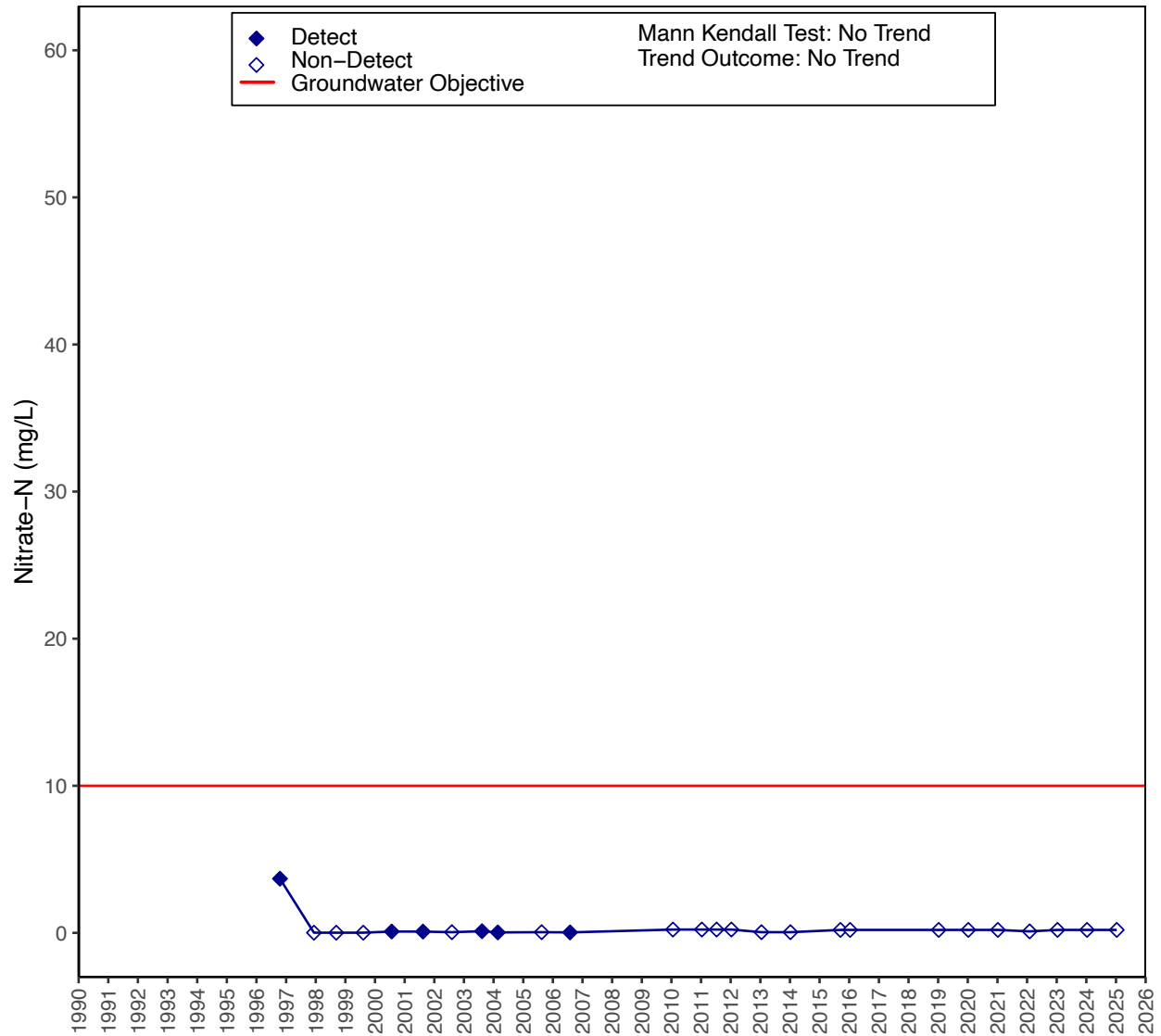
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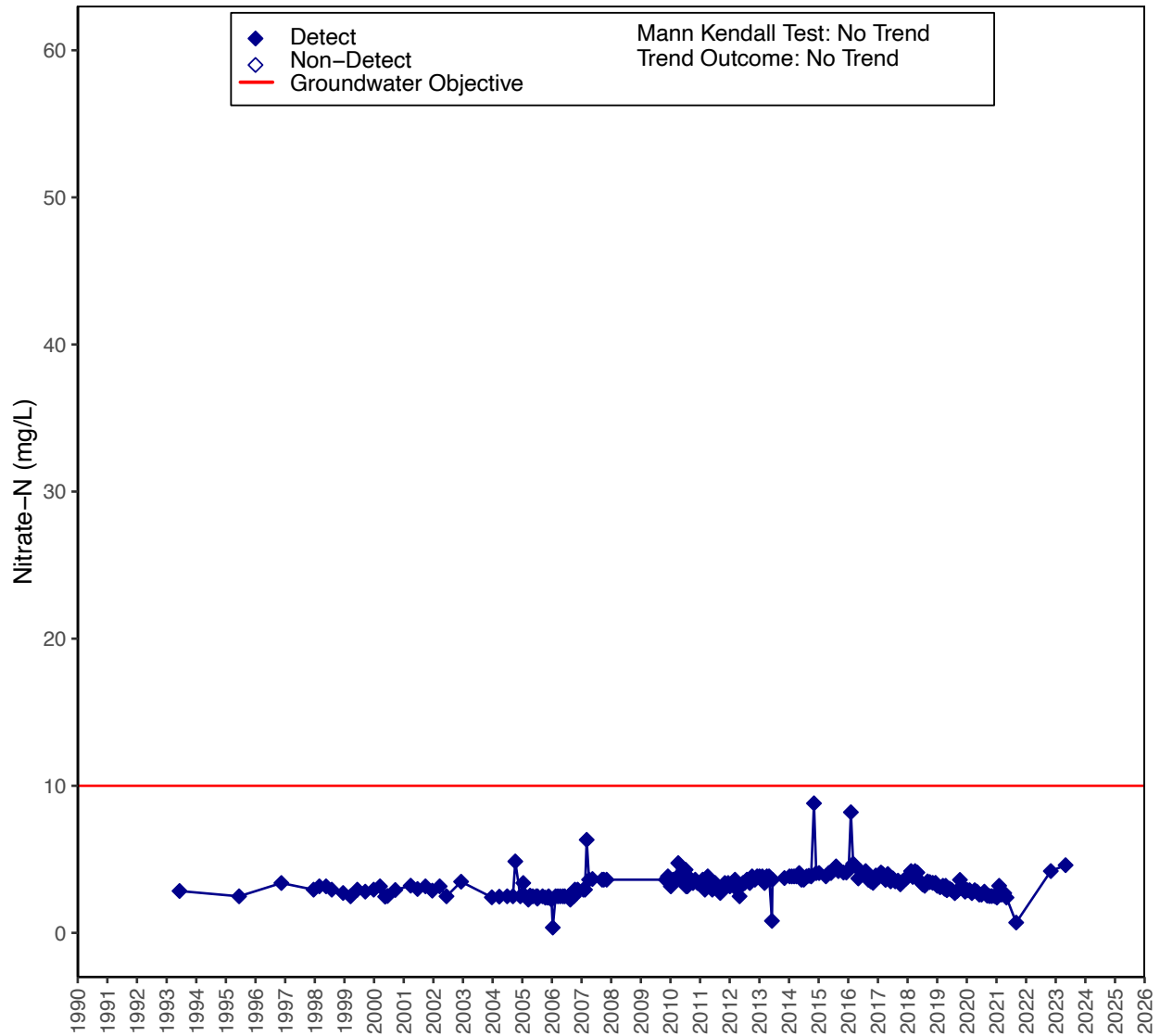
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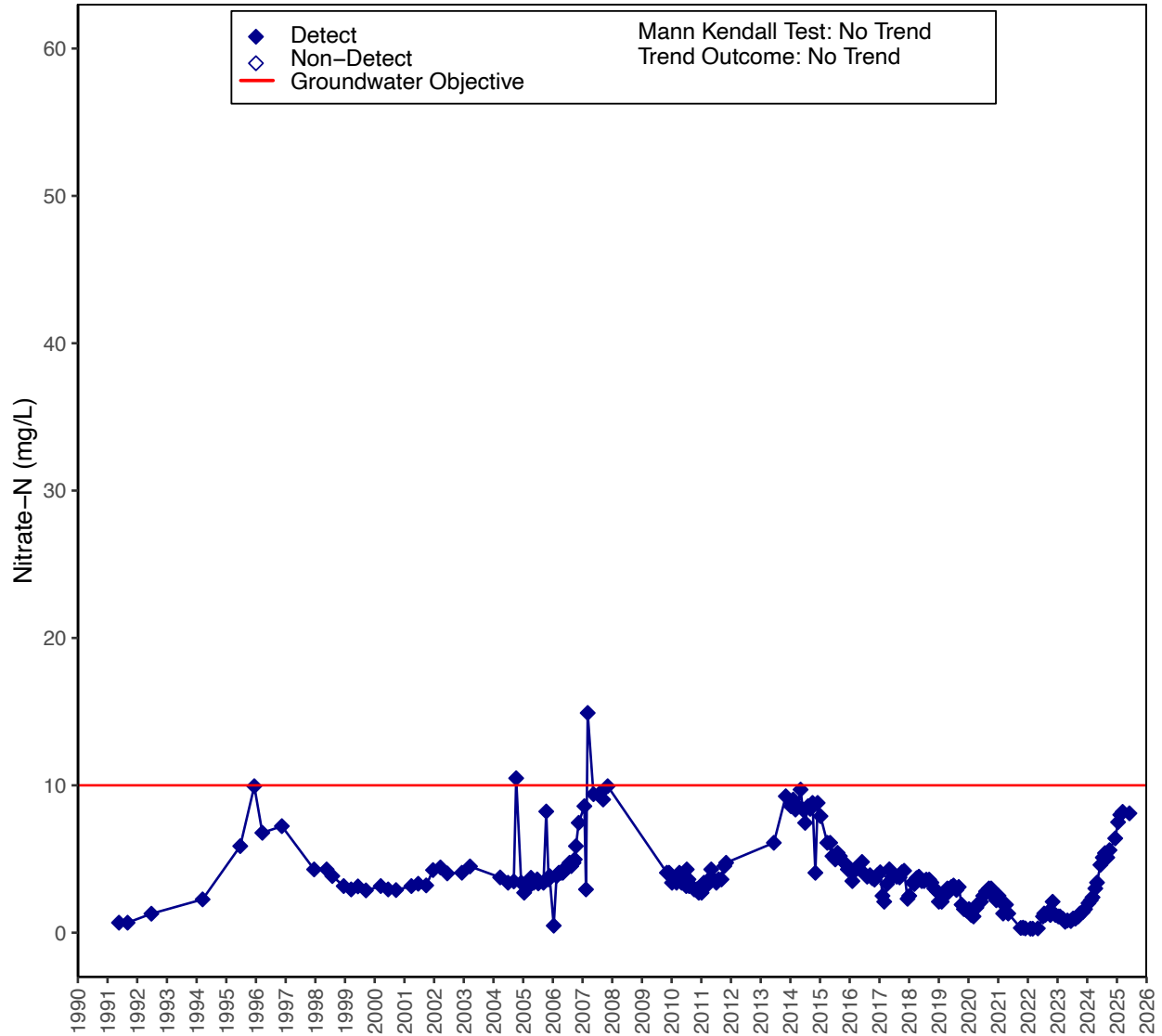
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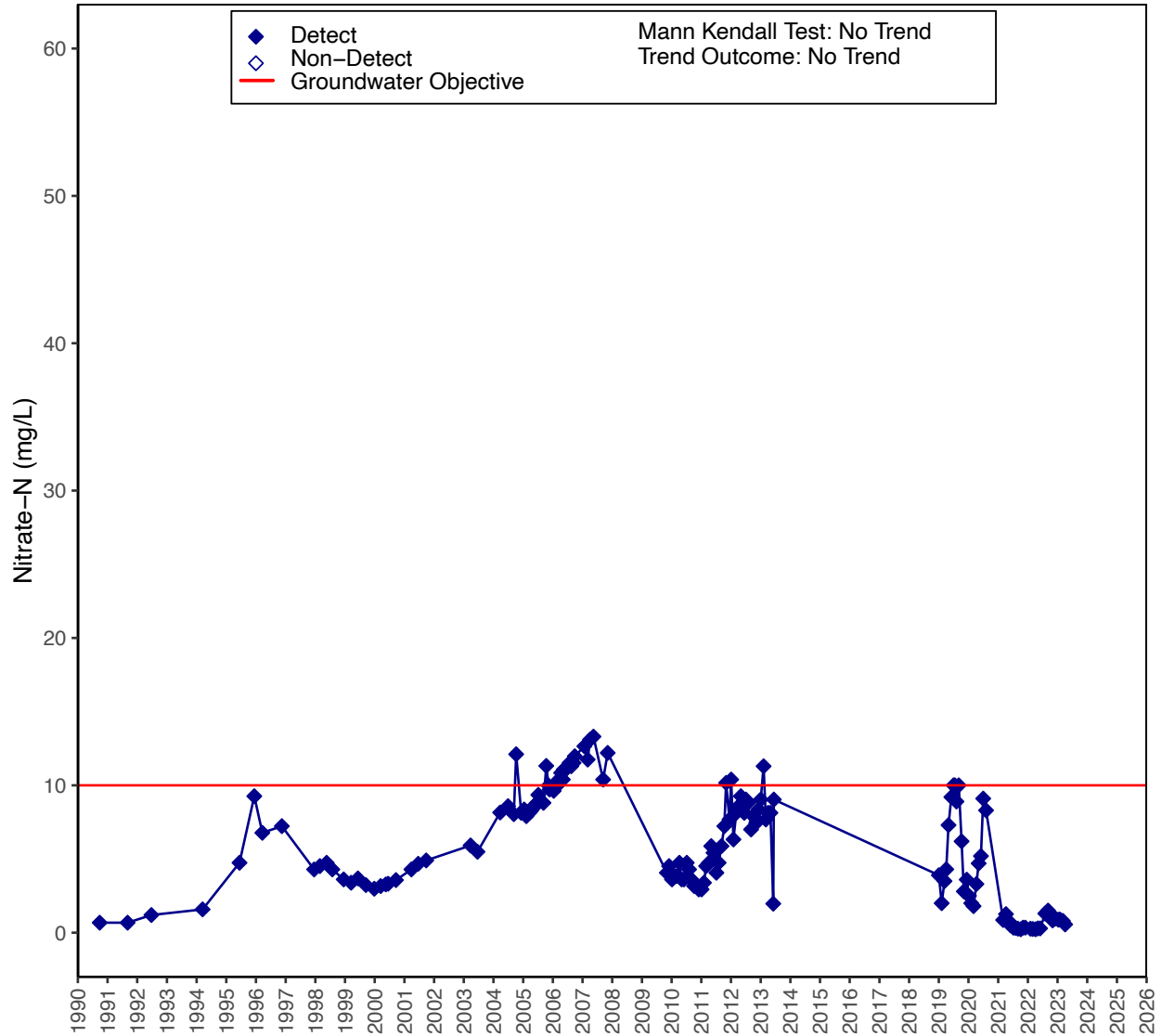
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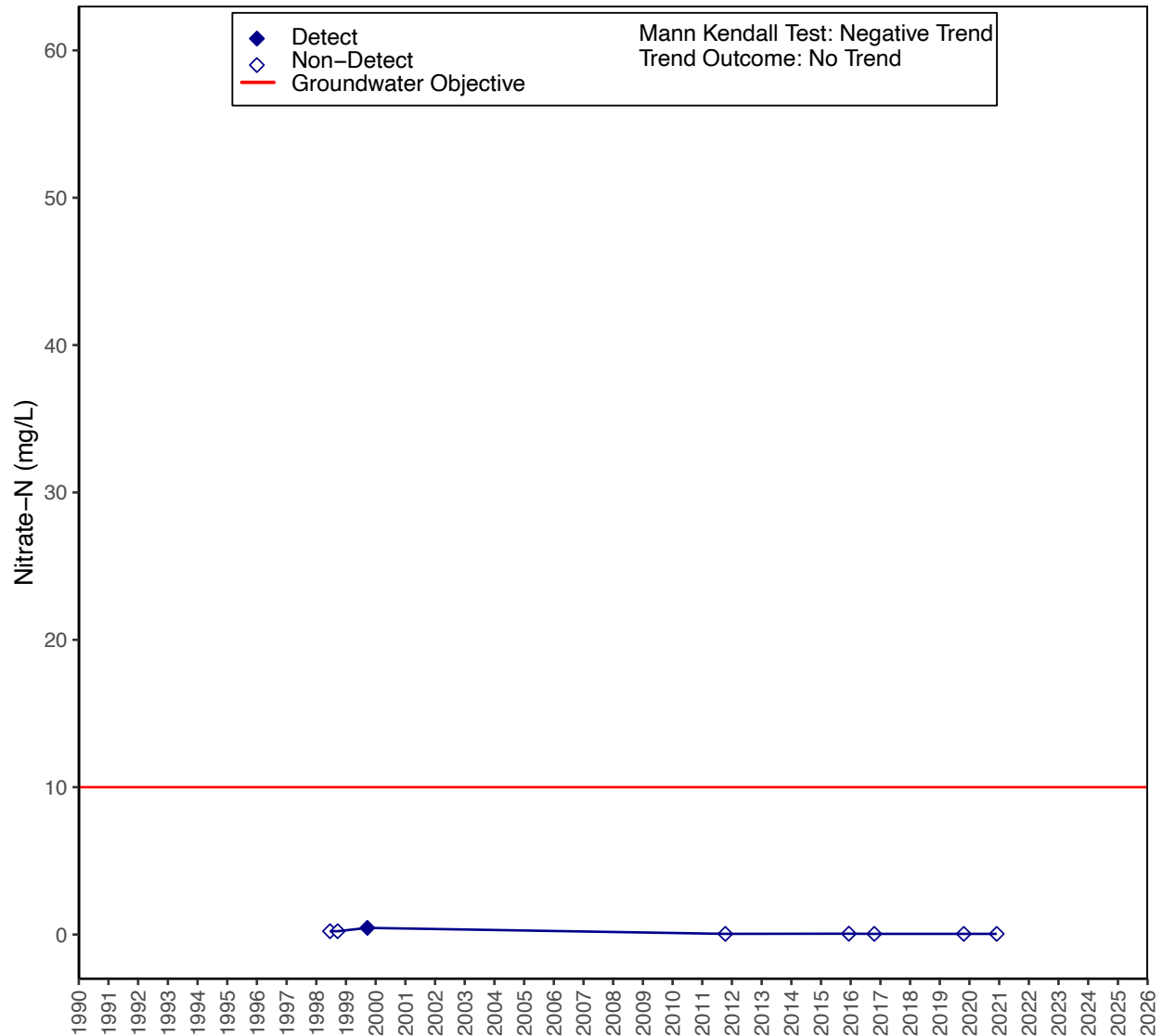
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01N22W03F07S_F07S**



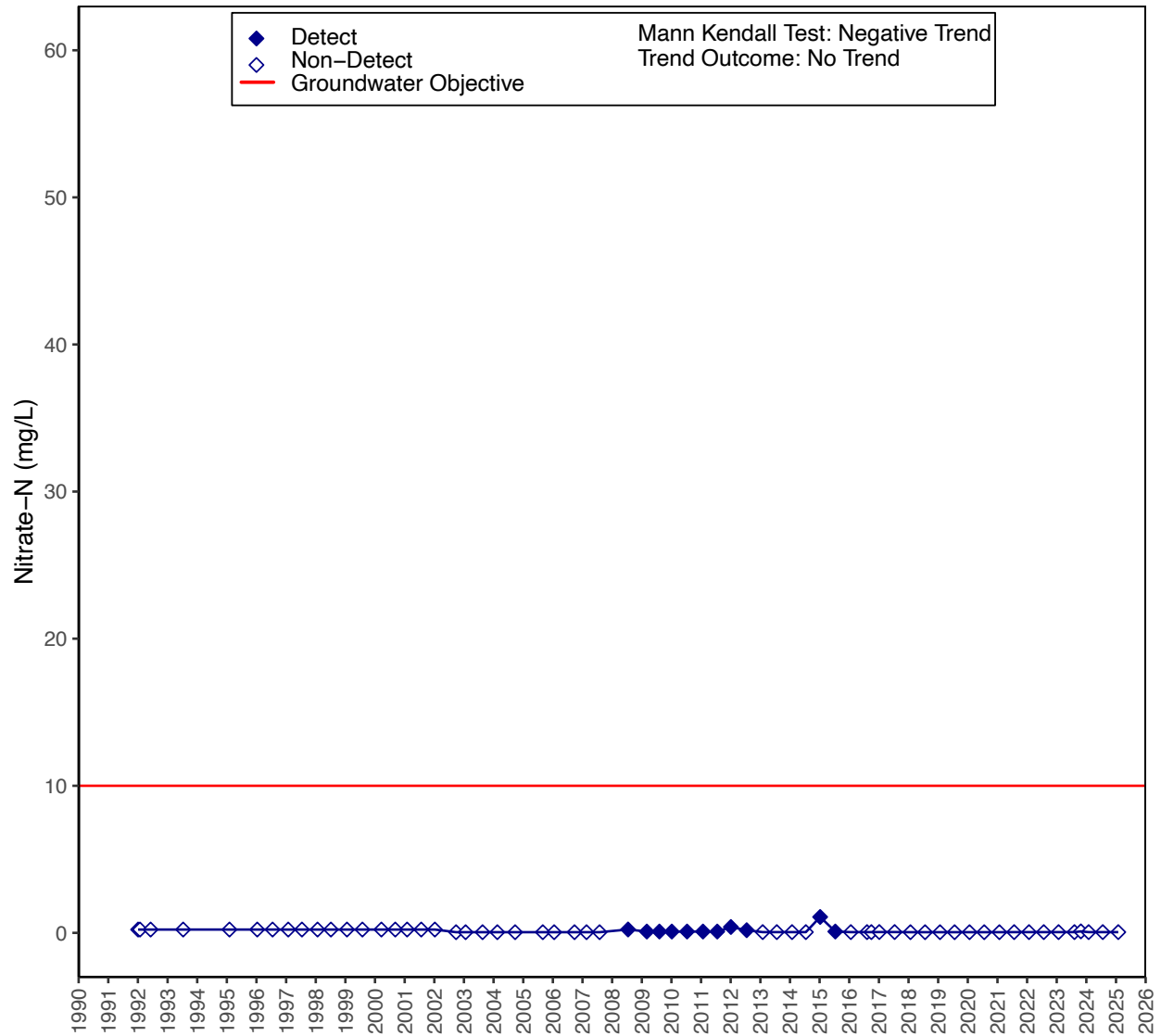
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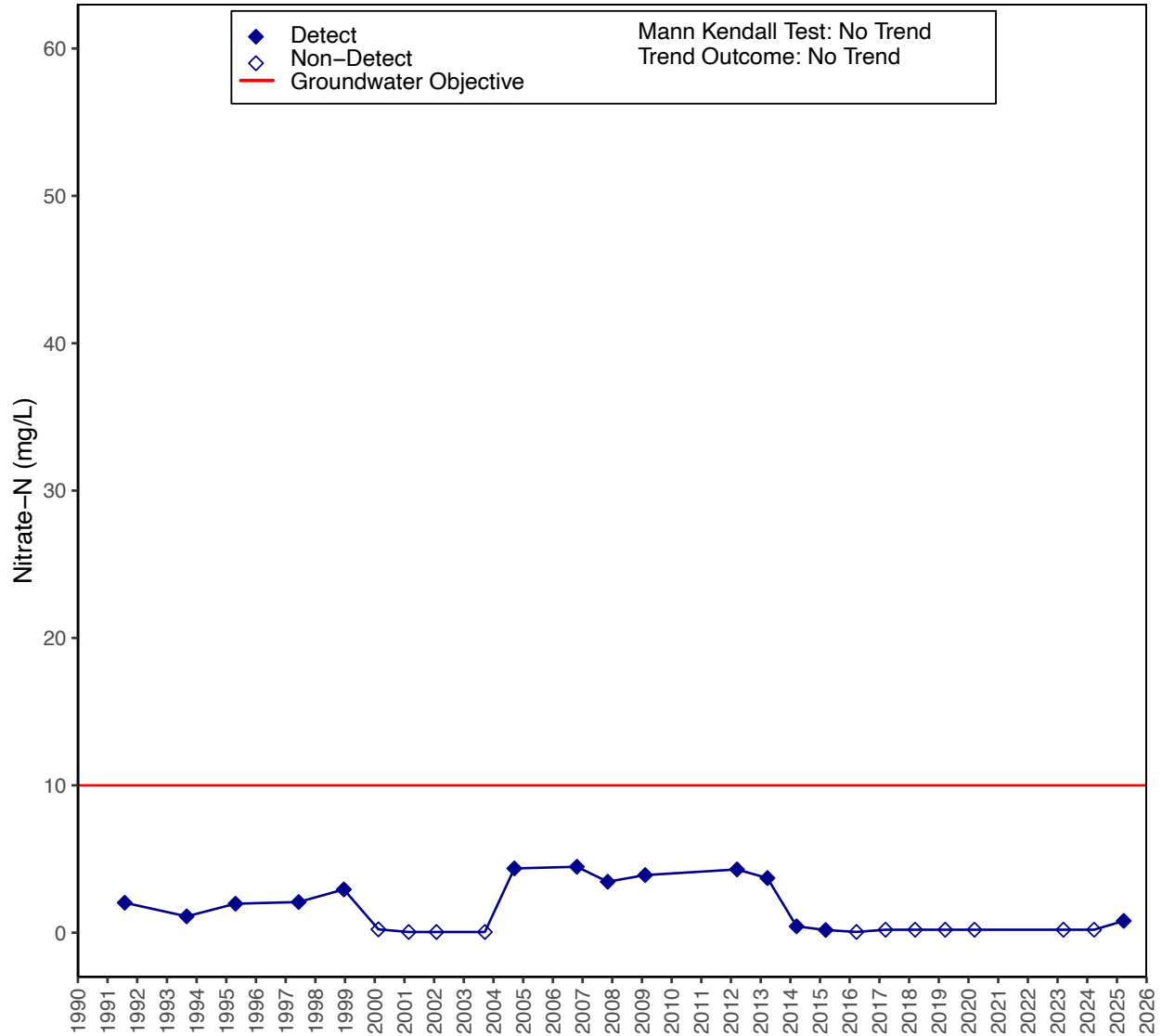
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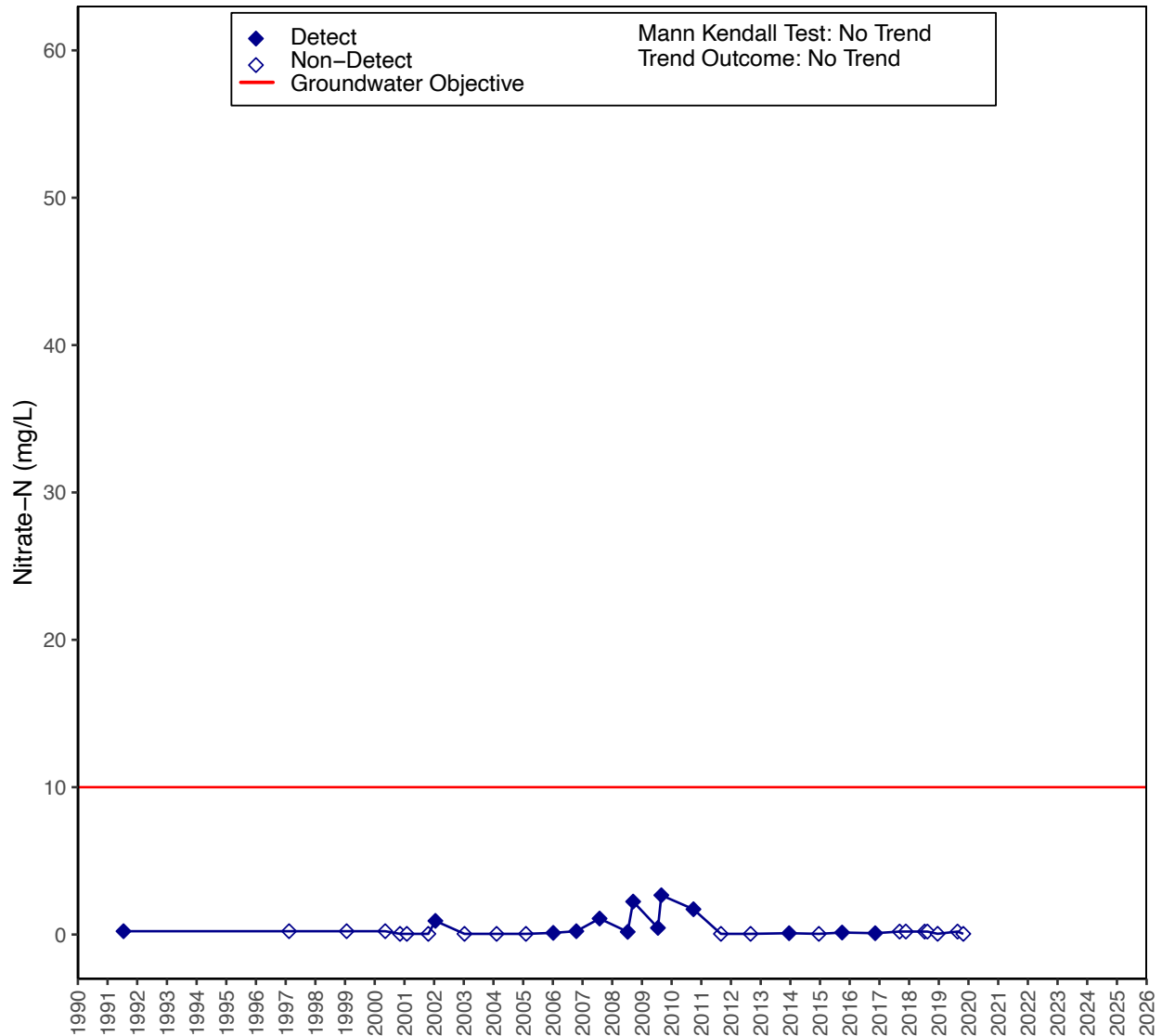
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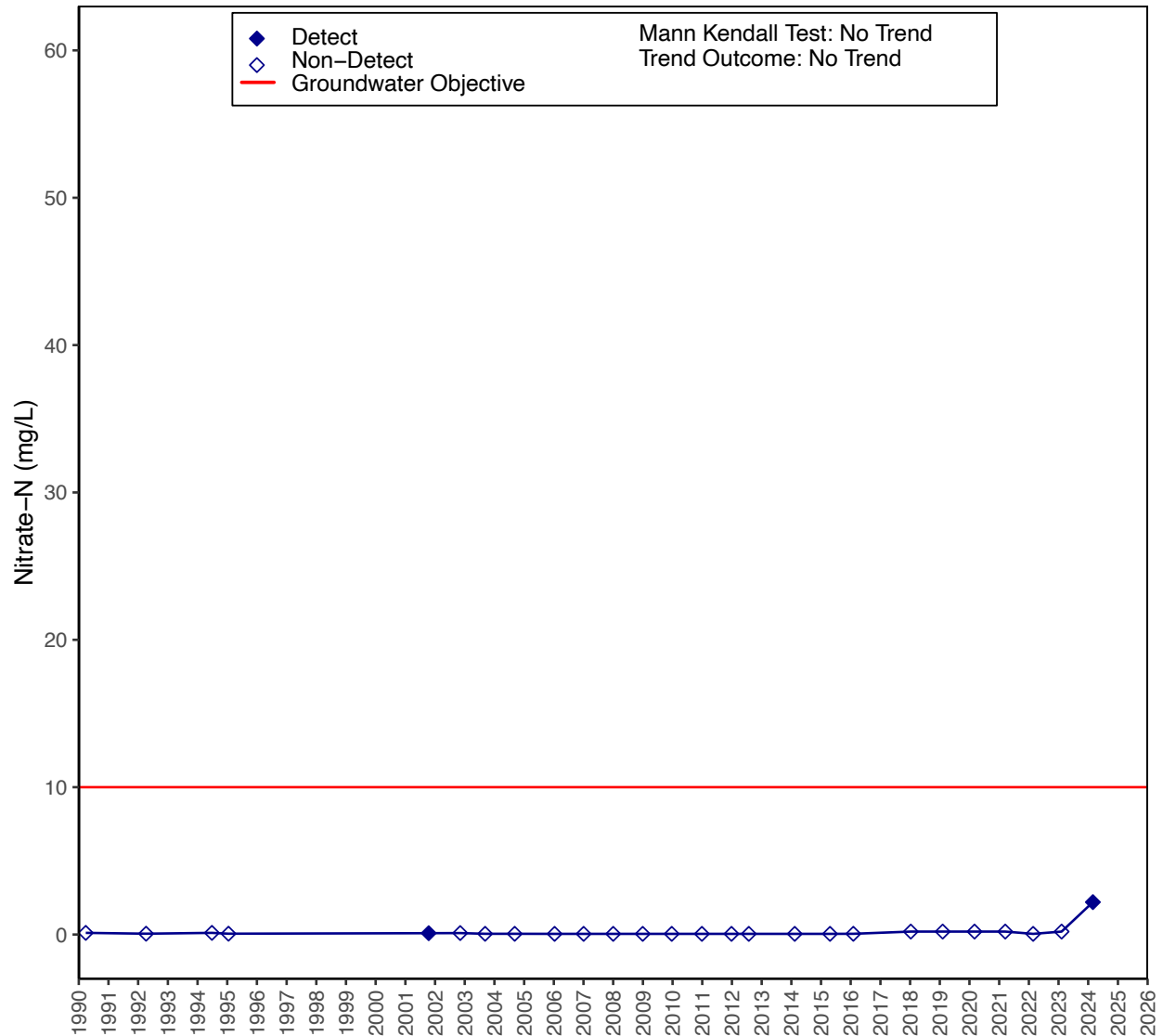
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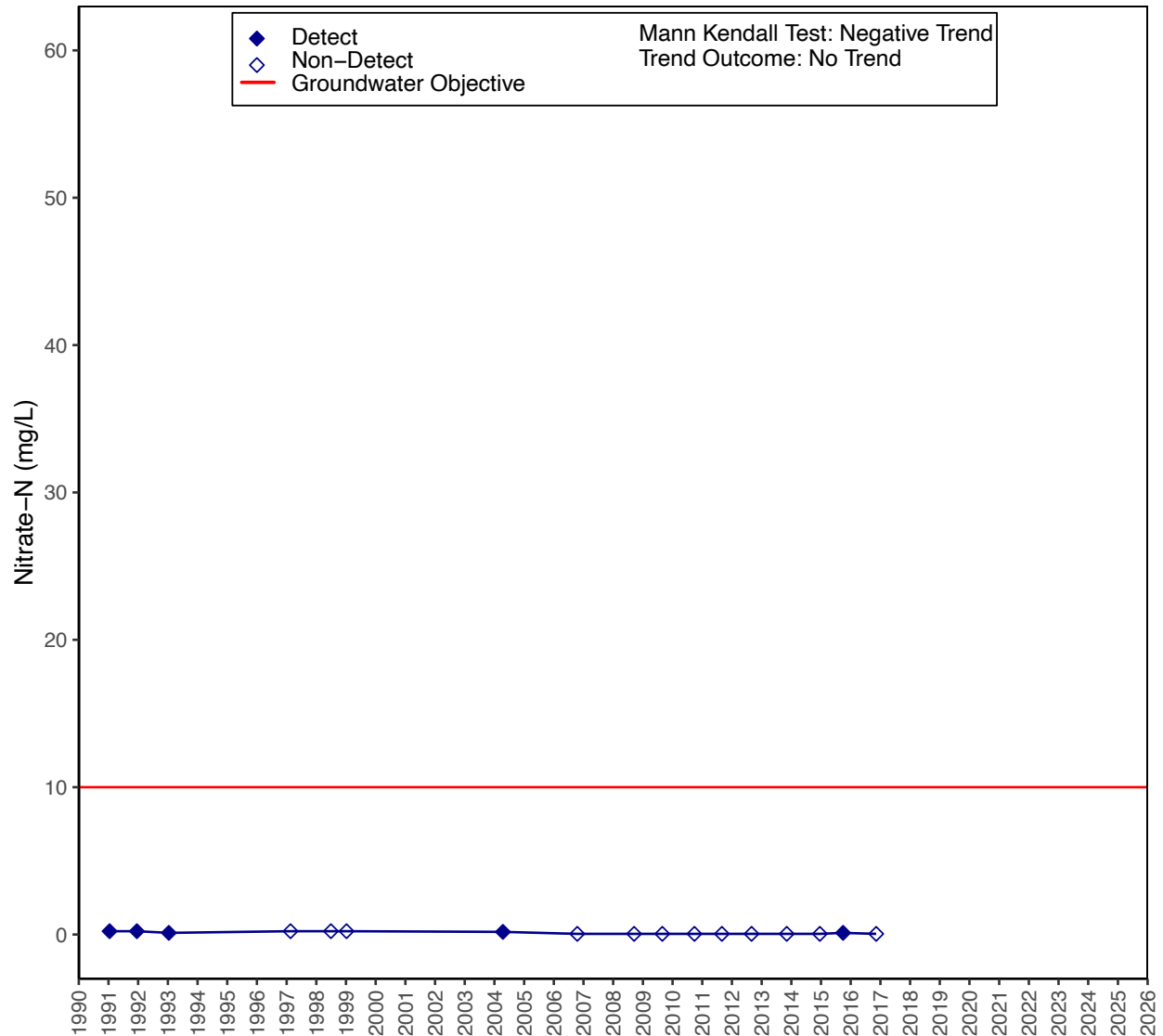
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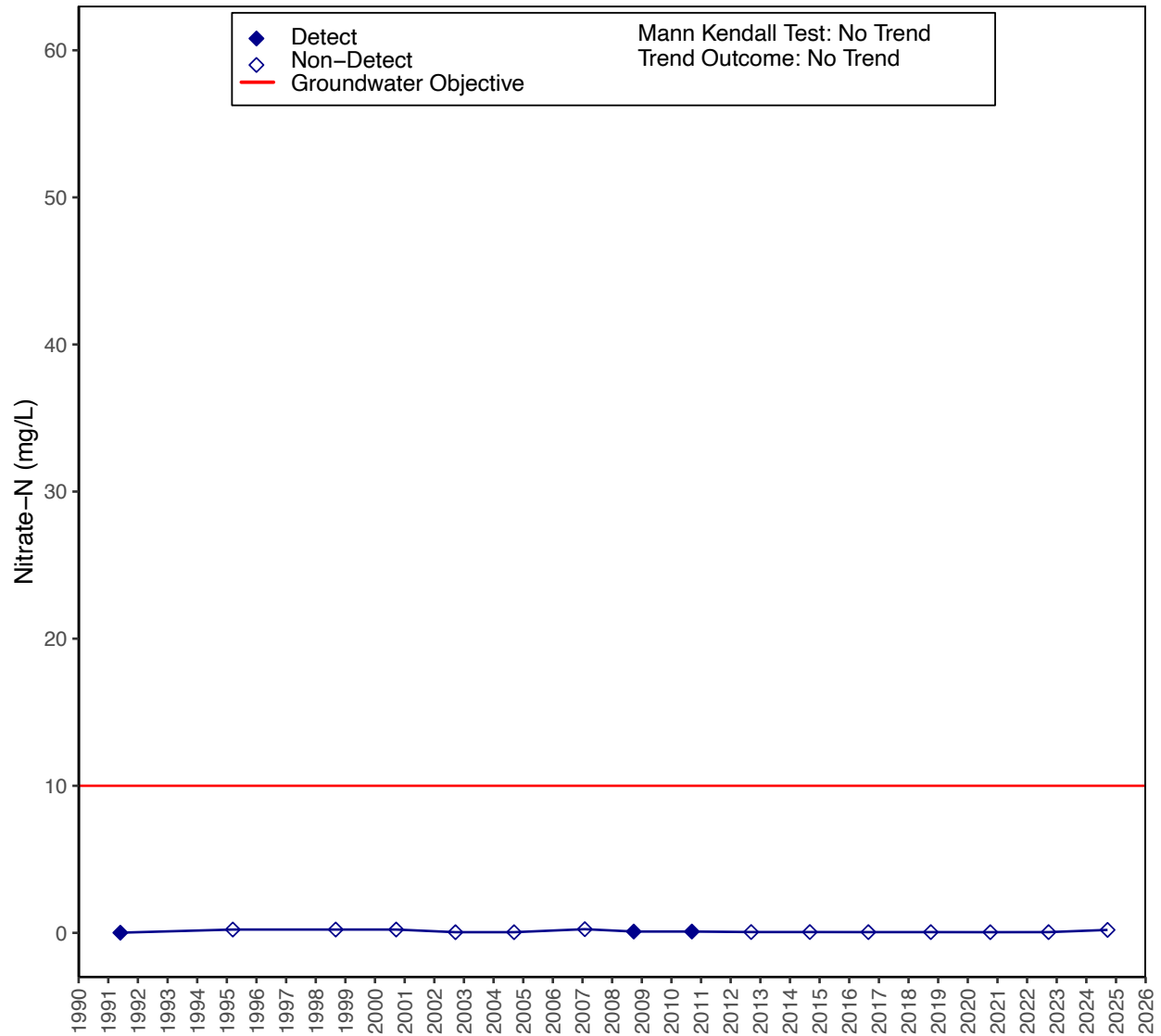
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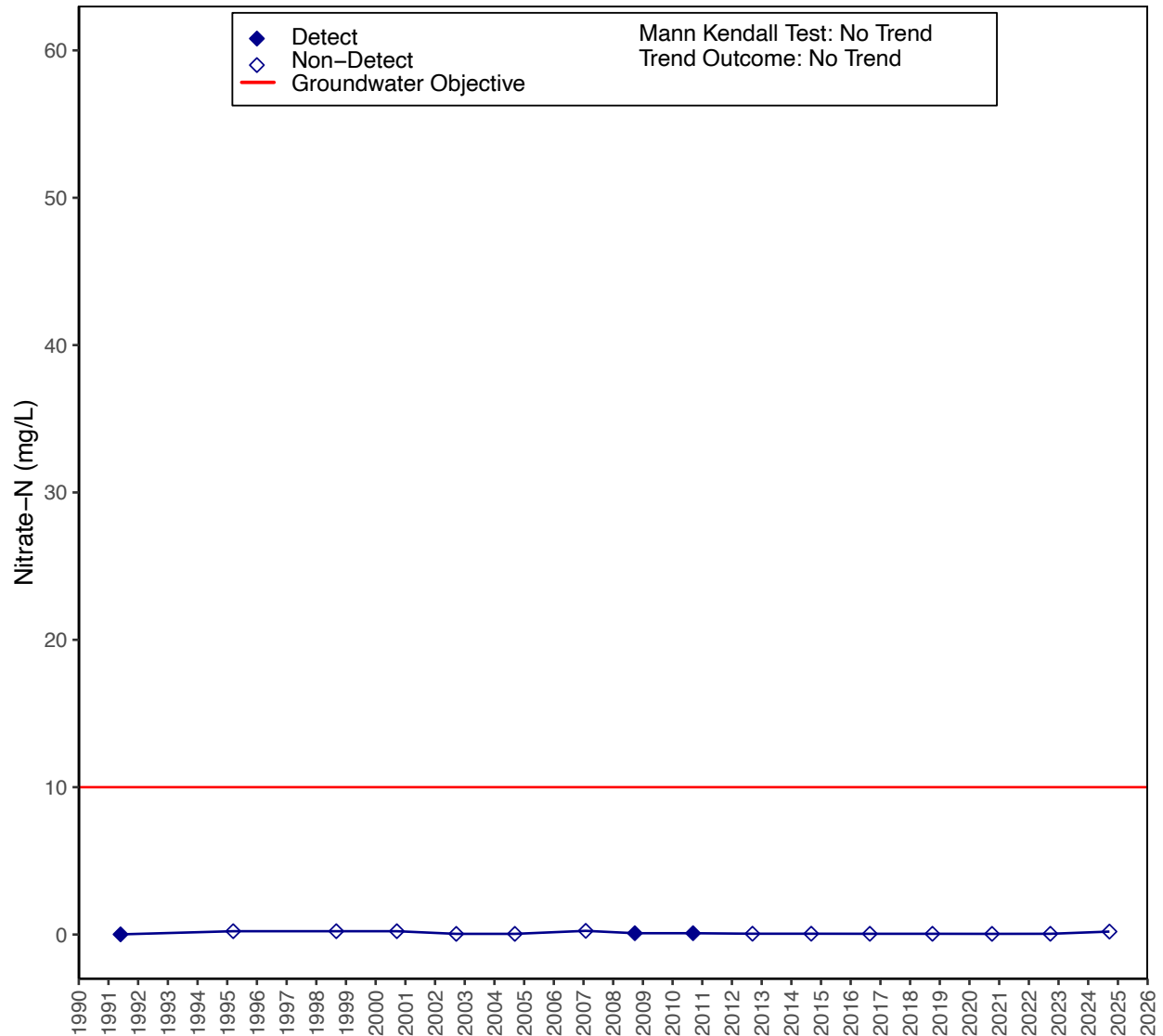
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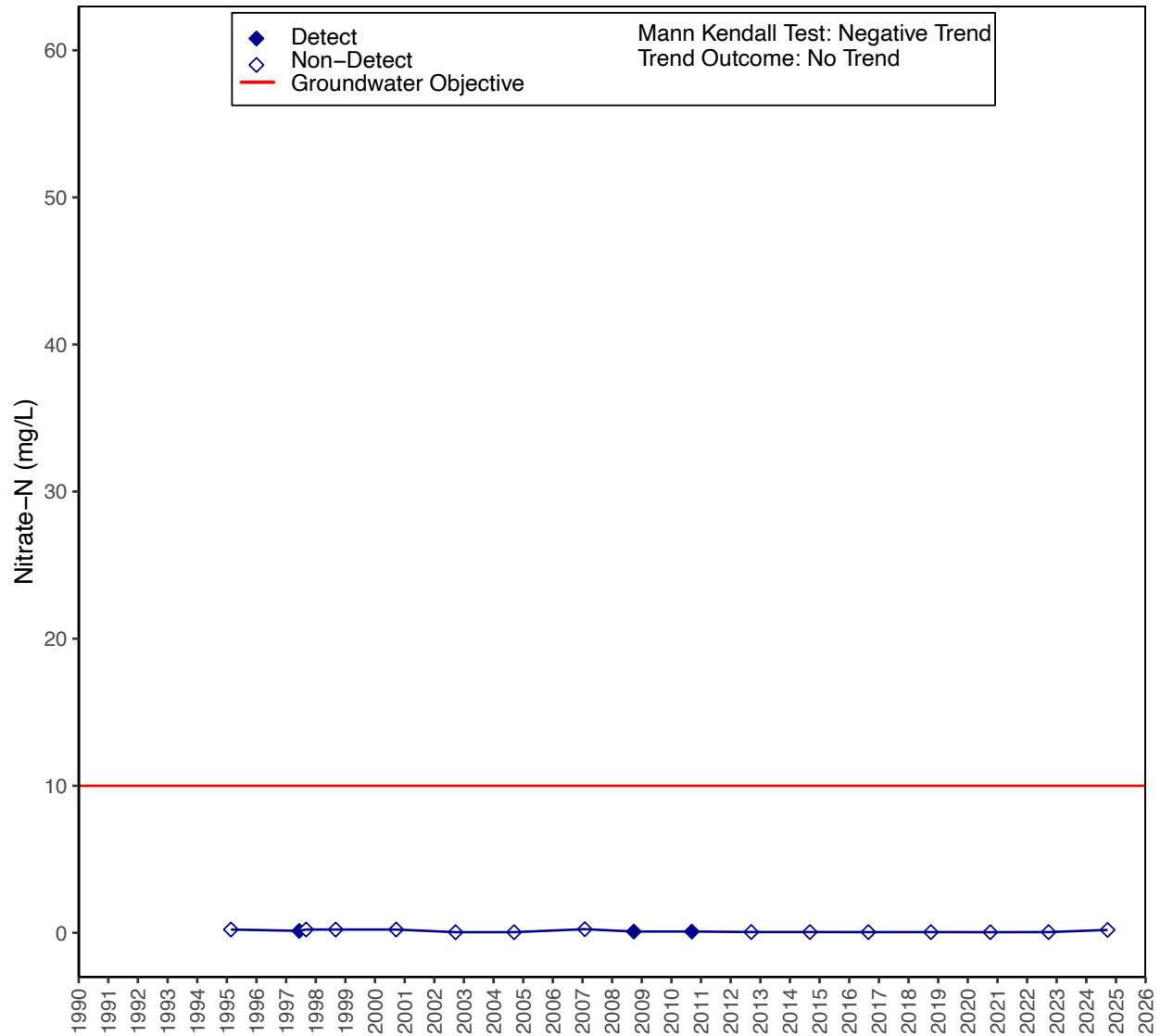
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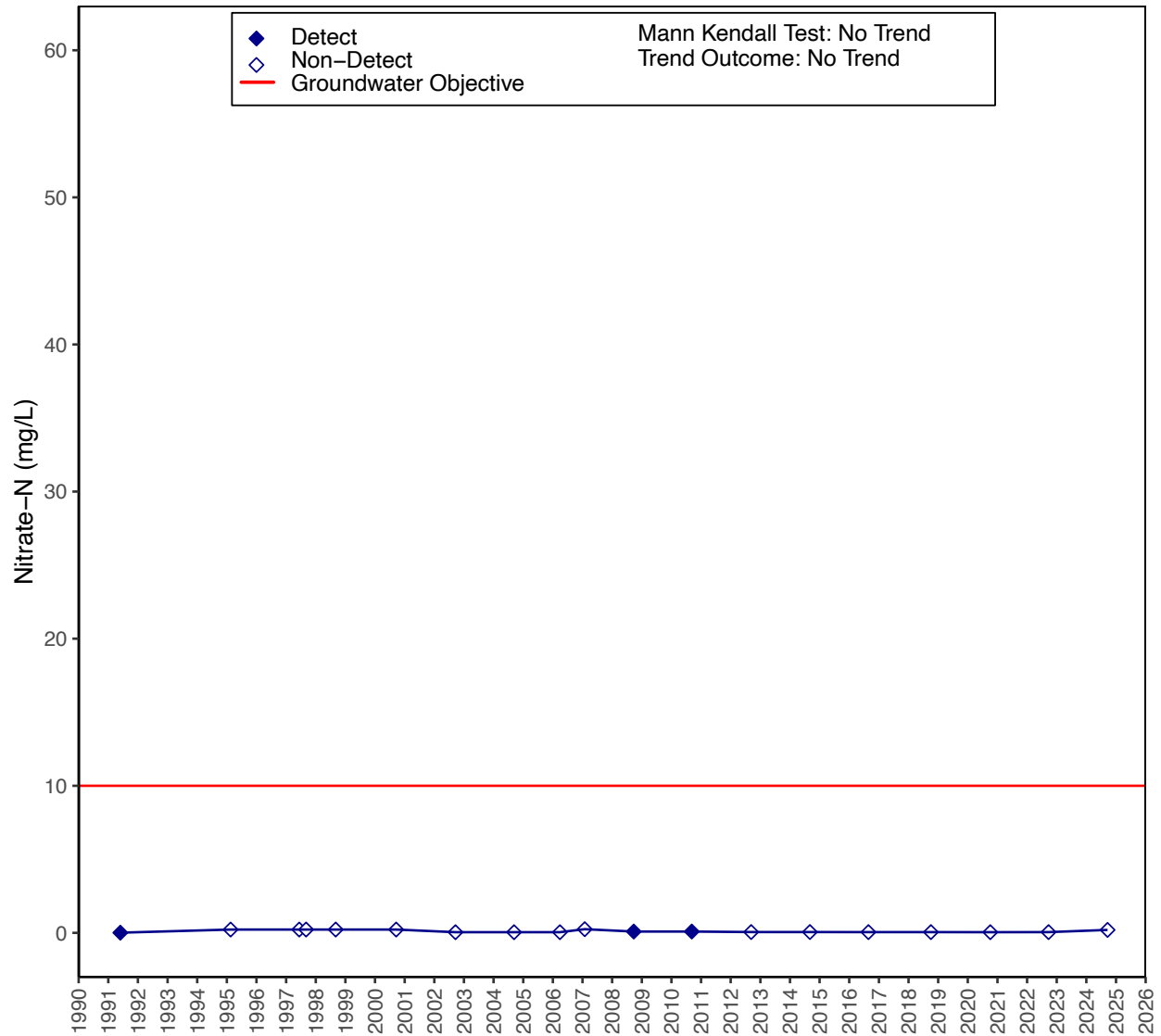
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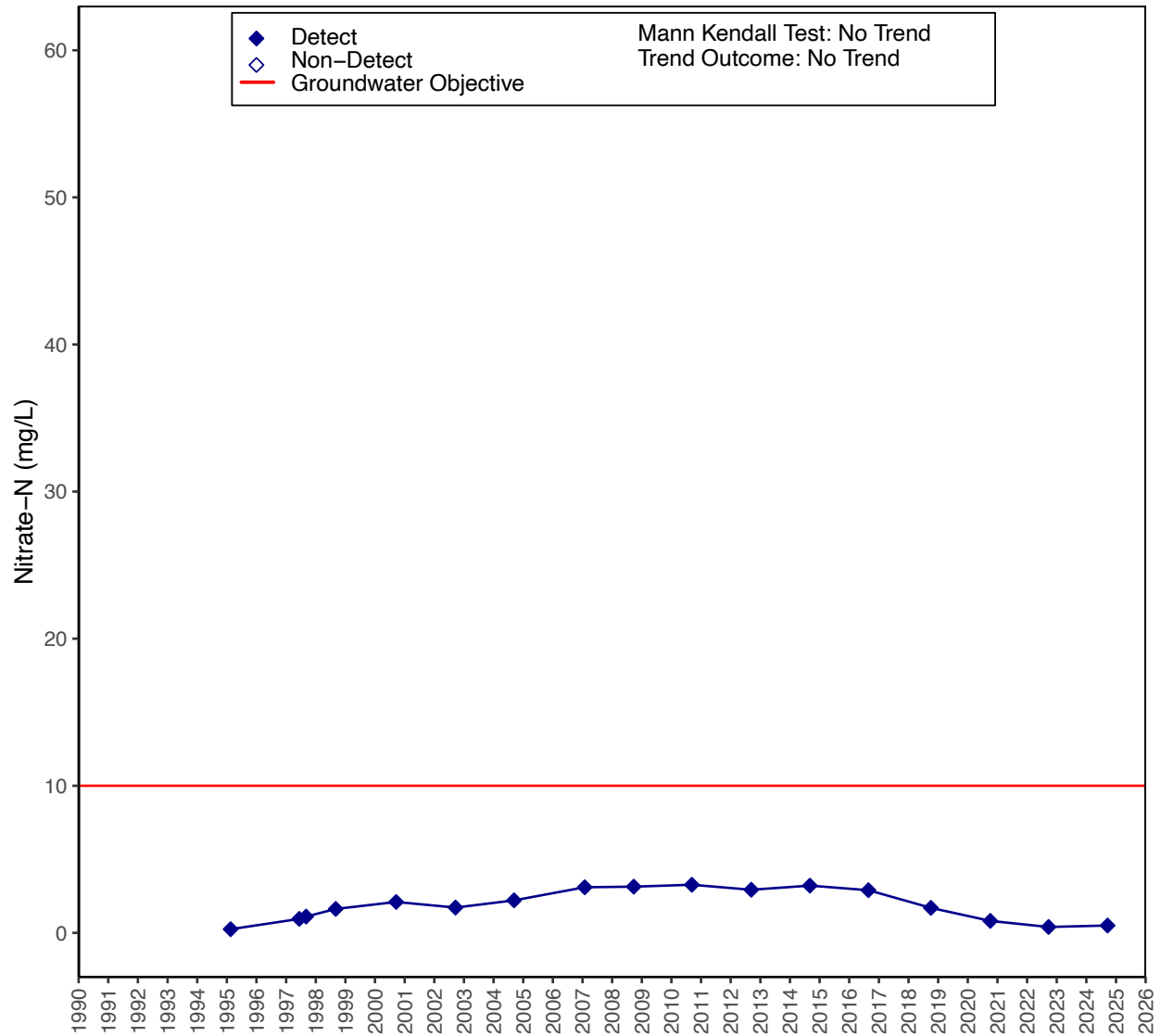
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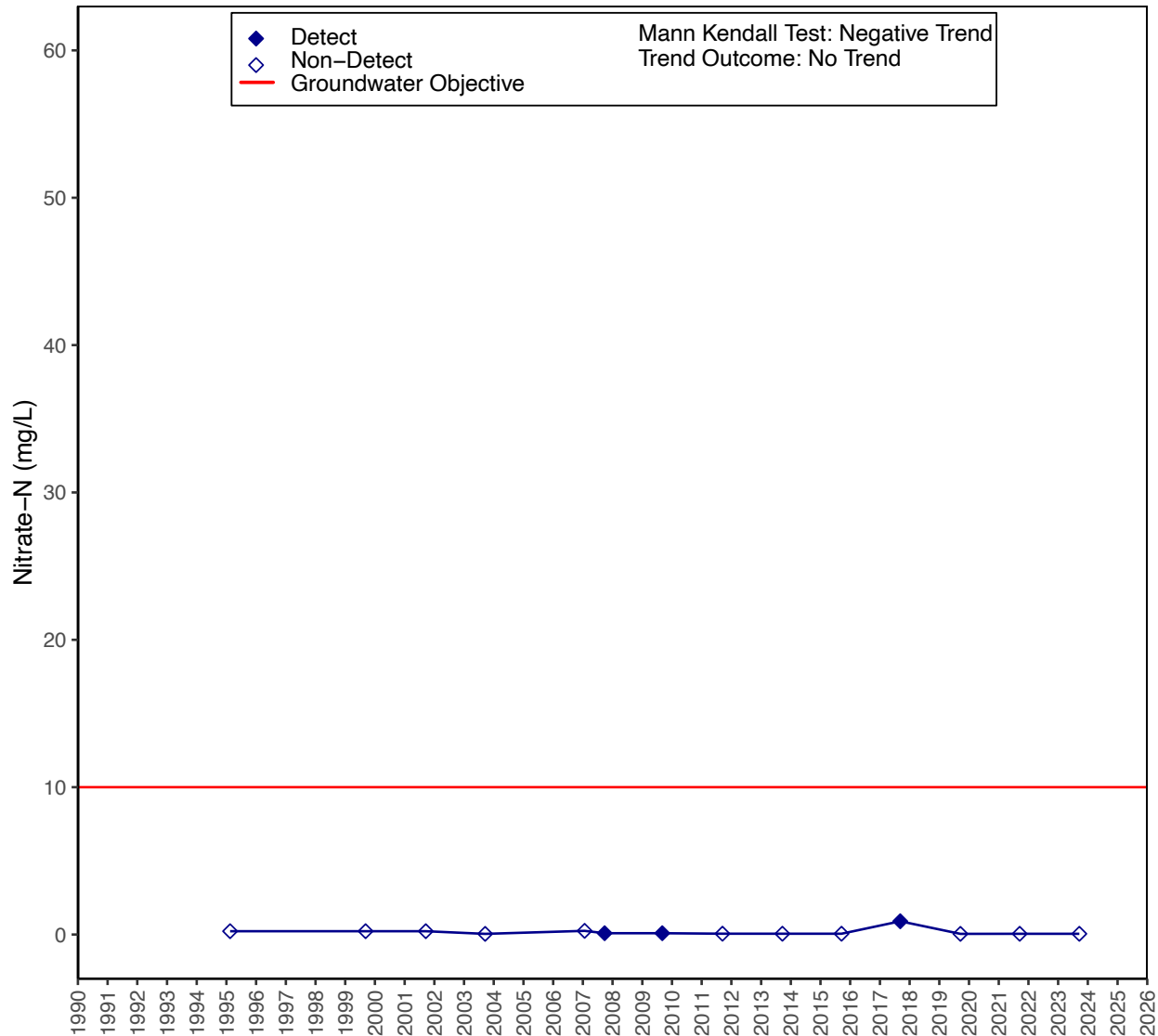
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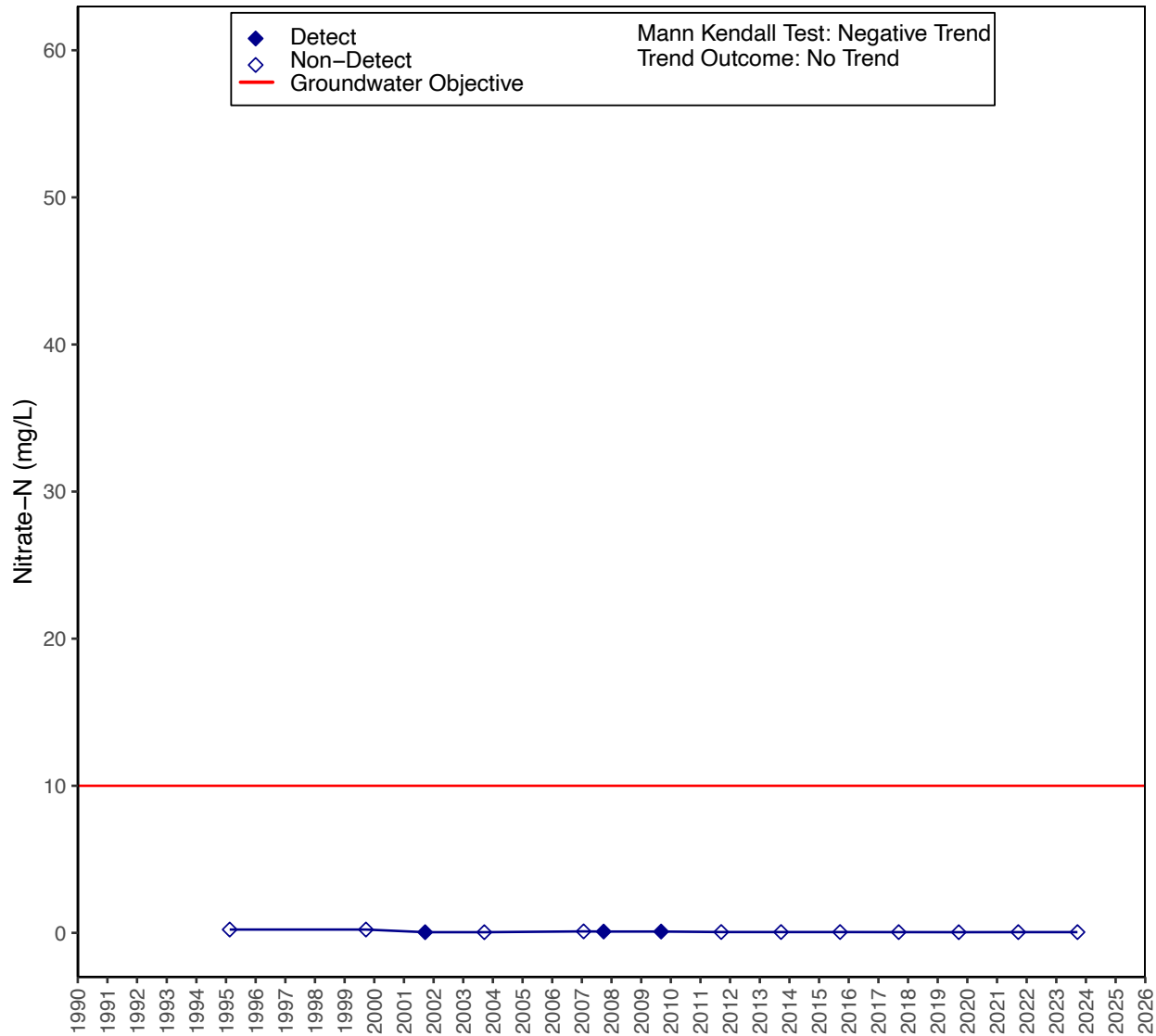
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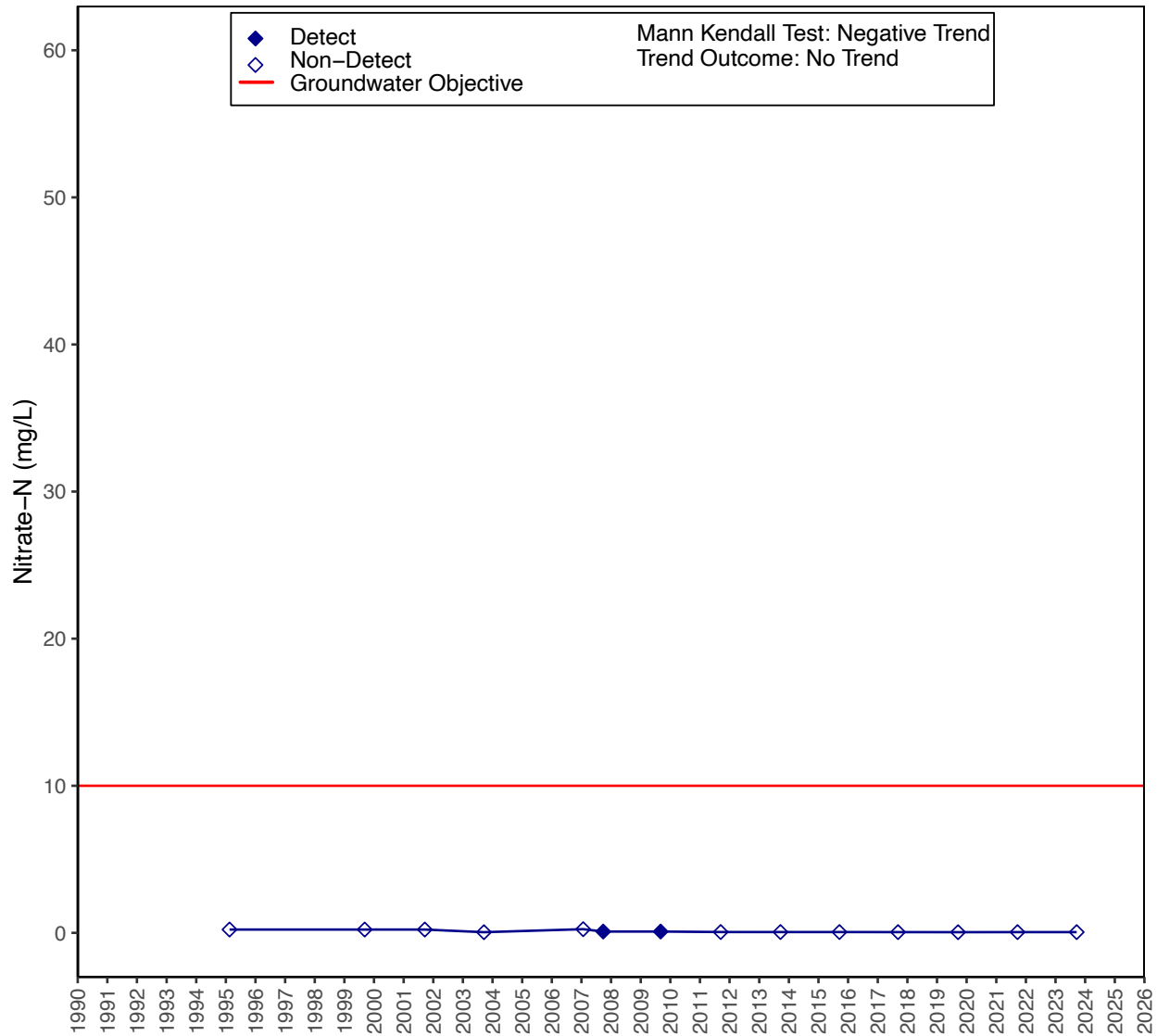
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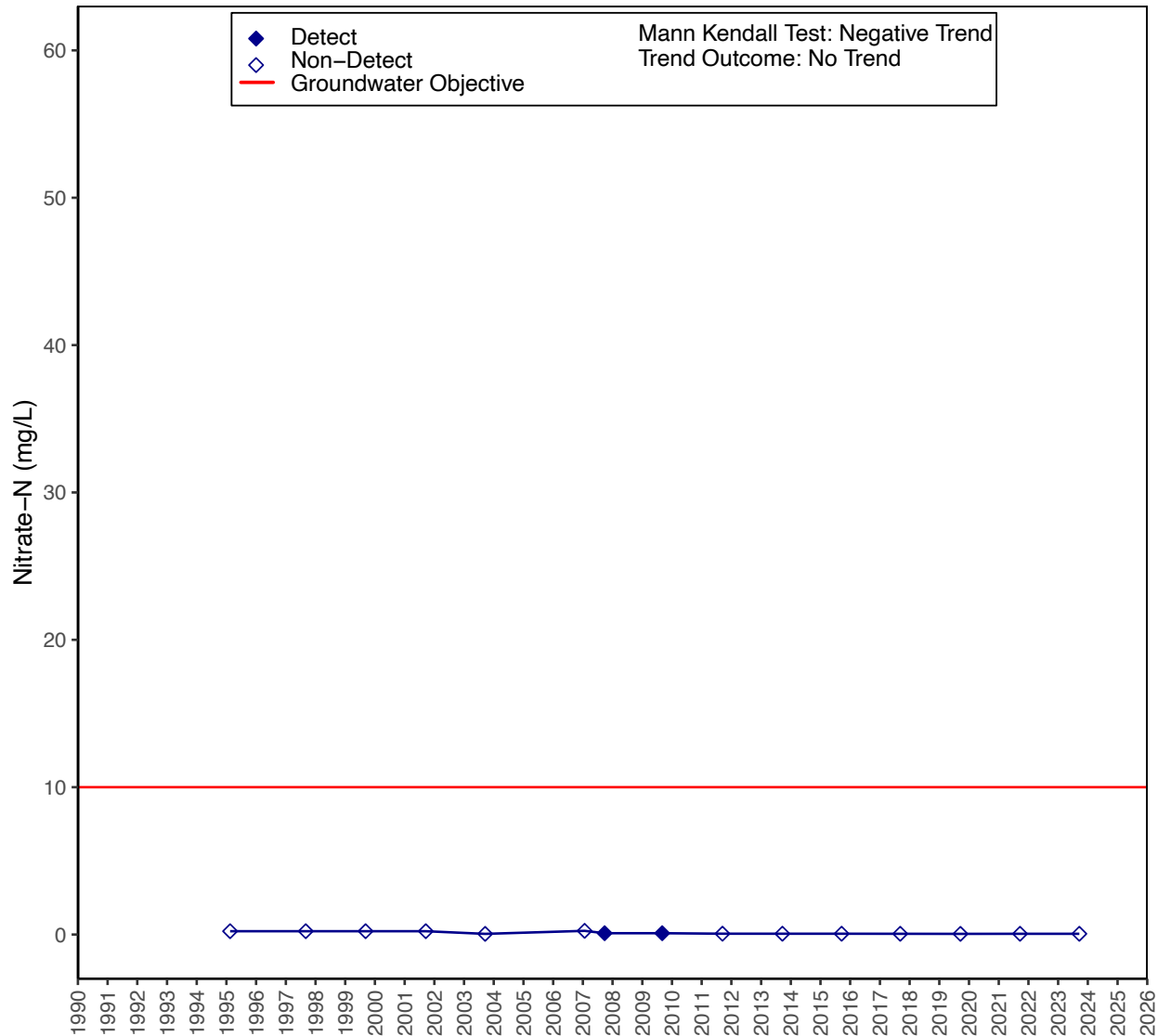
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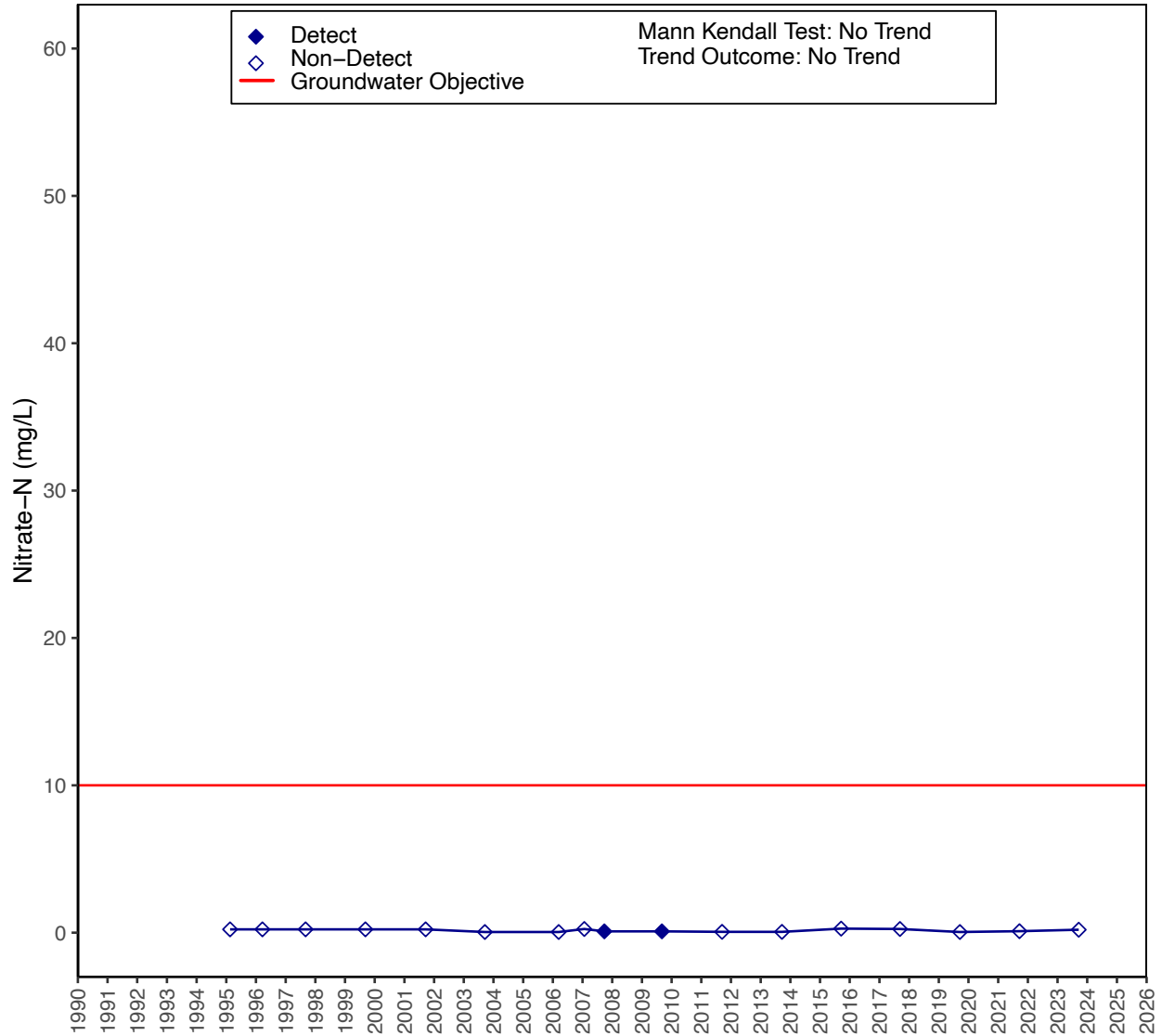
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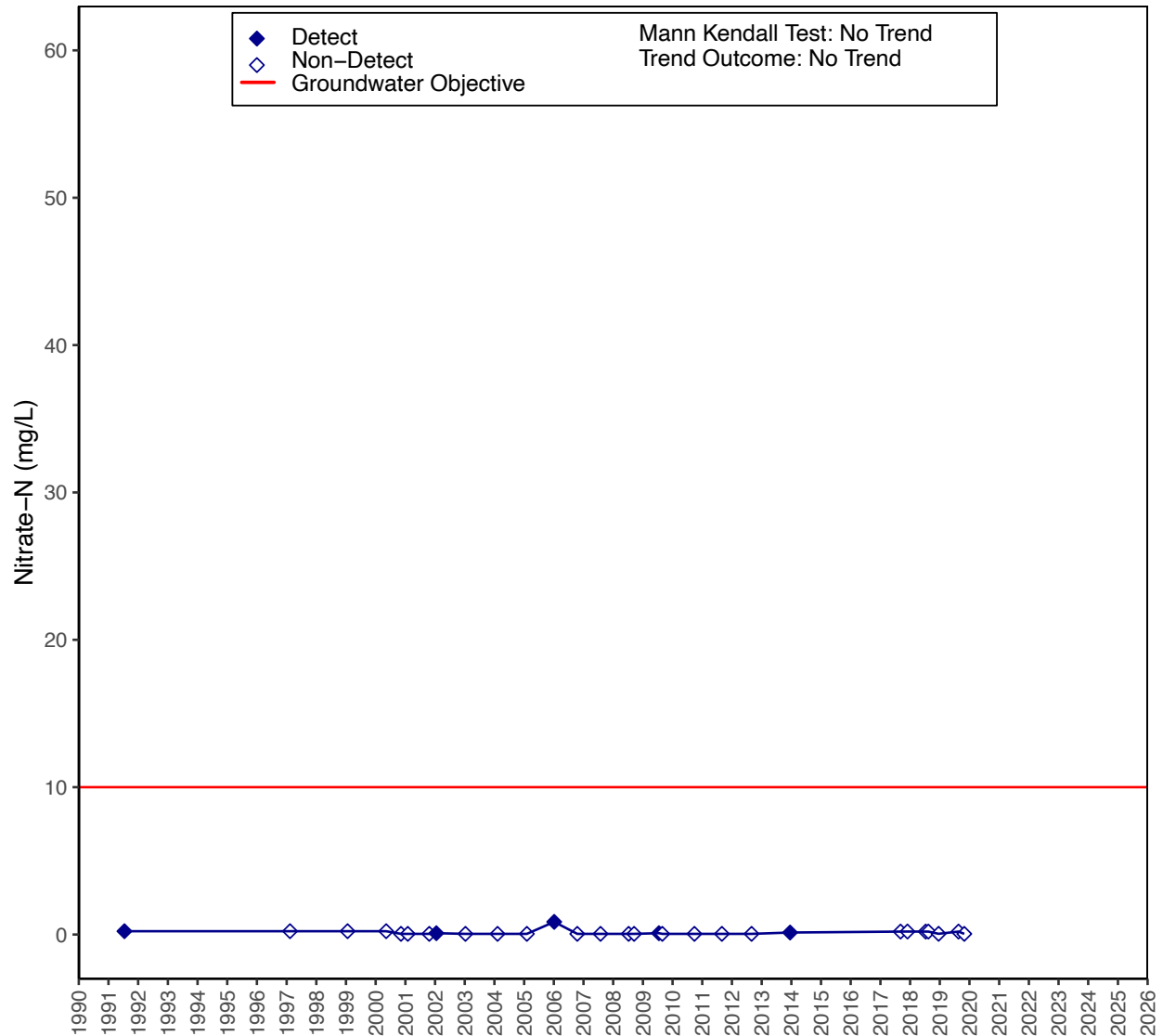
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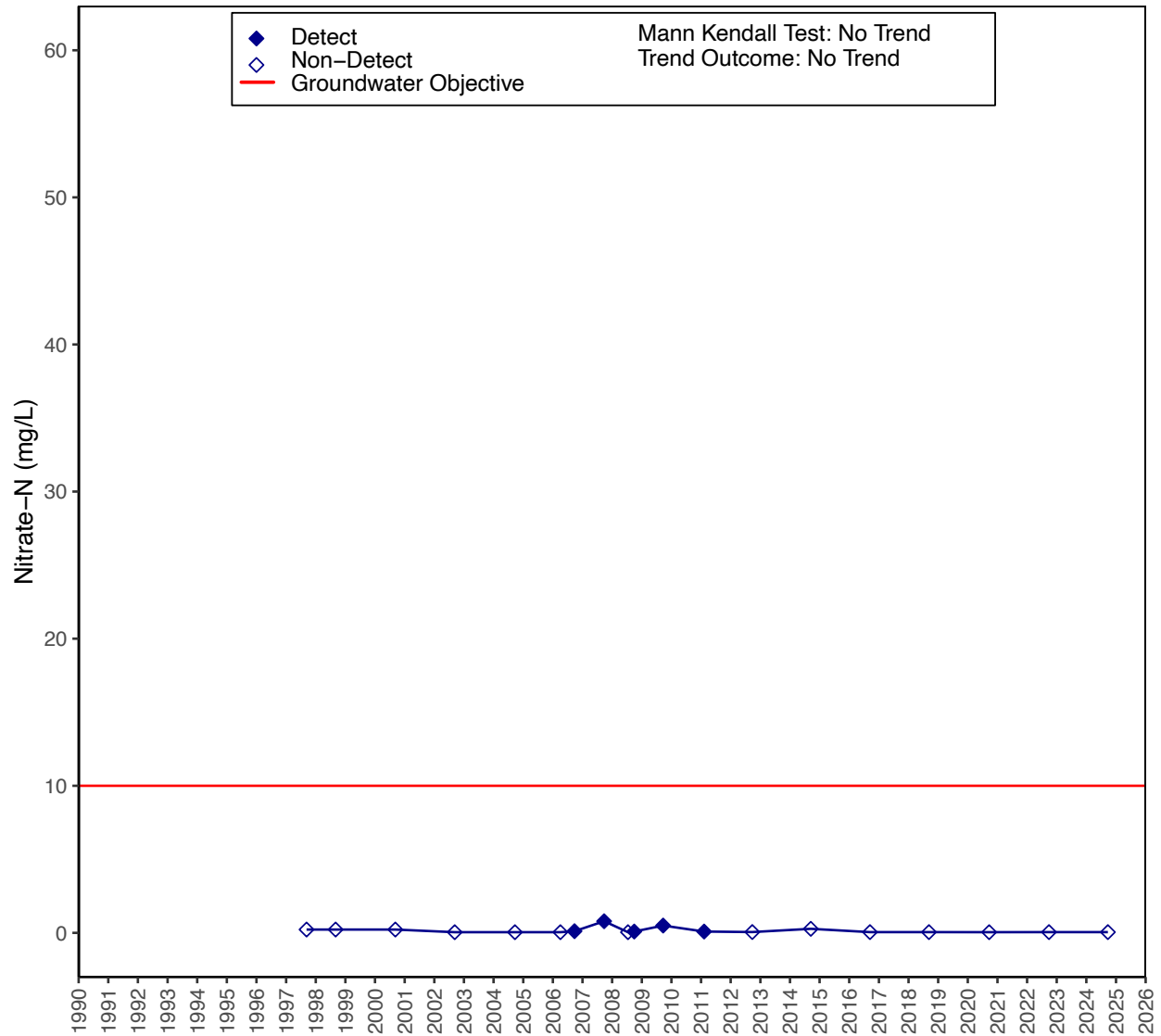
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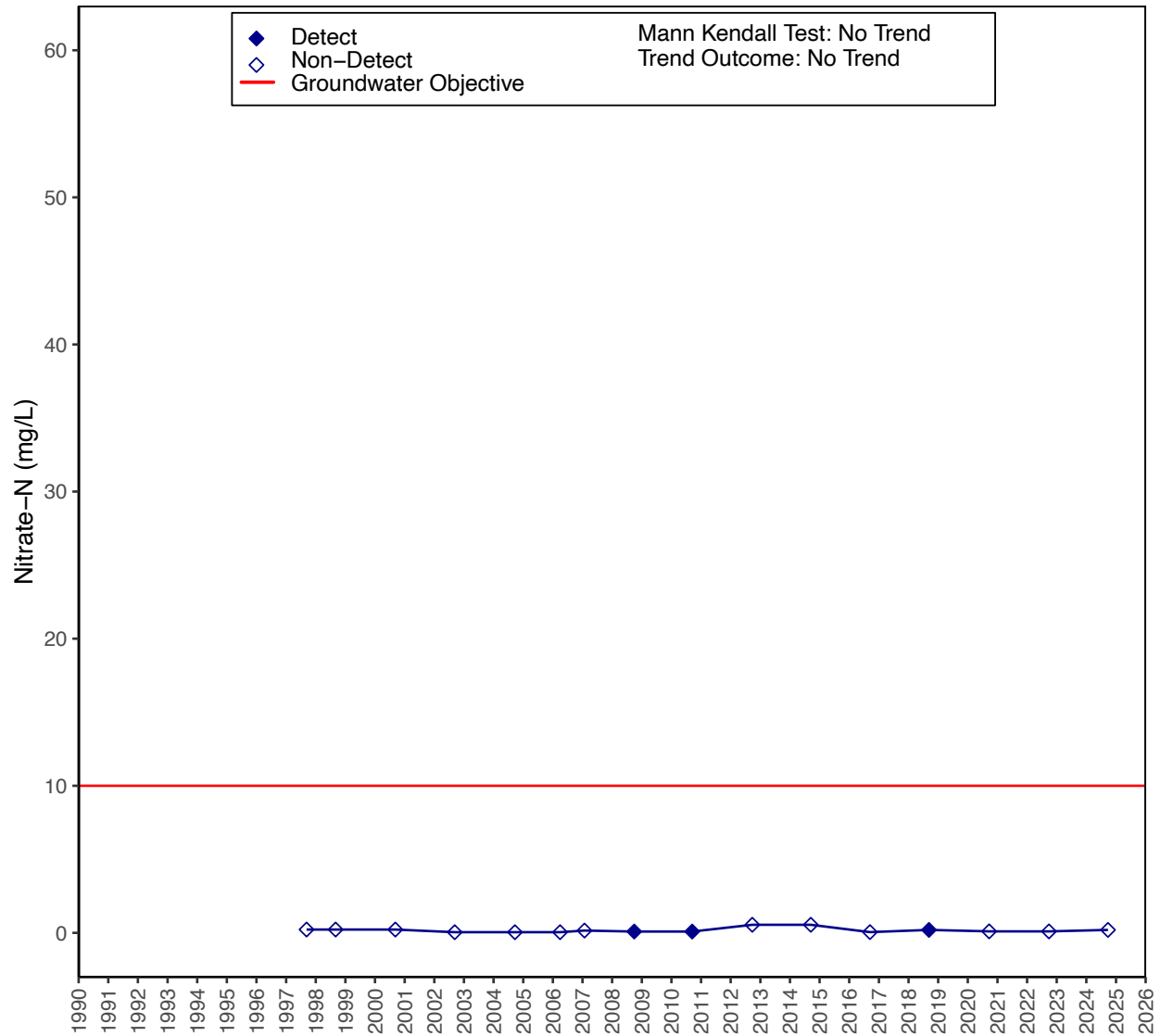
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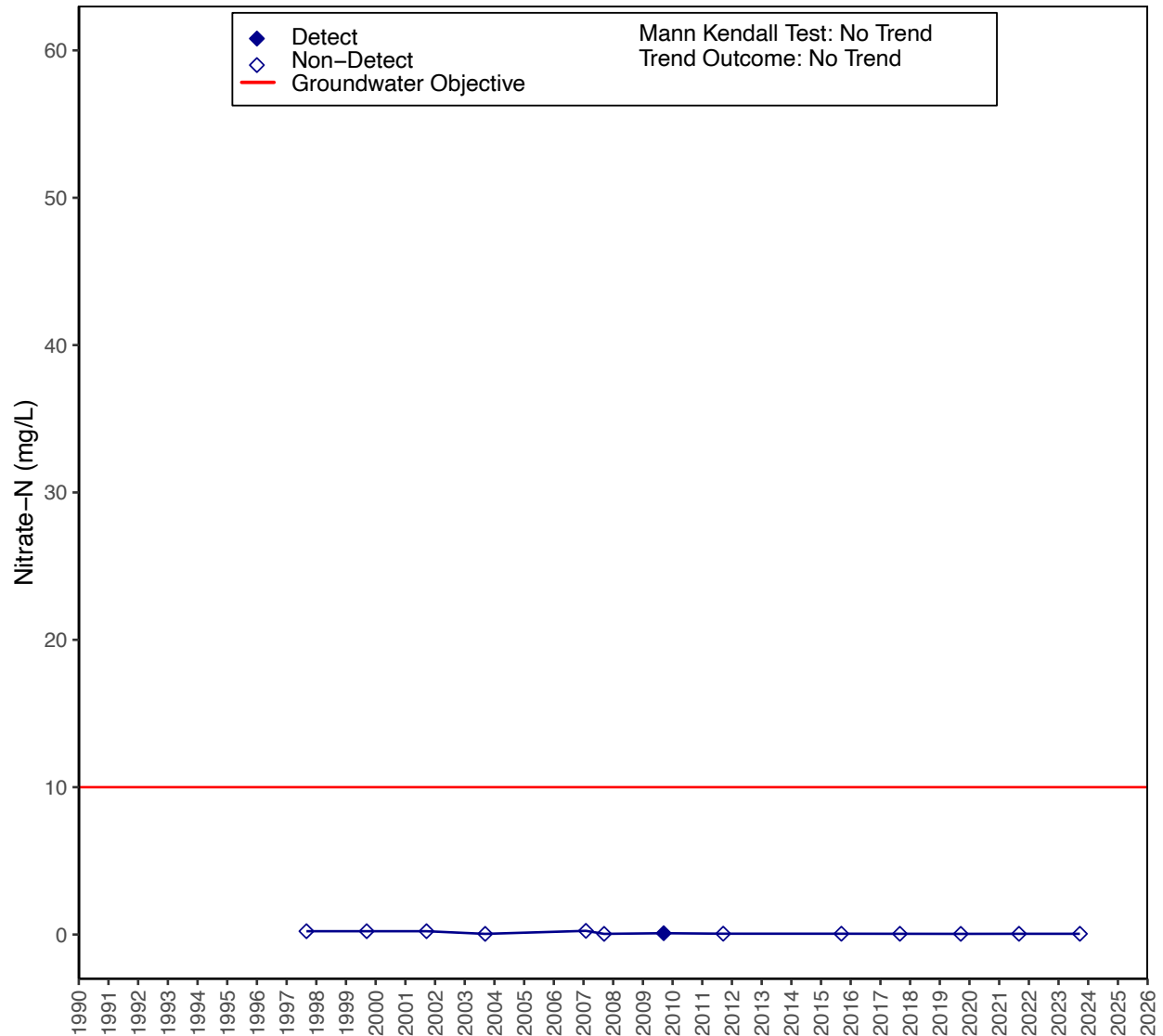
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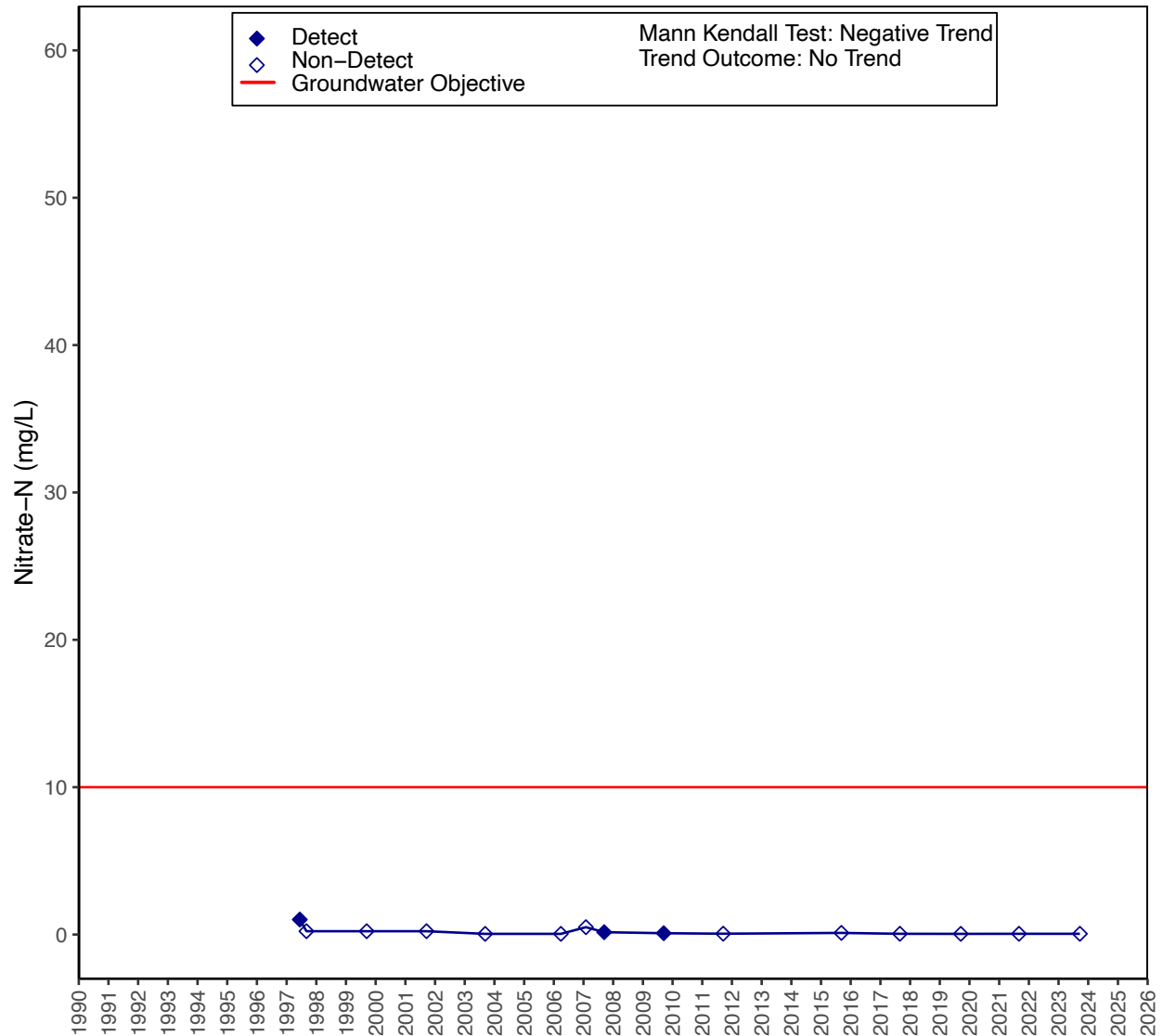
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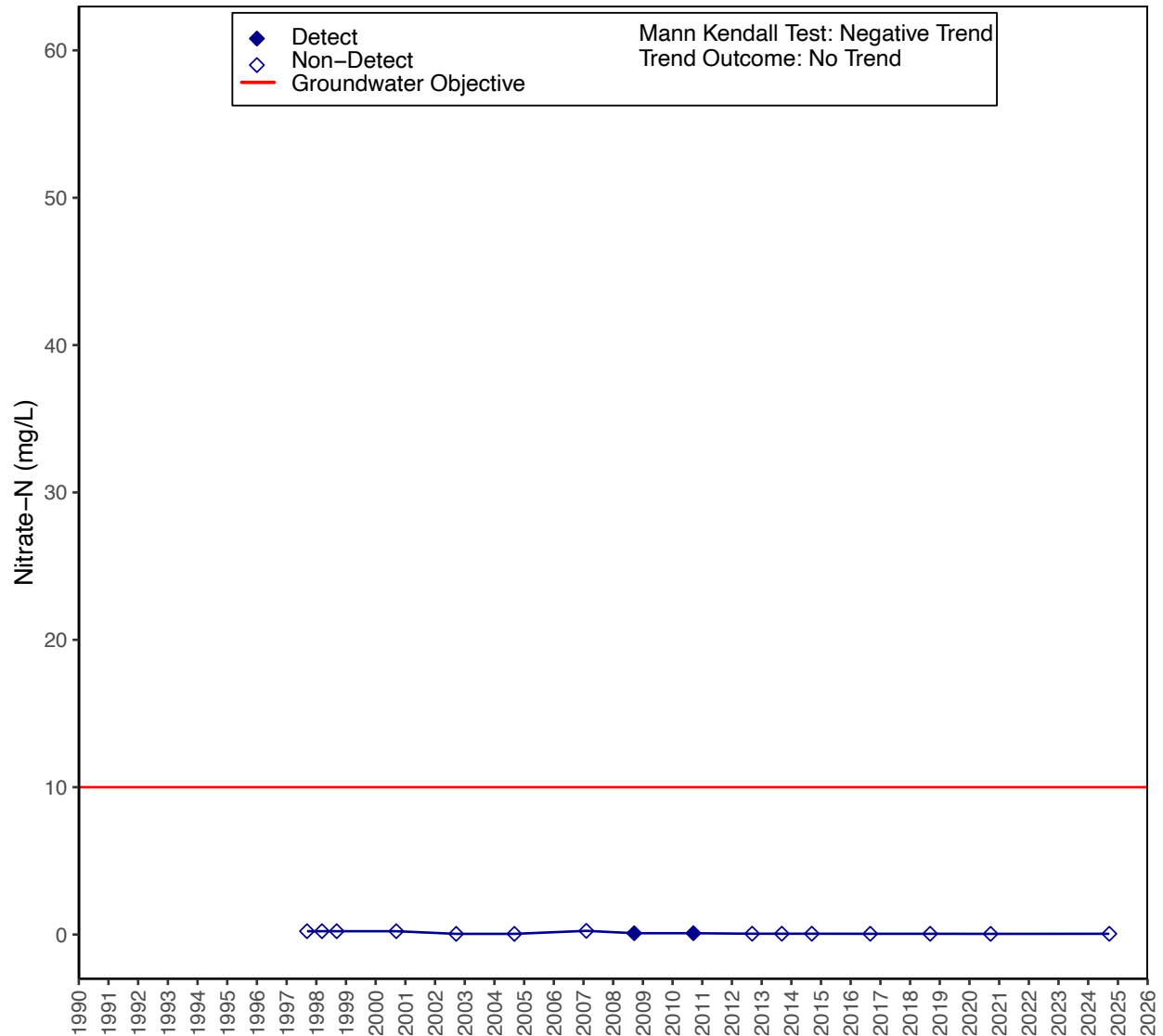
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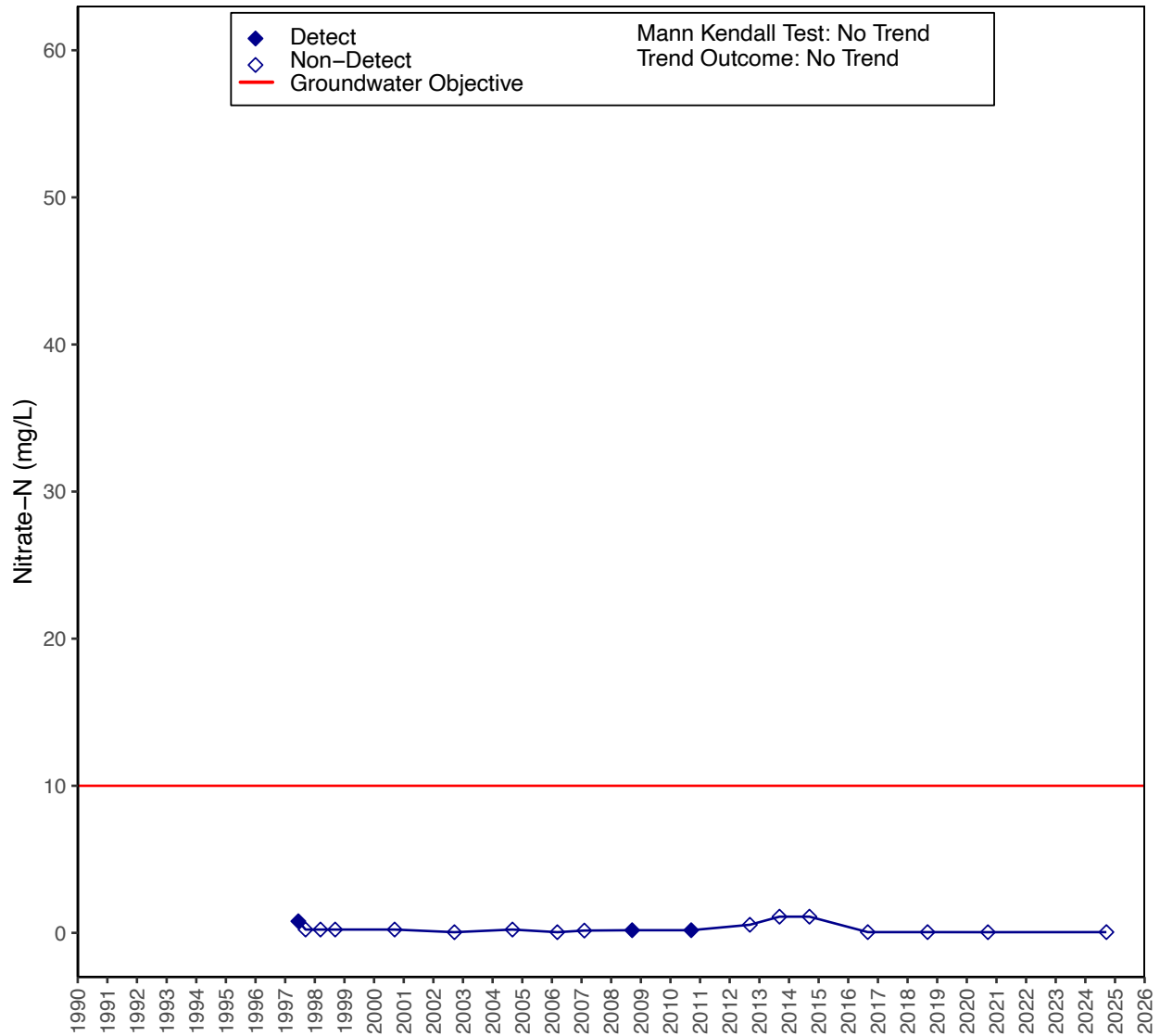
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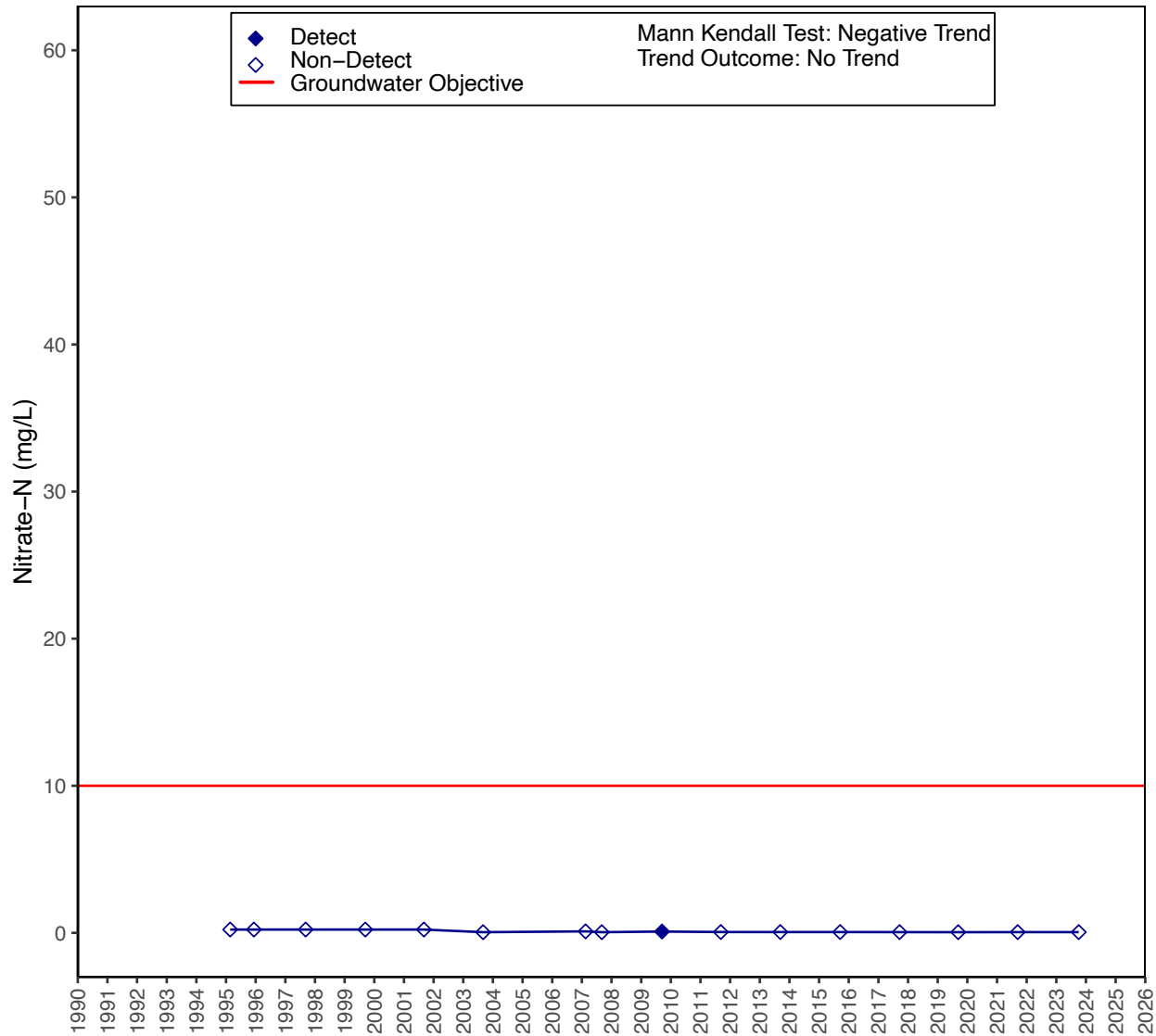
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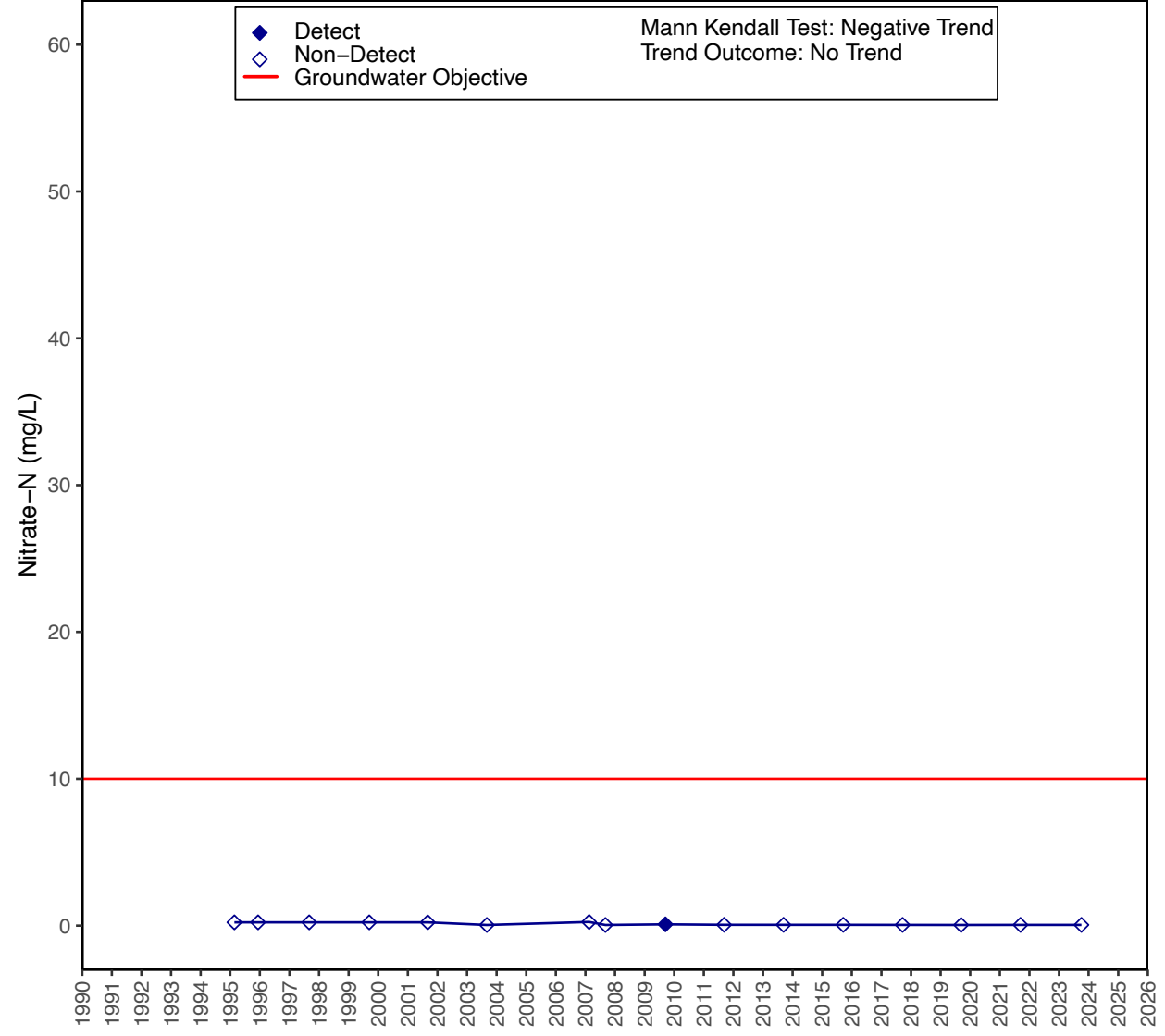
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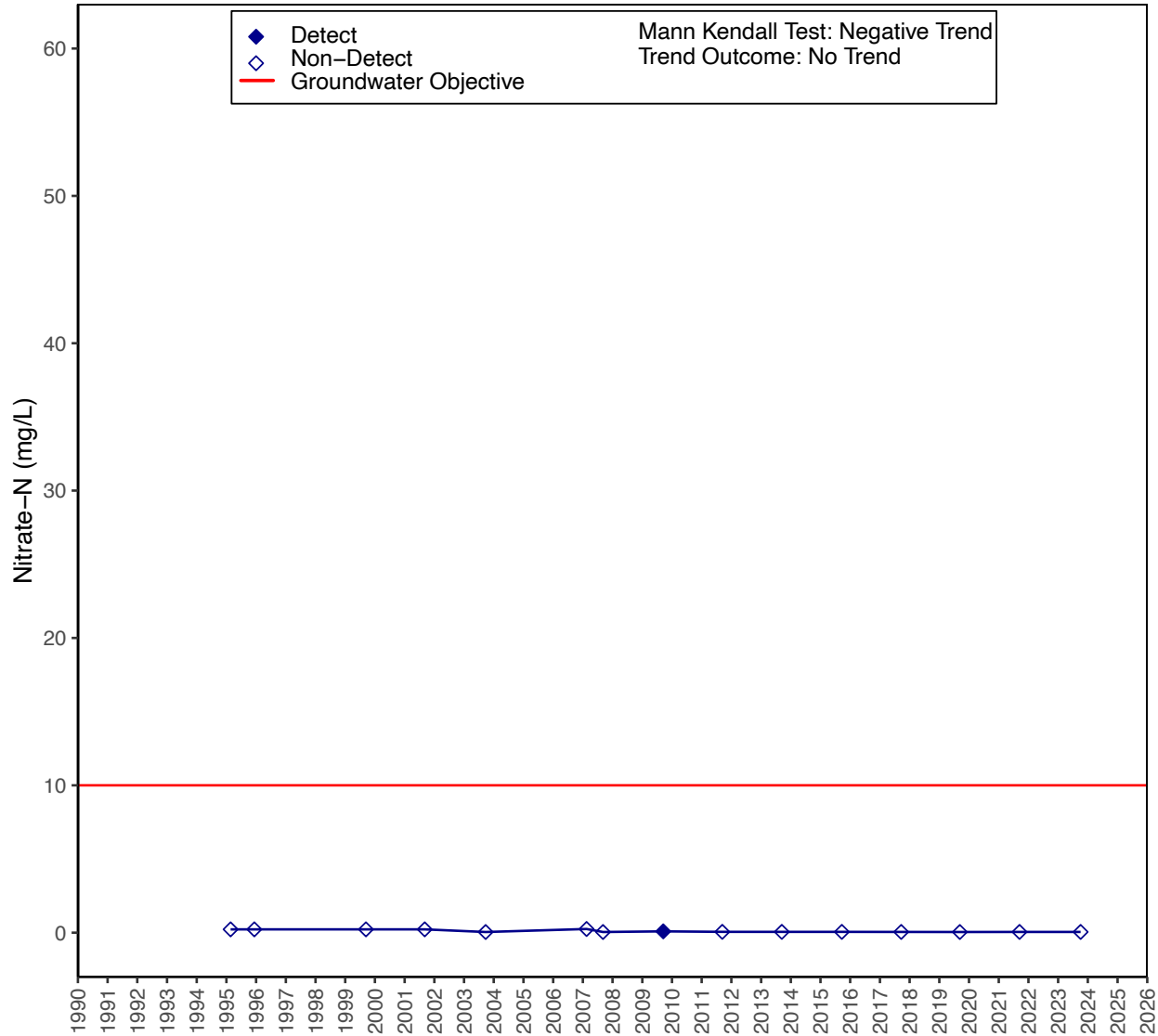
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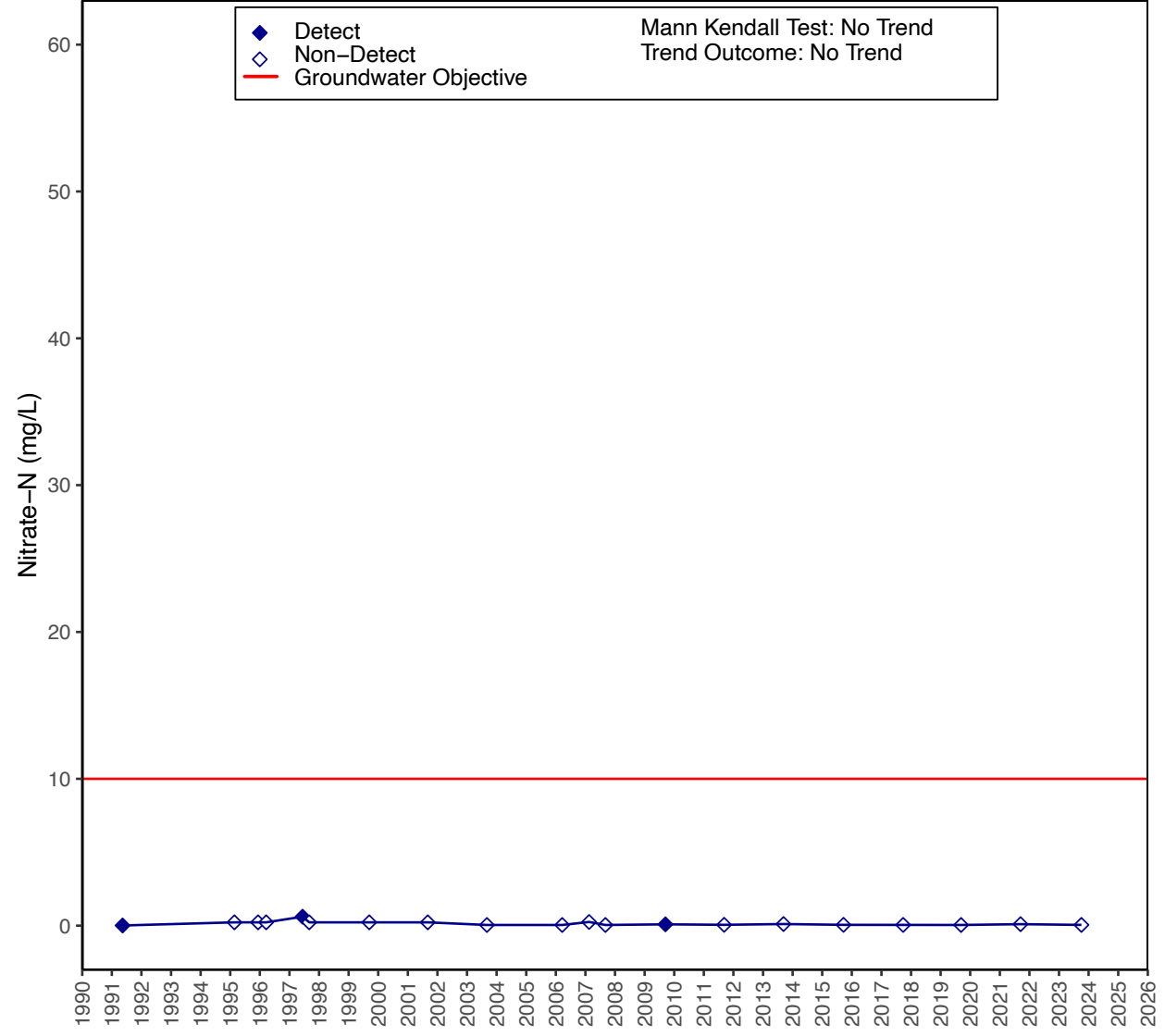
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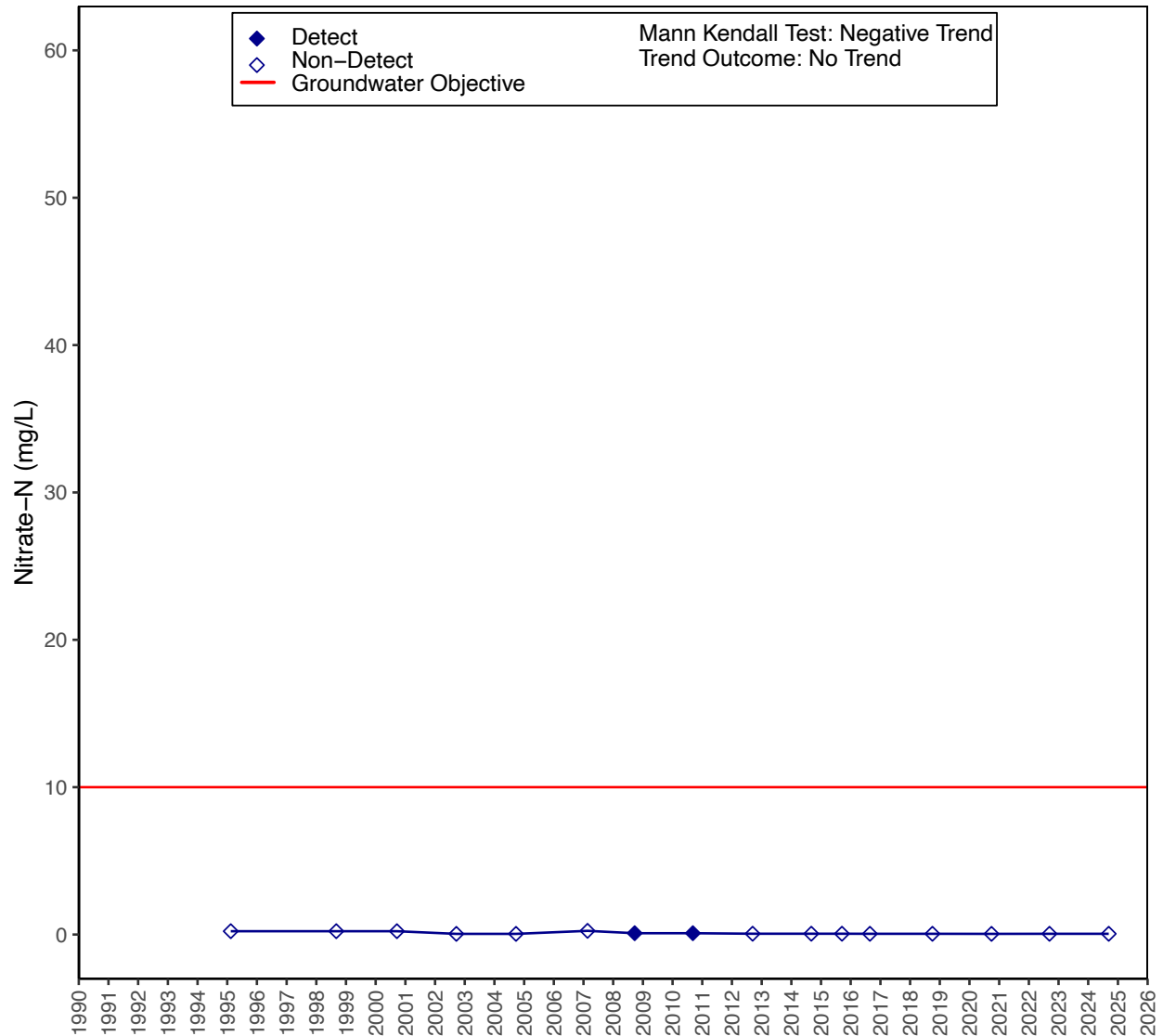
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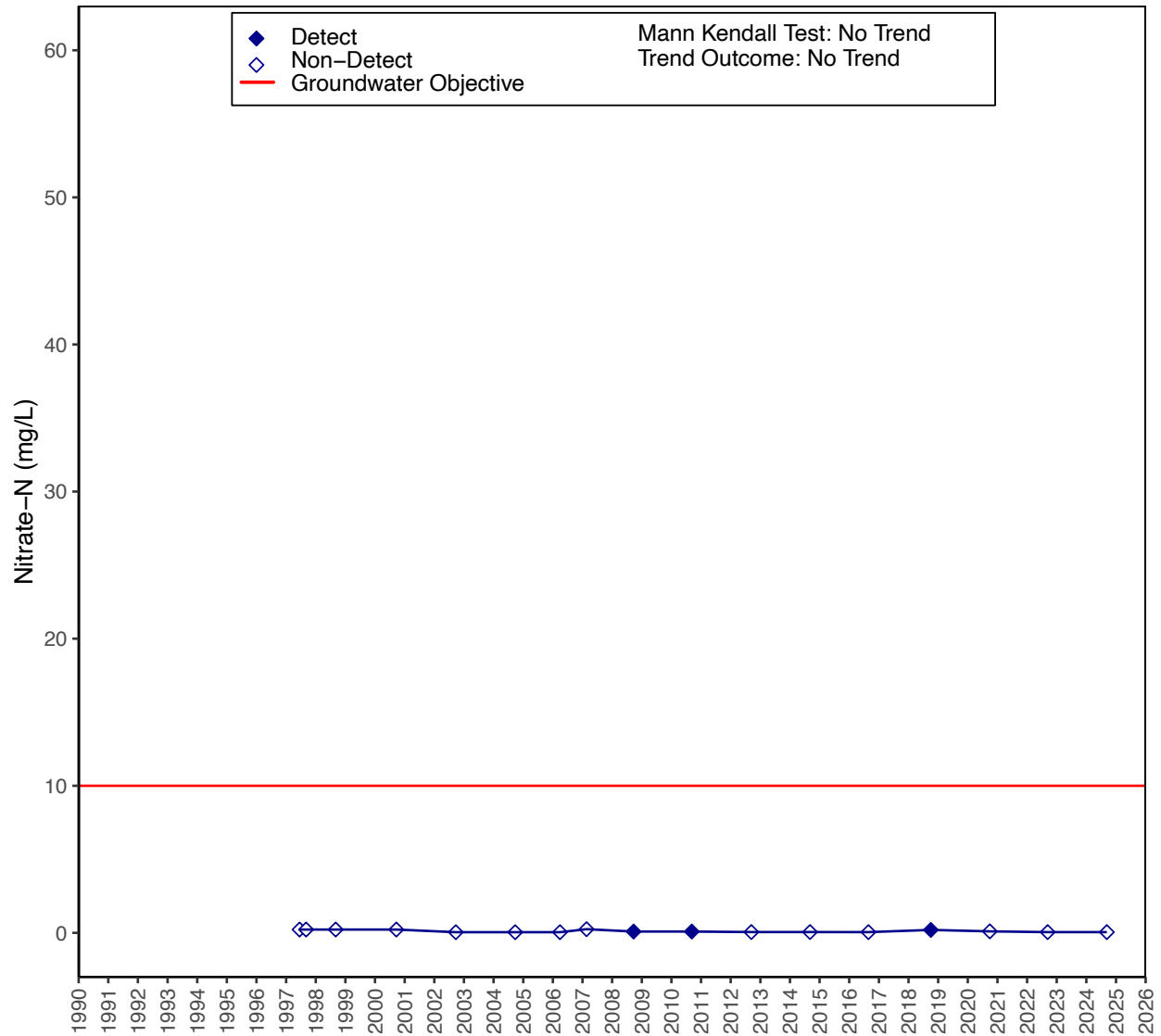
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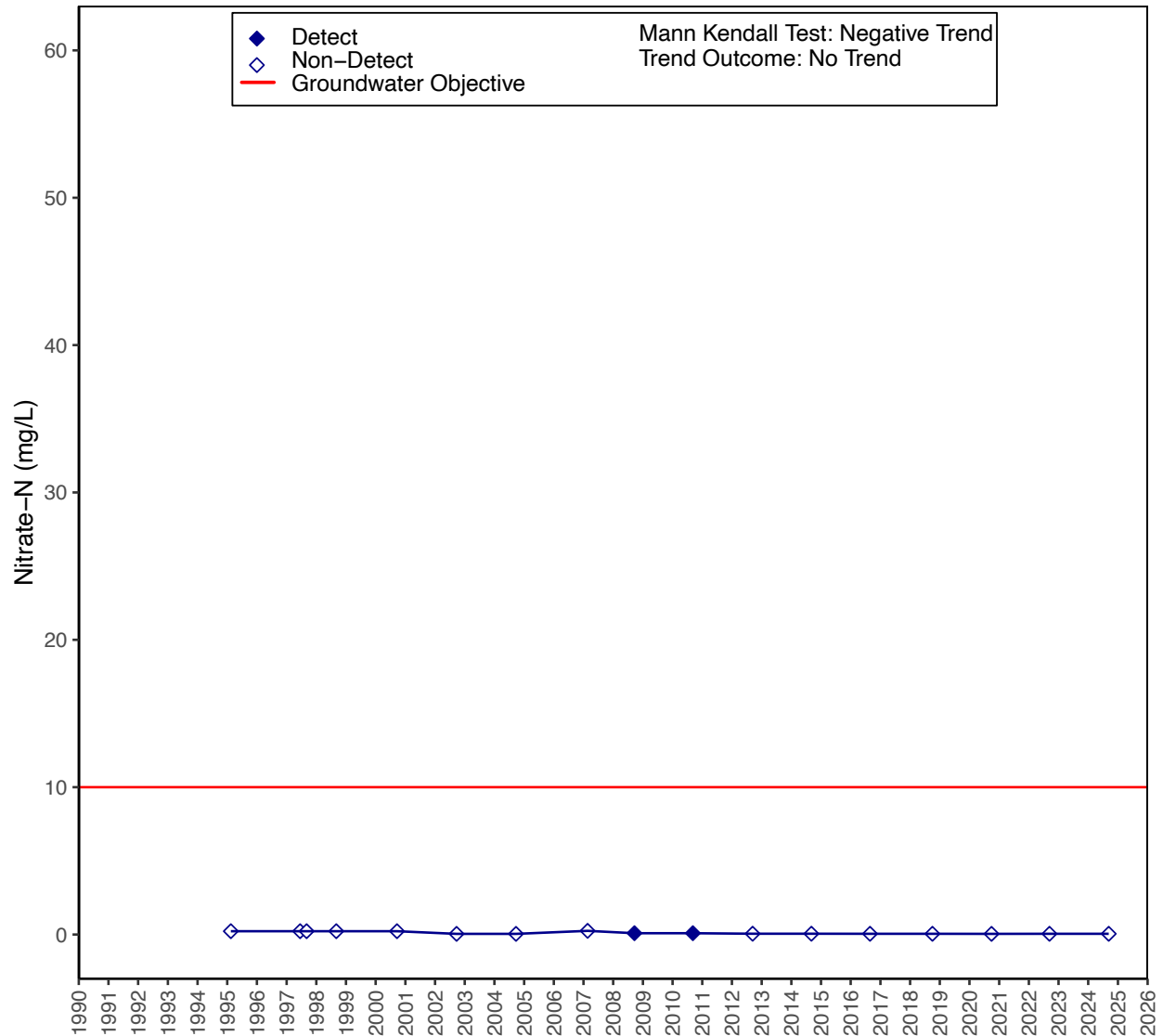
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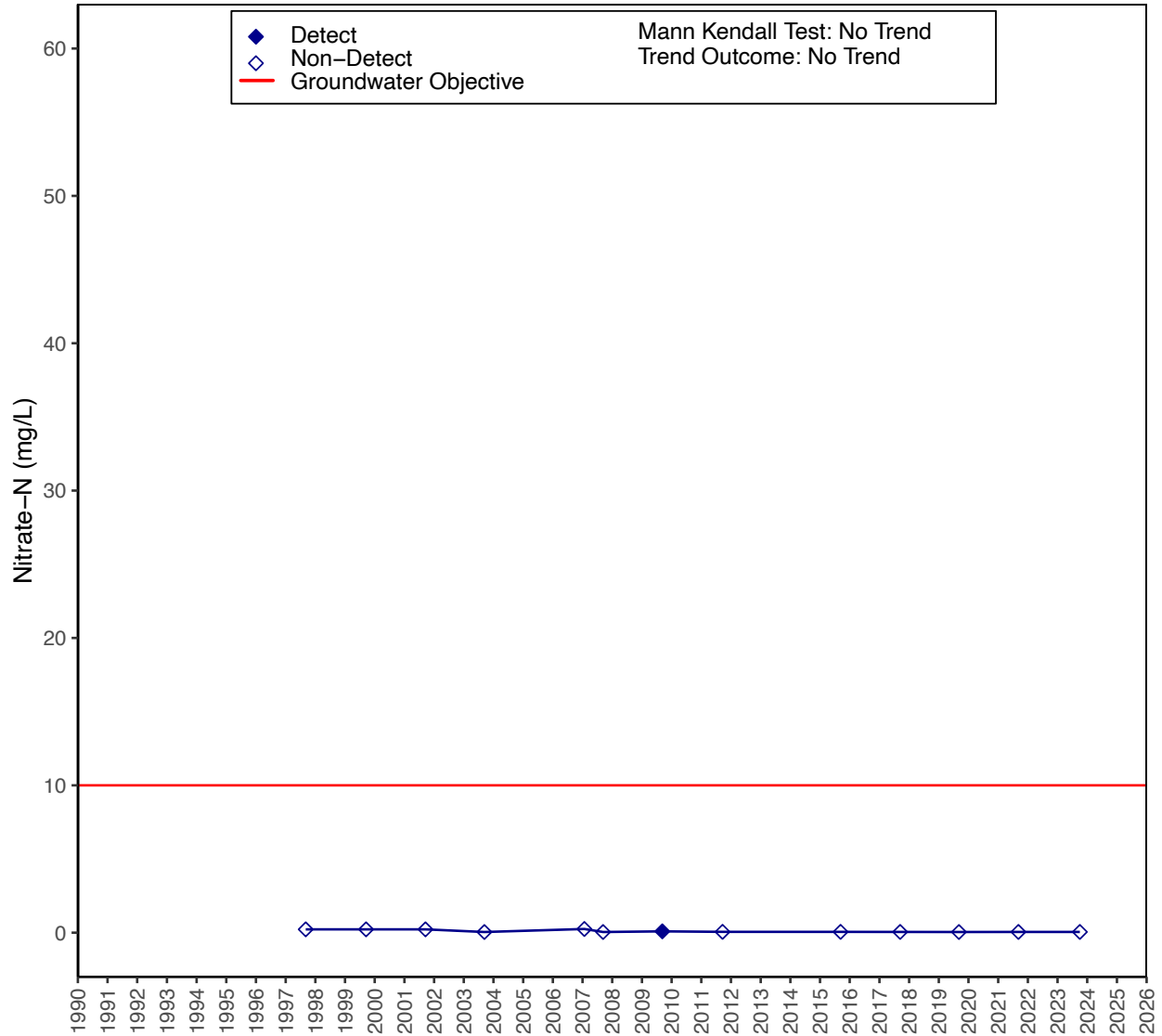
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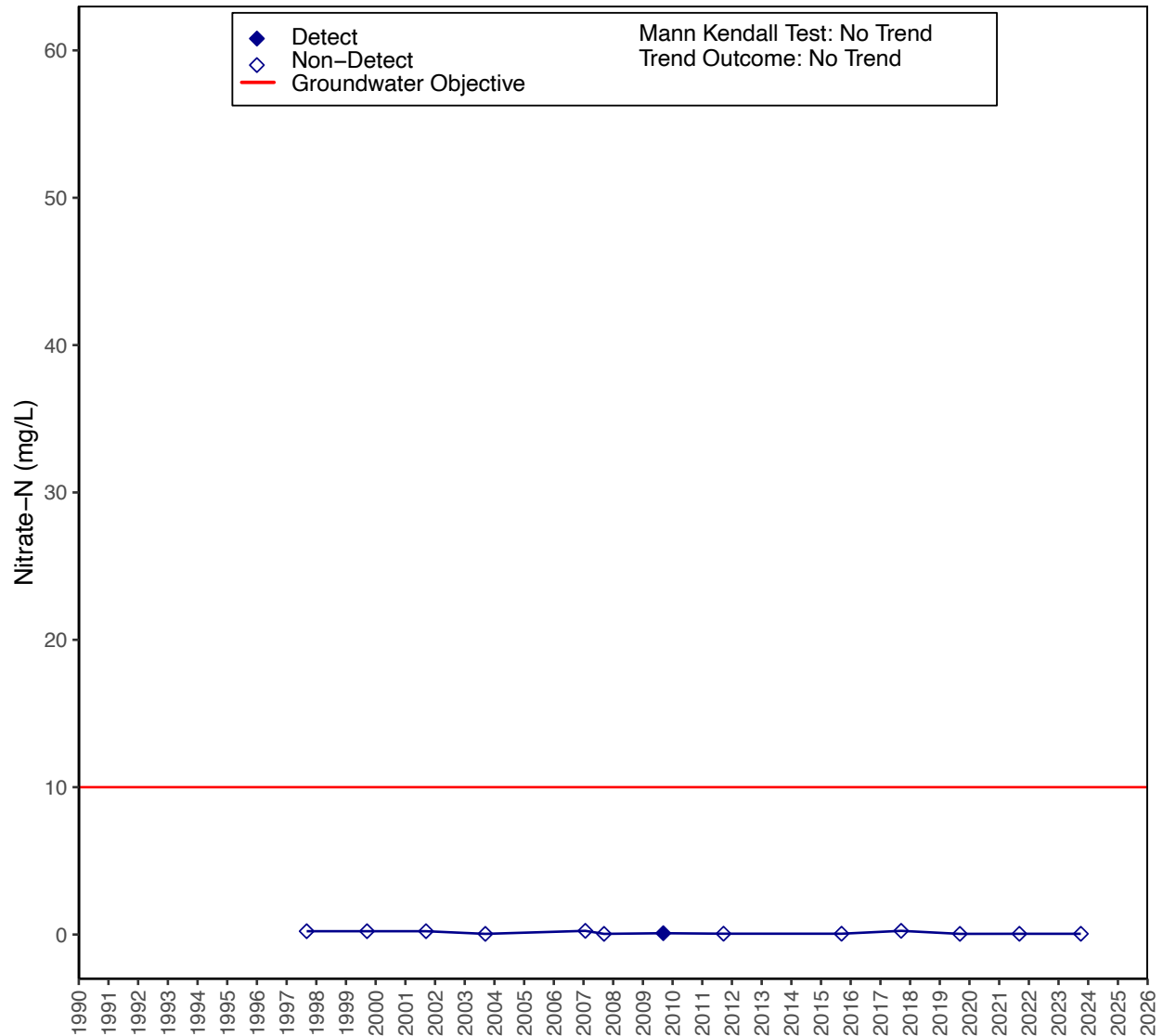
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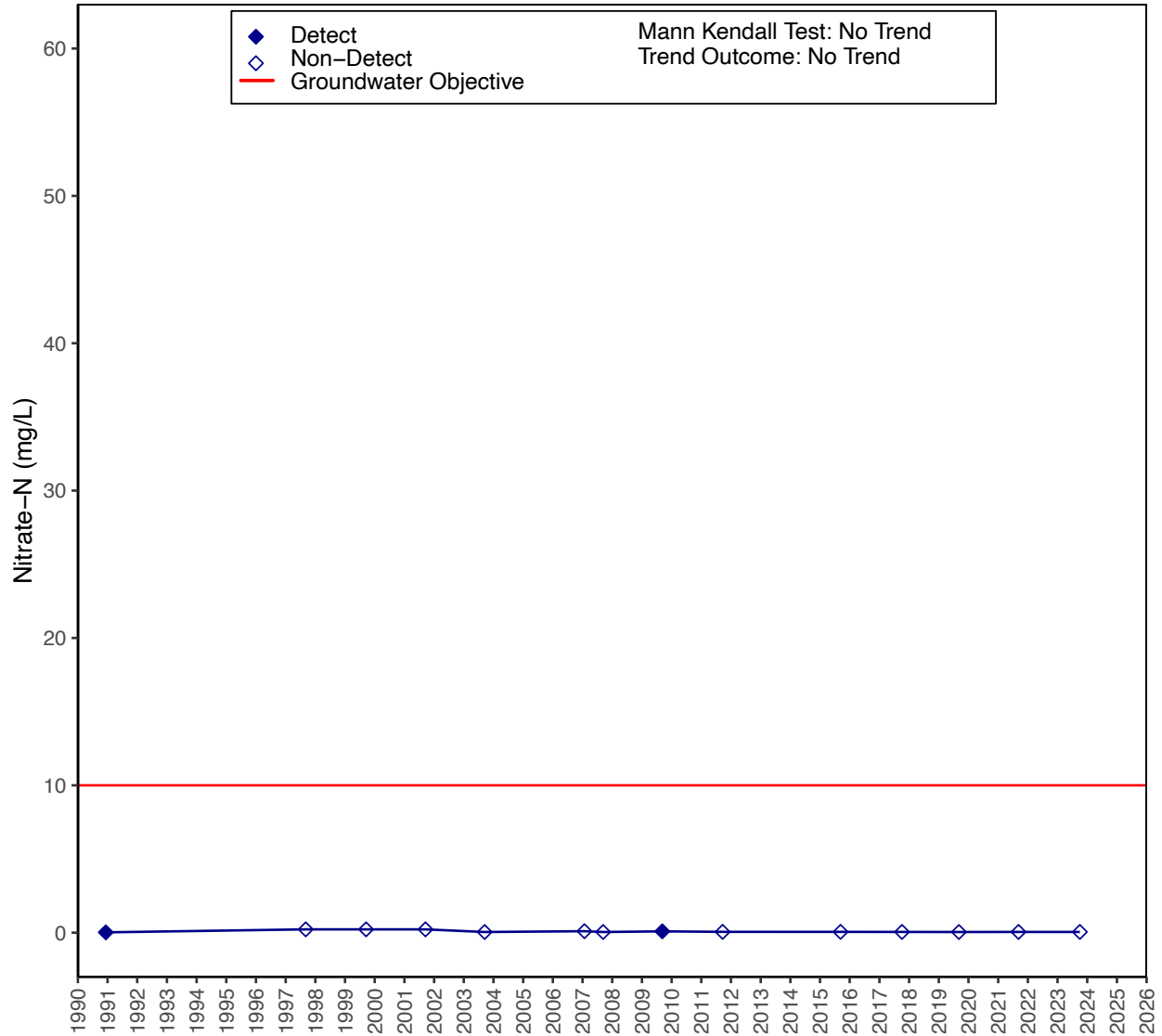
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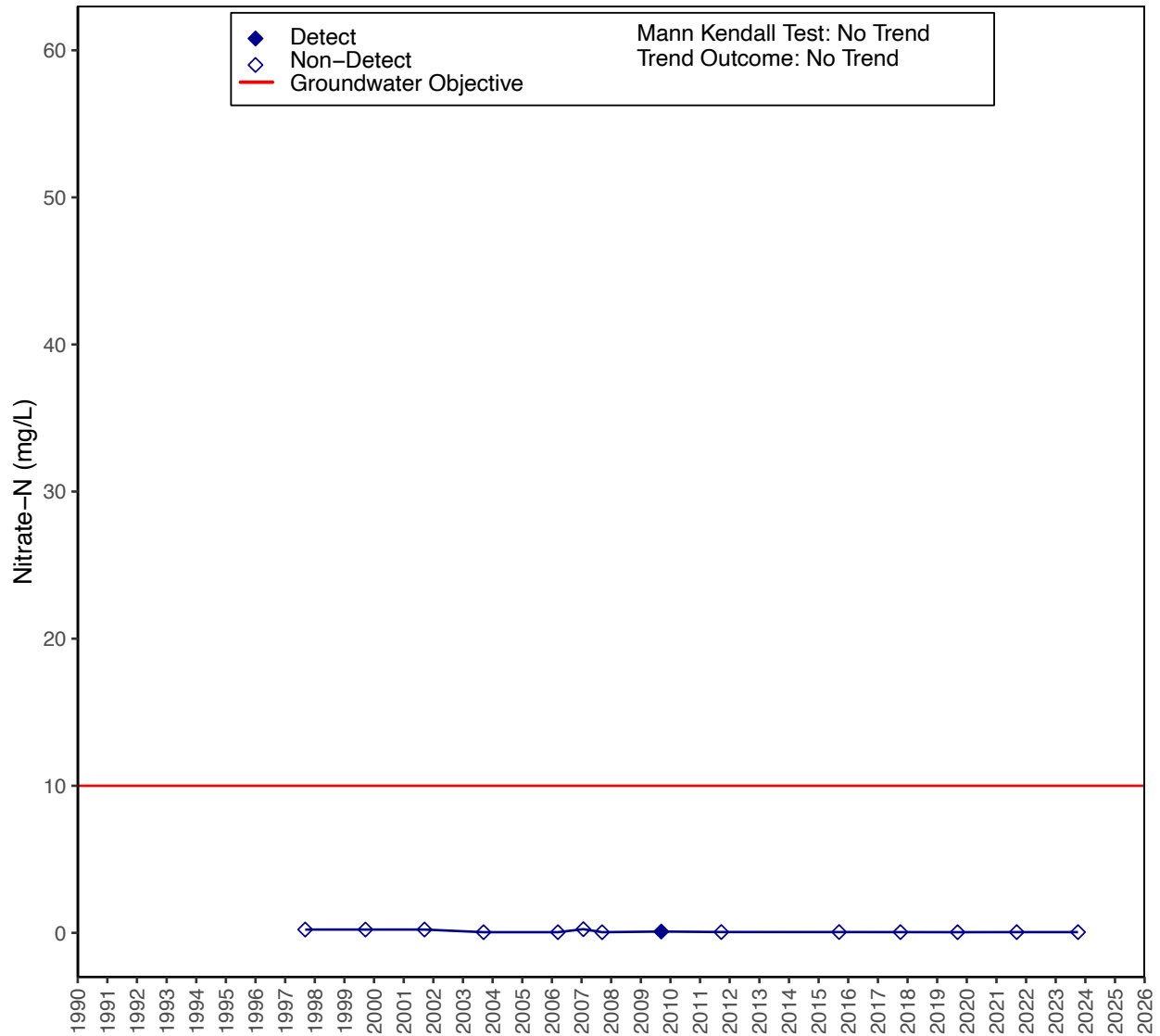
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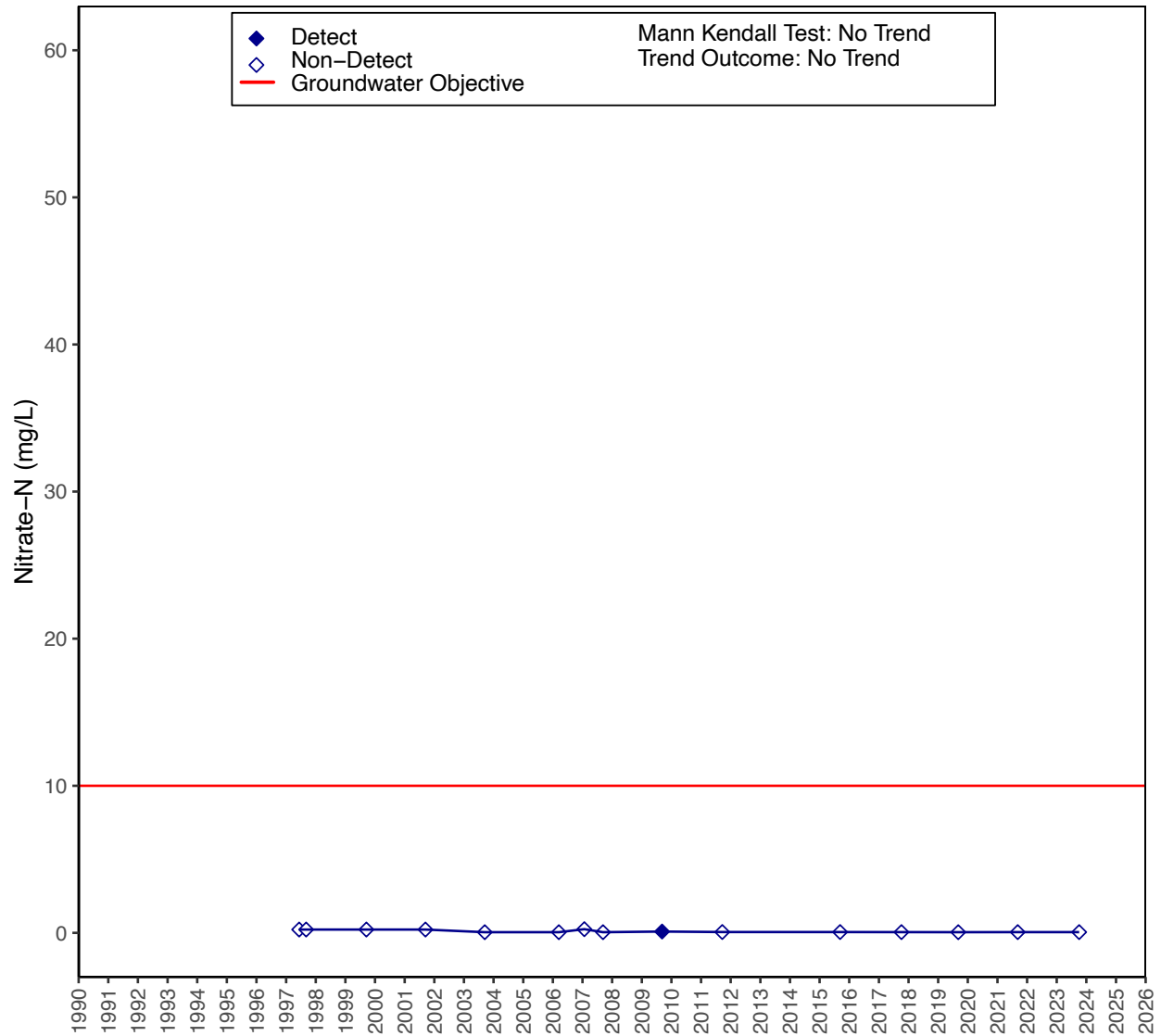
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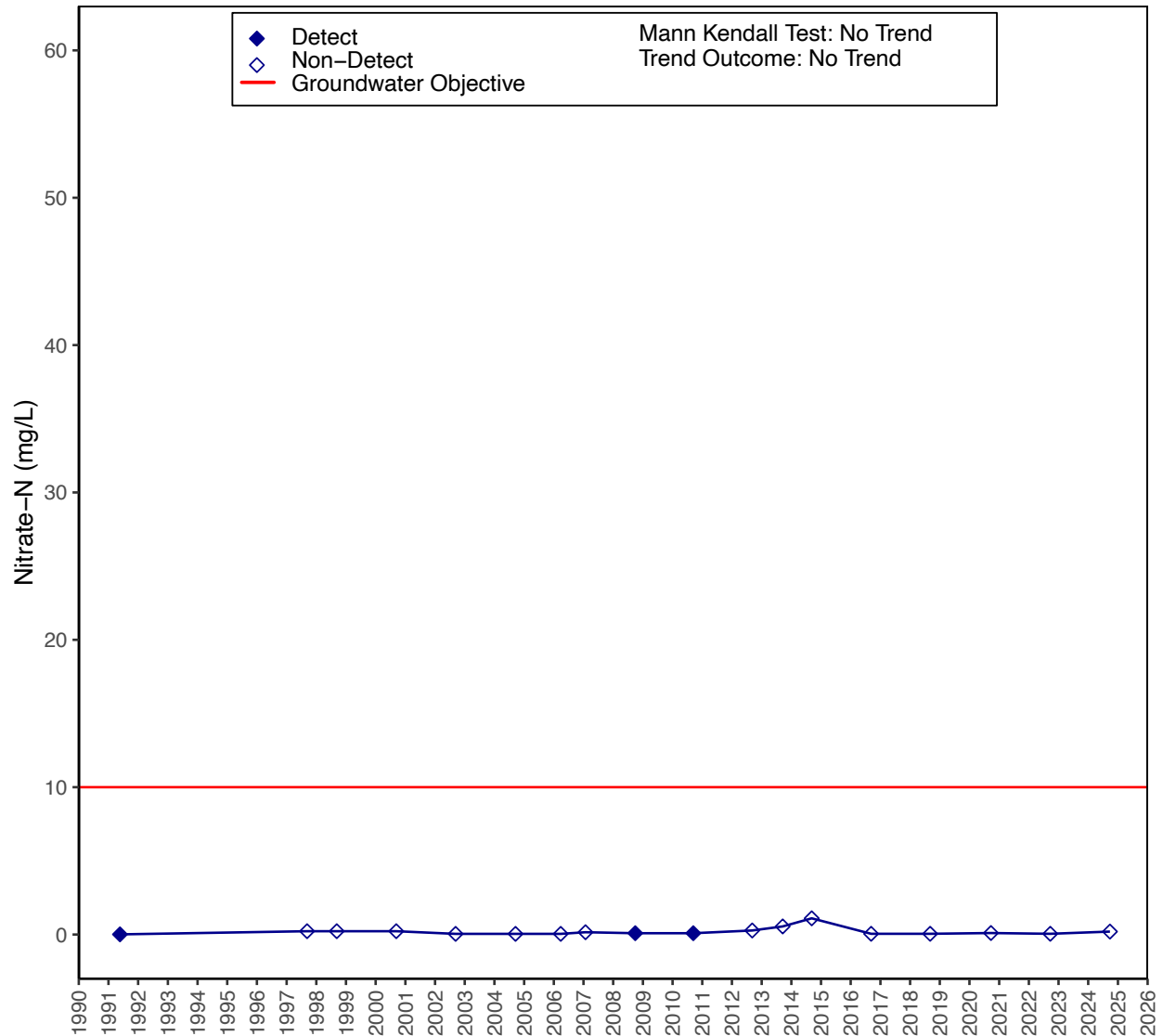
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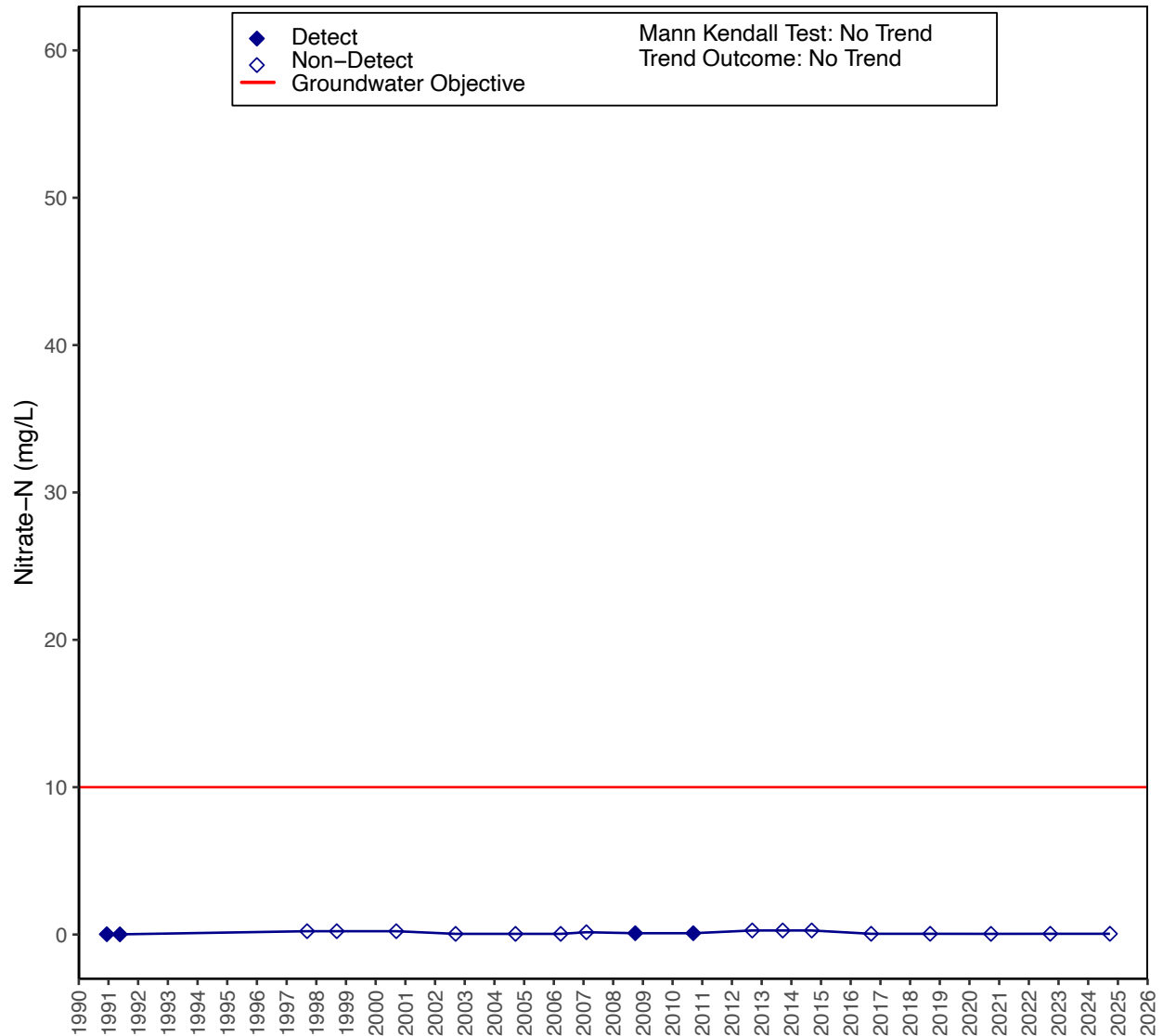
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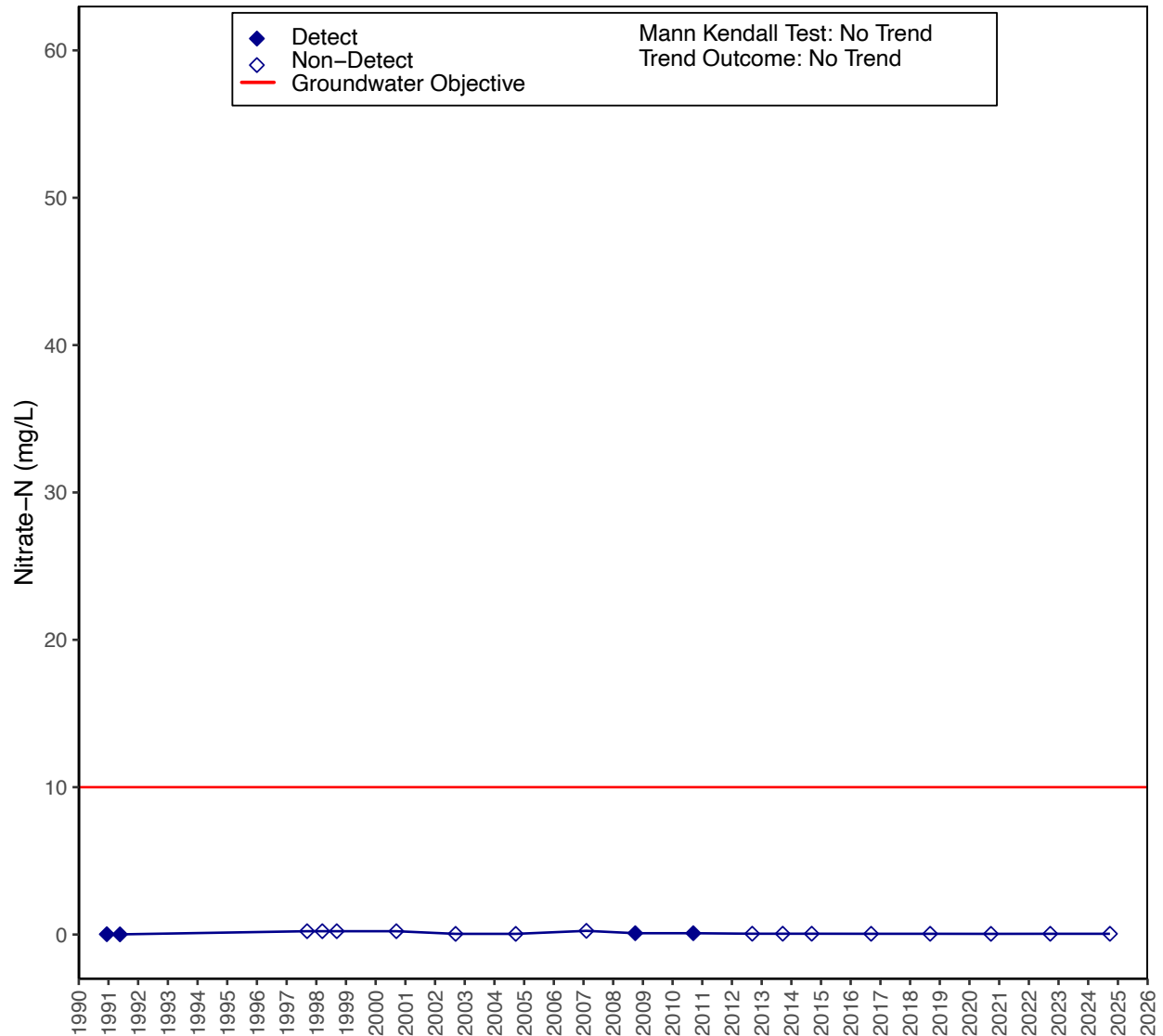
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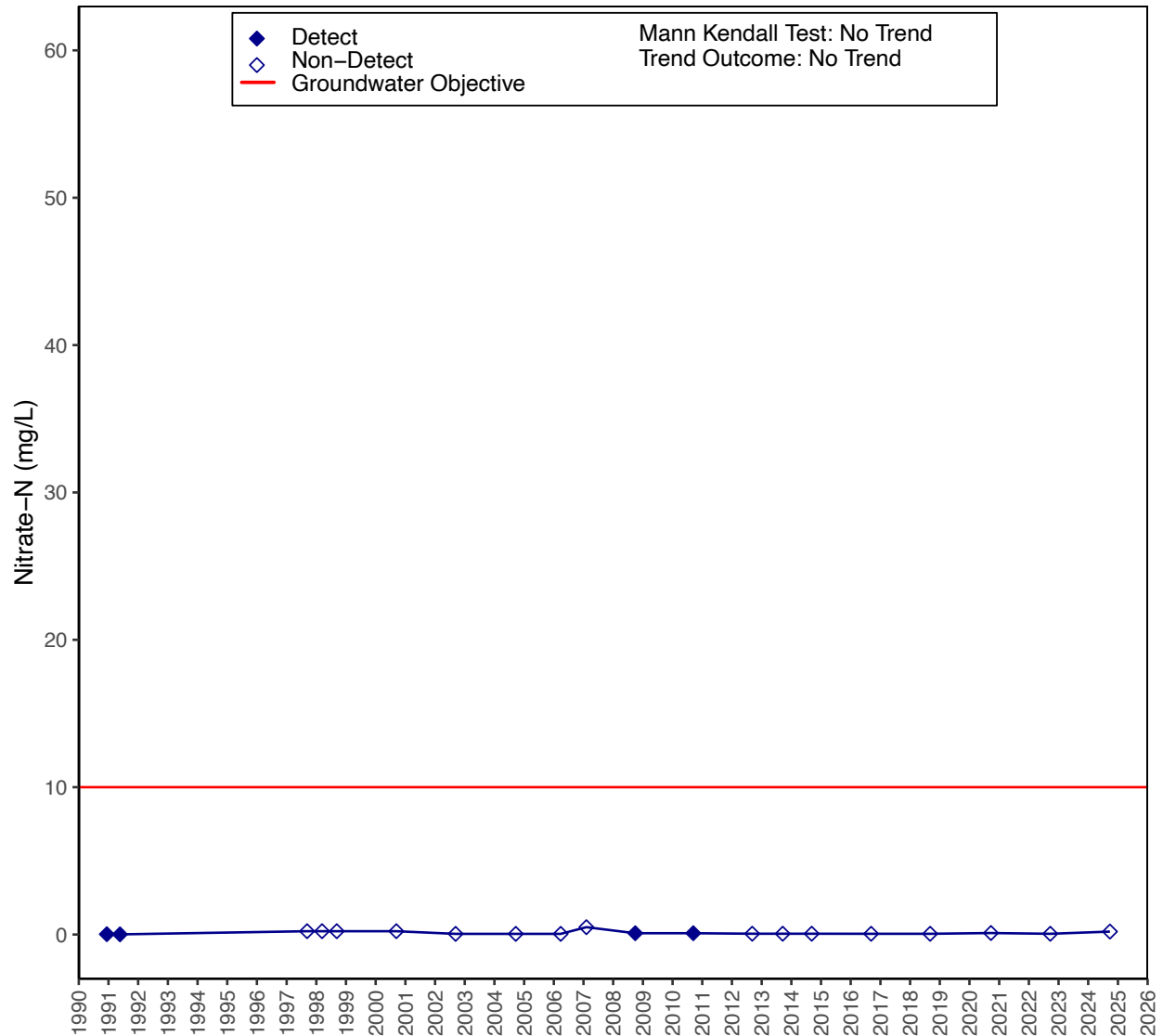
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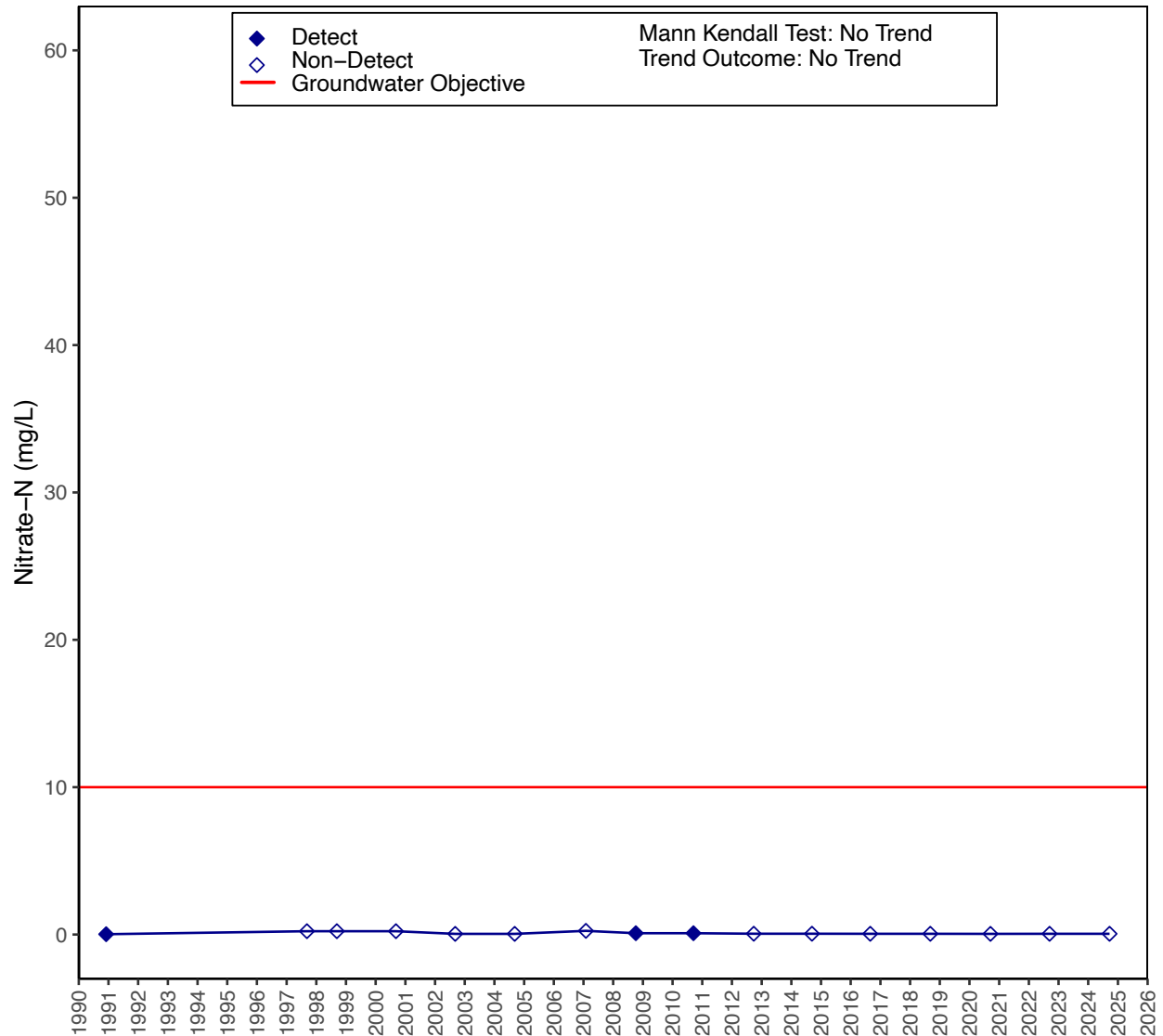
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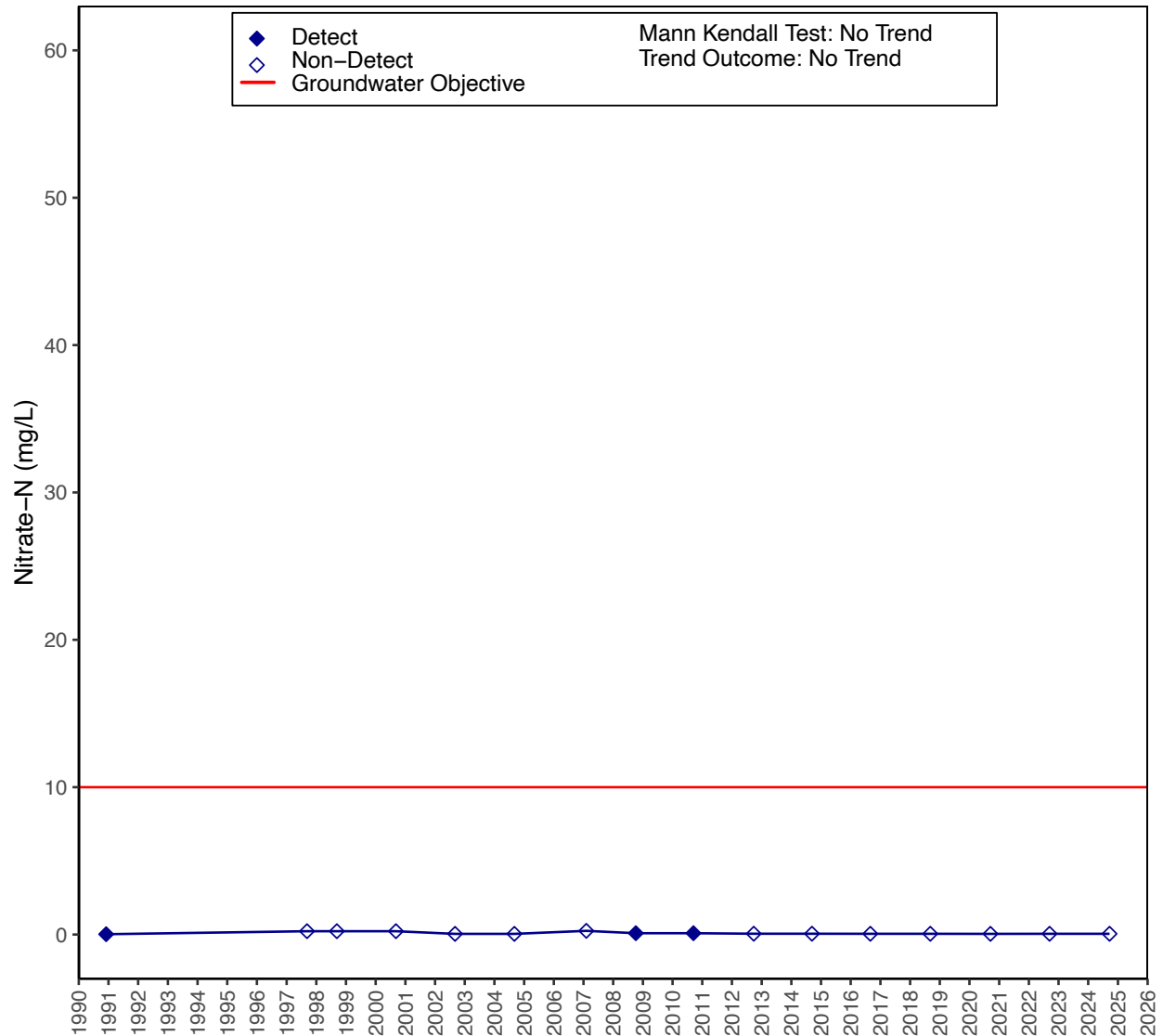
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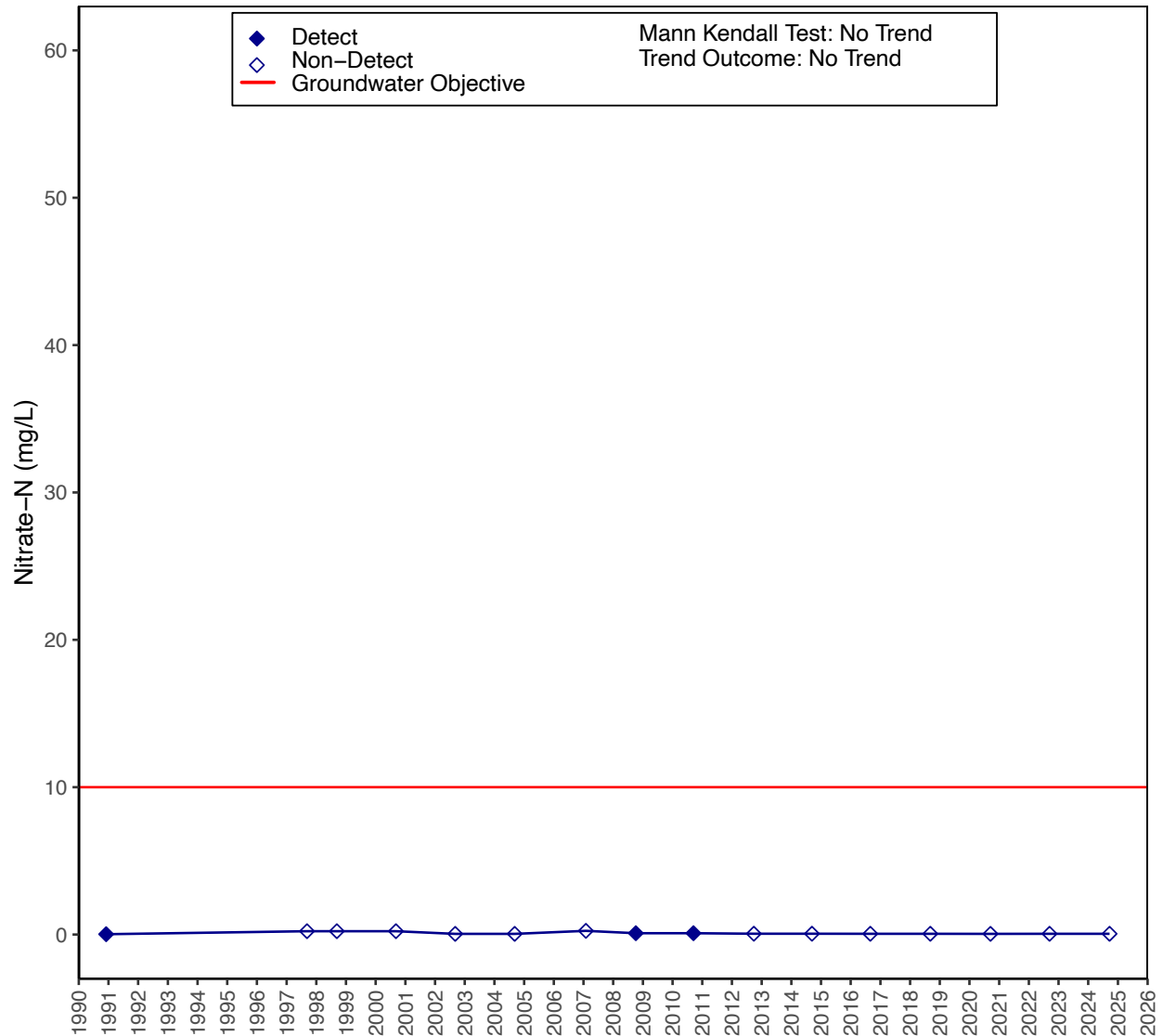
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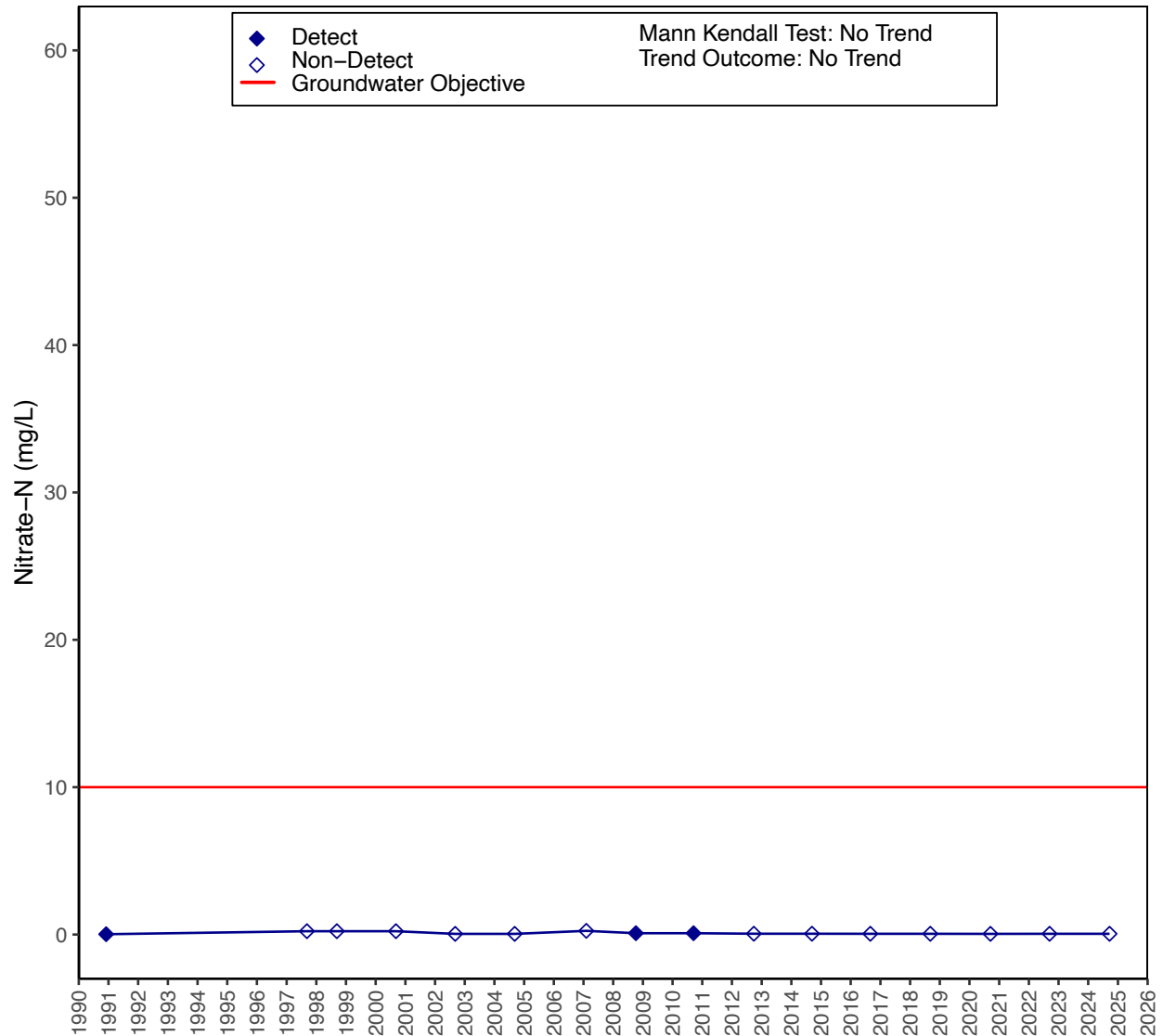
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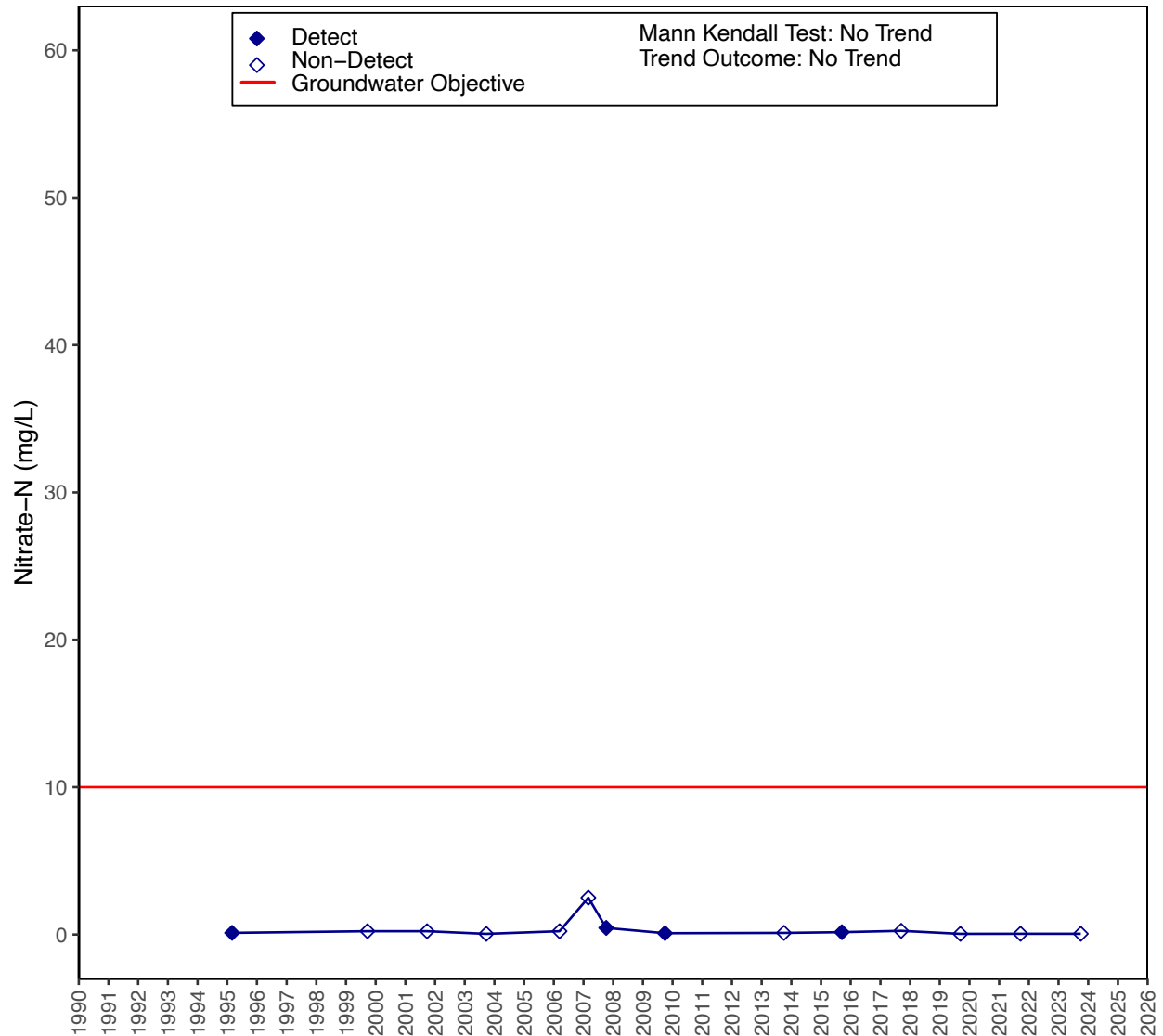
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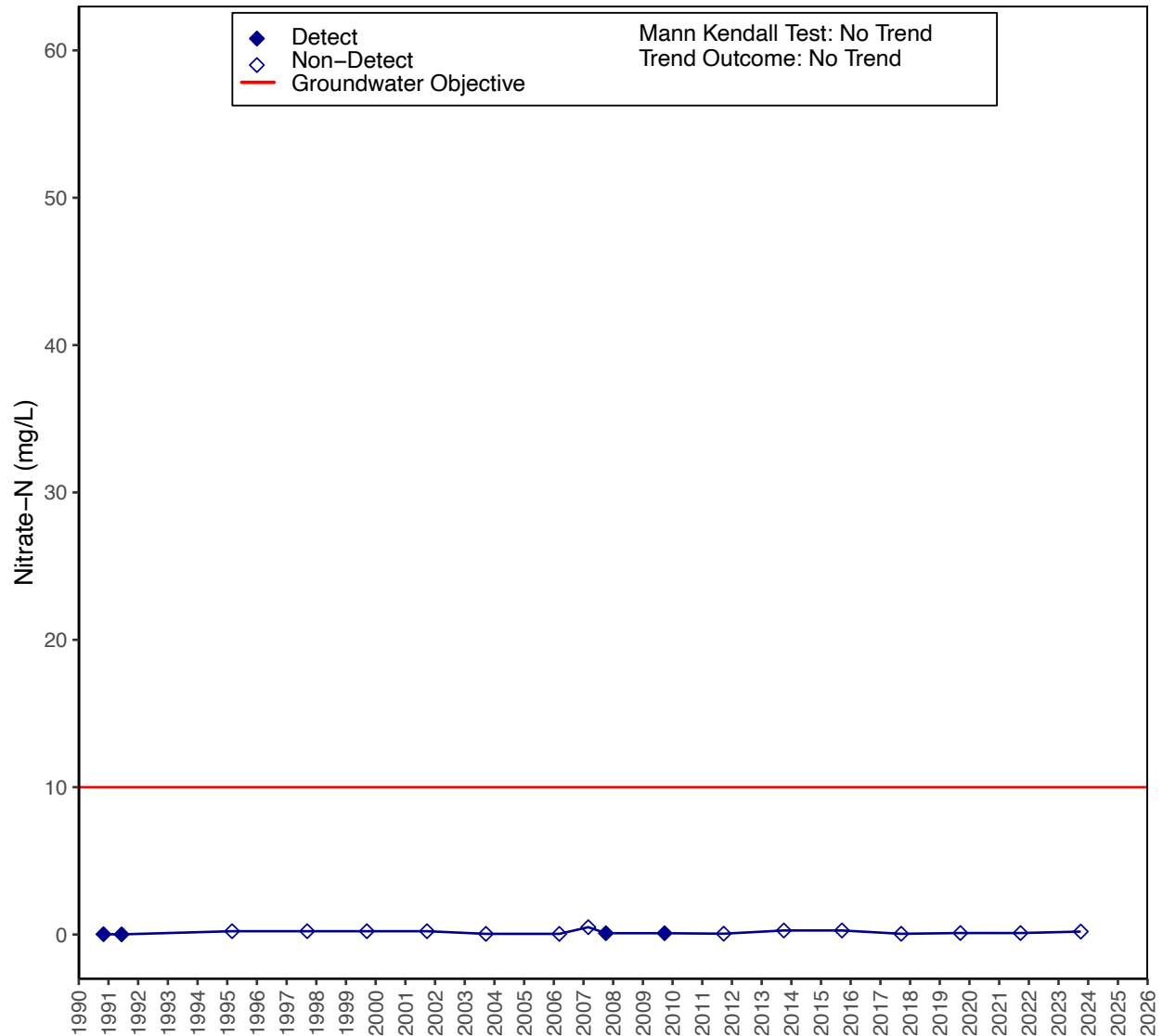
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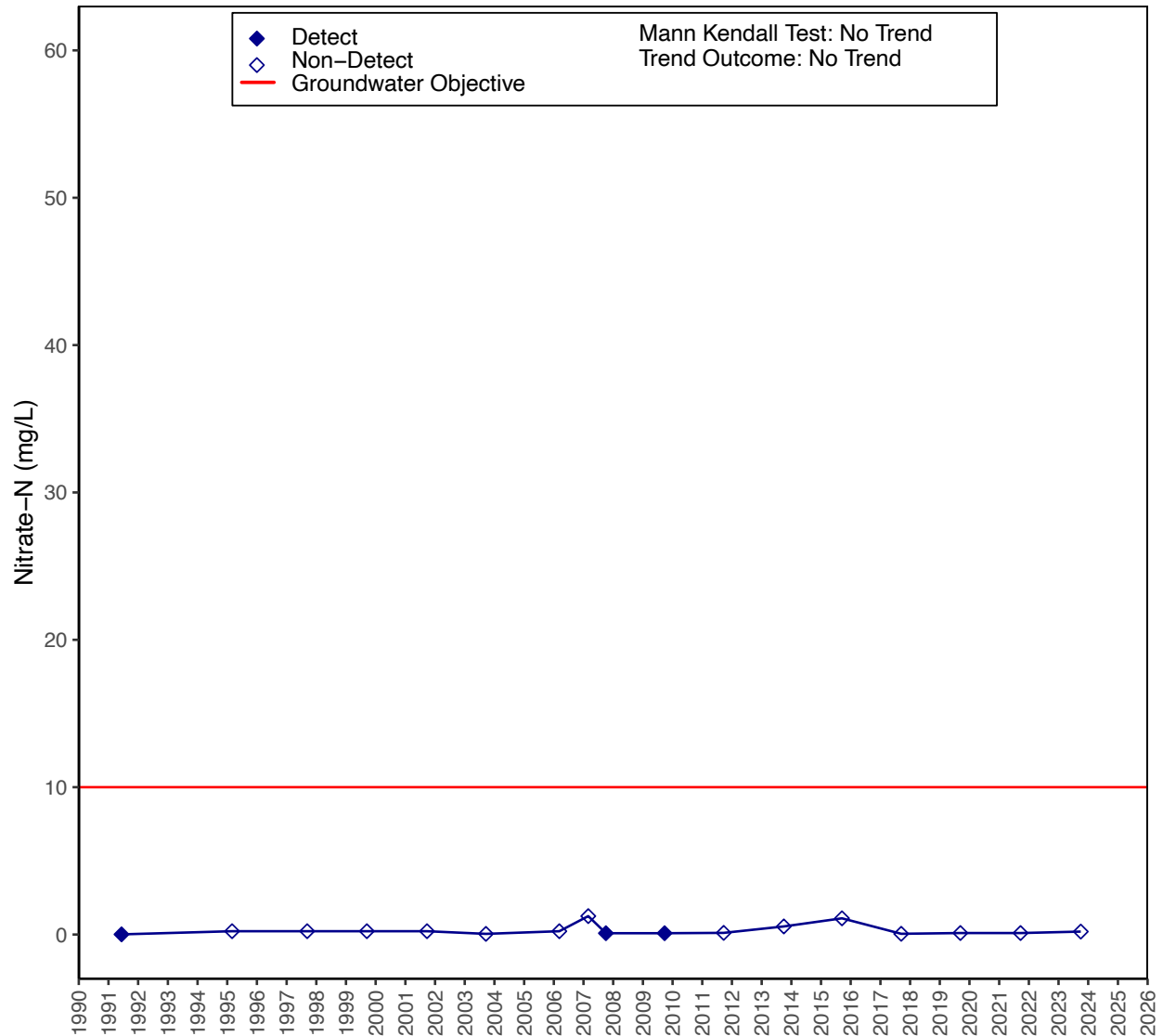
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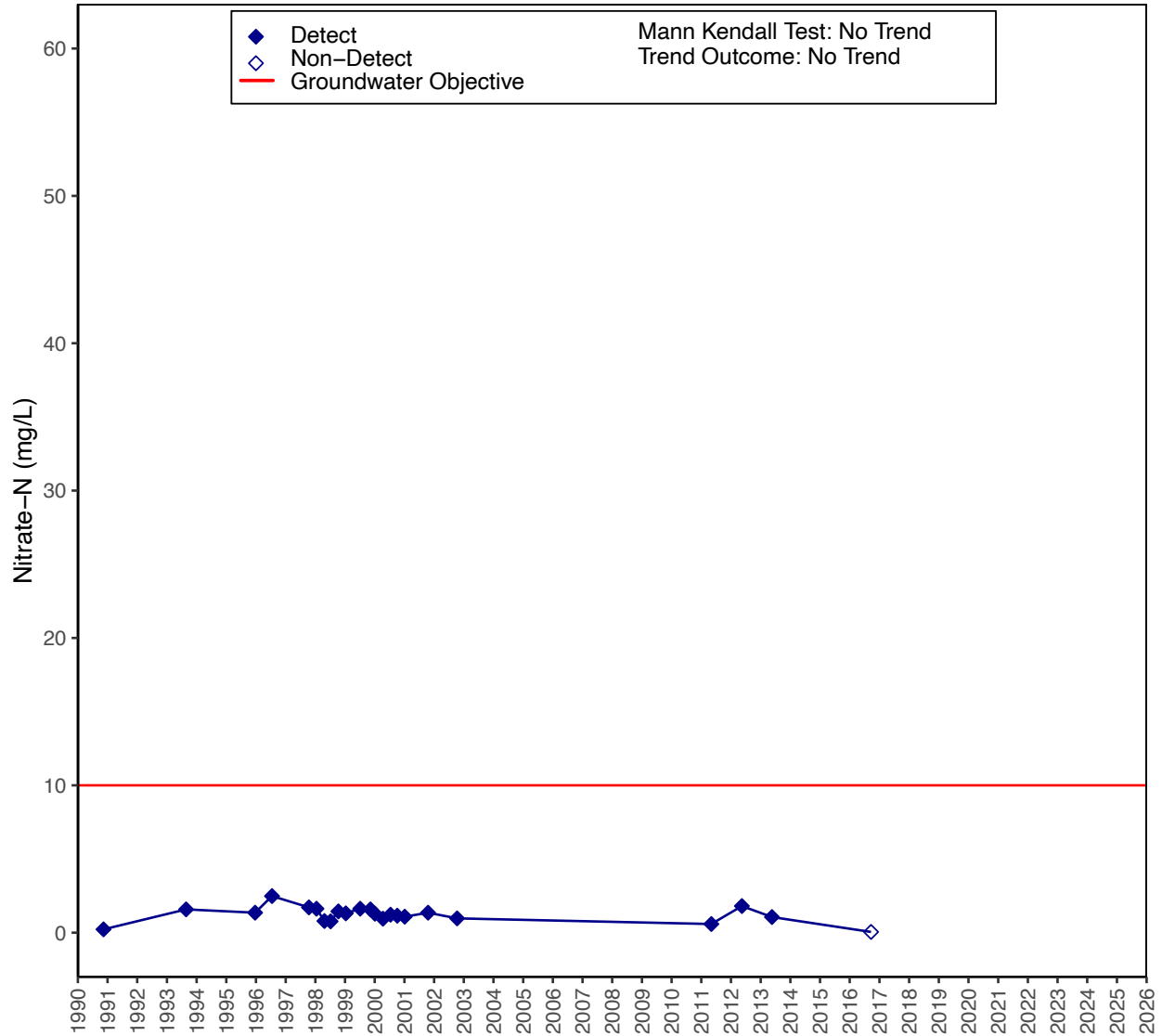
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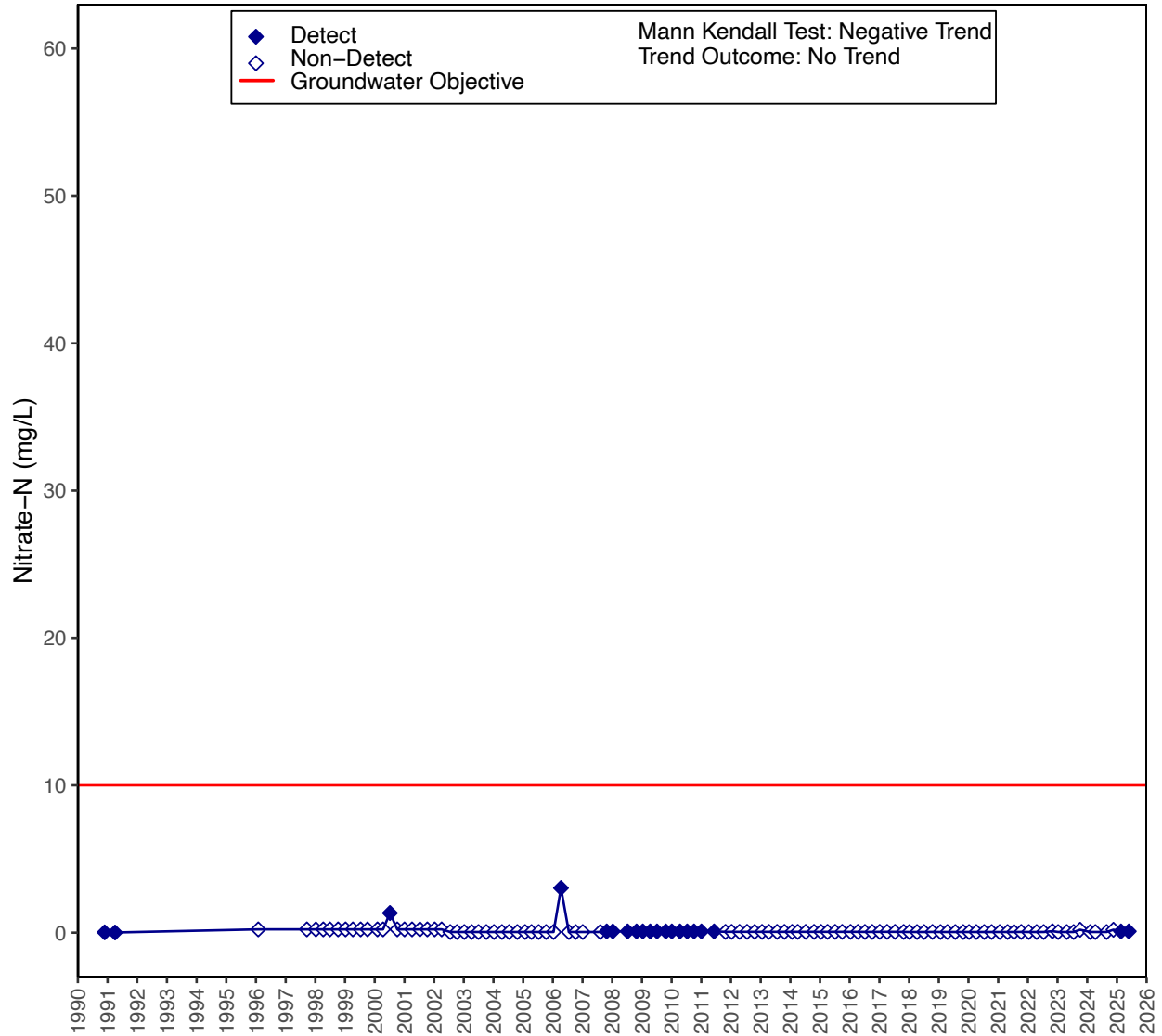
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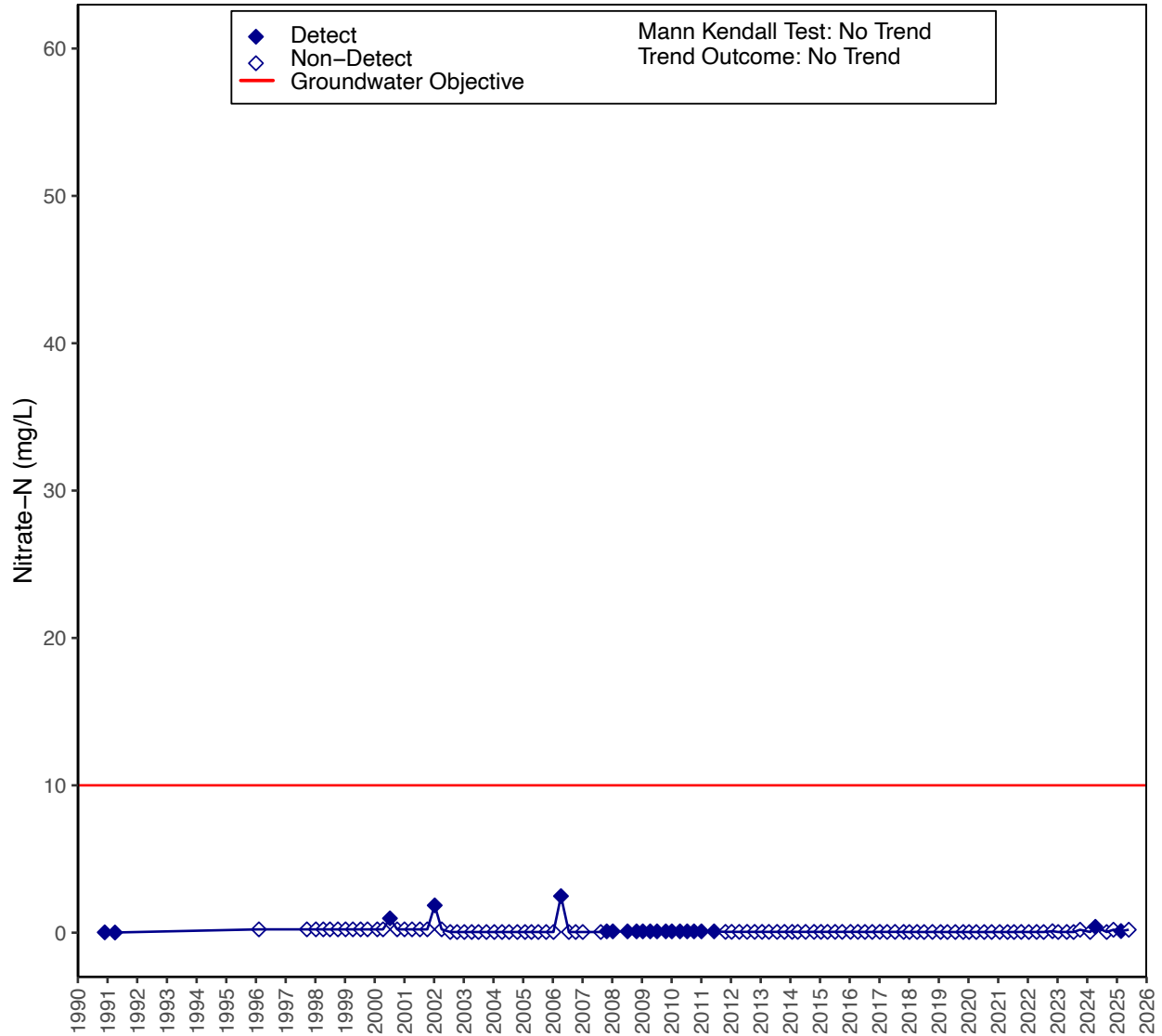
**Oxnard Basin
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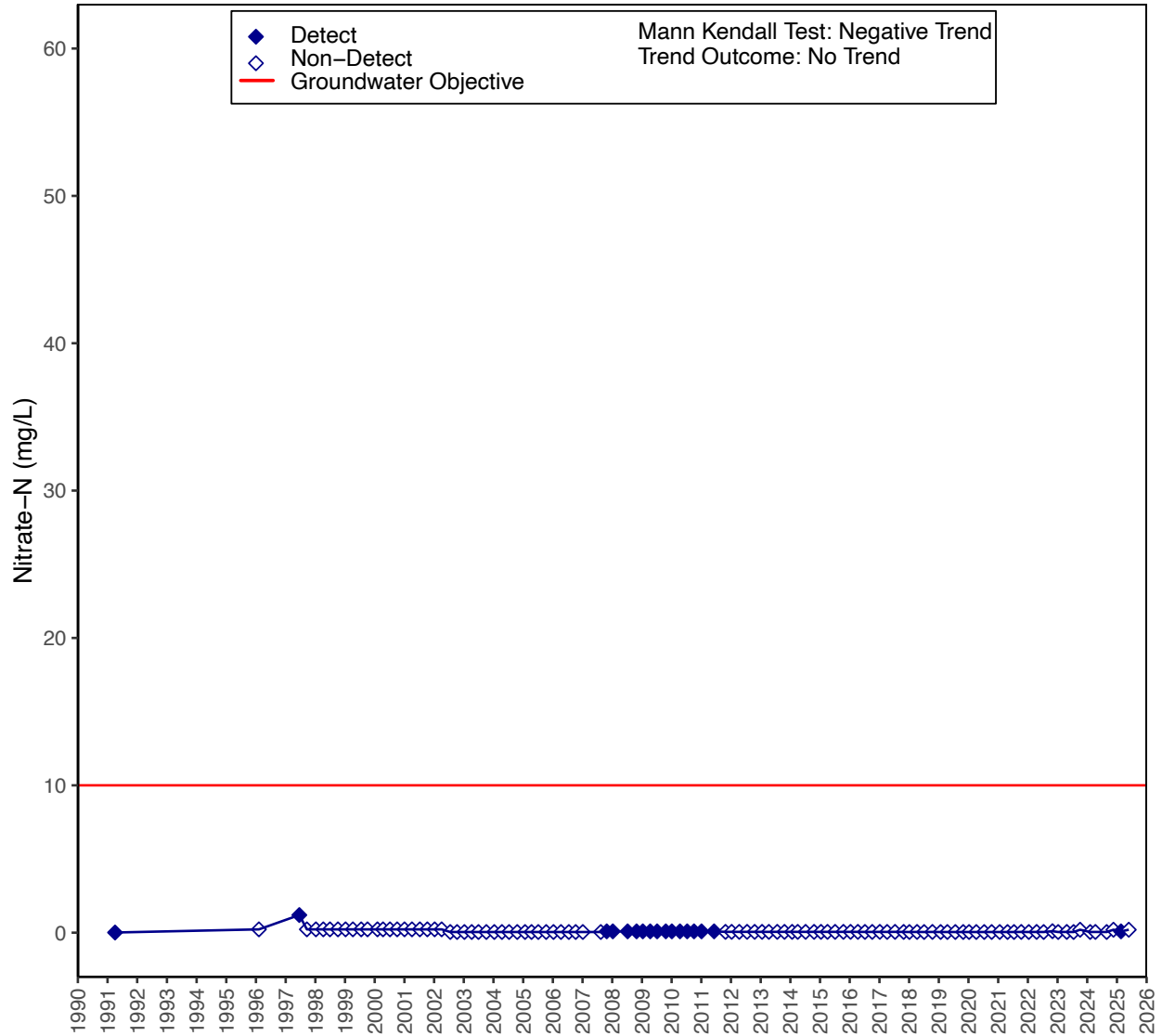
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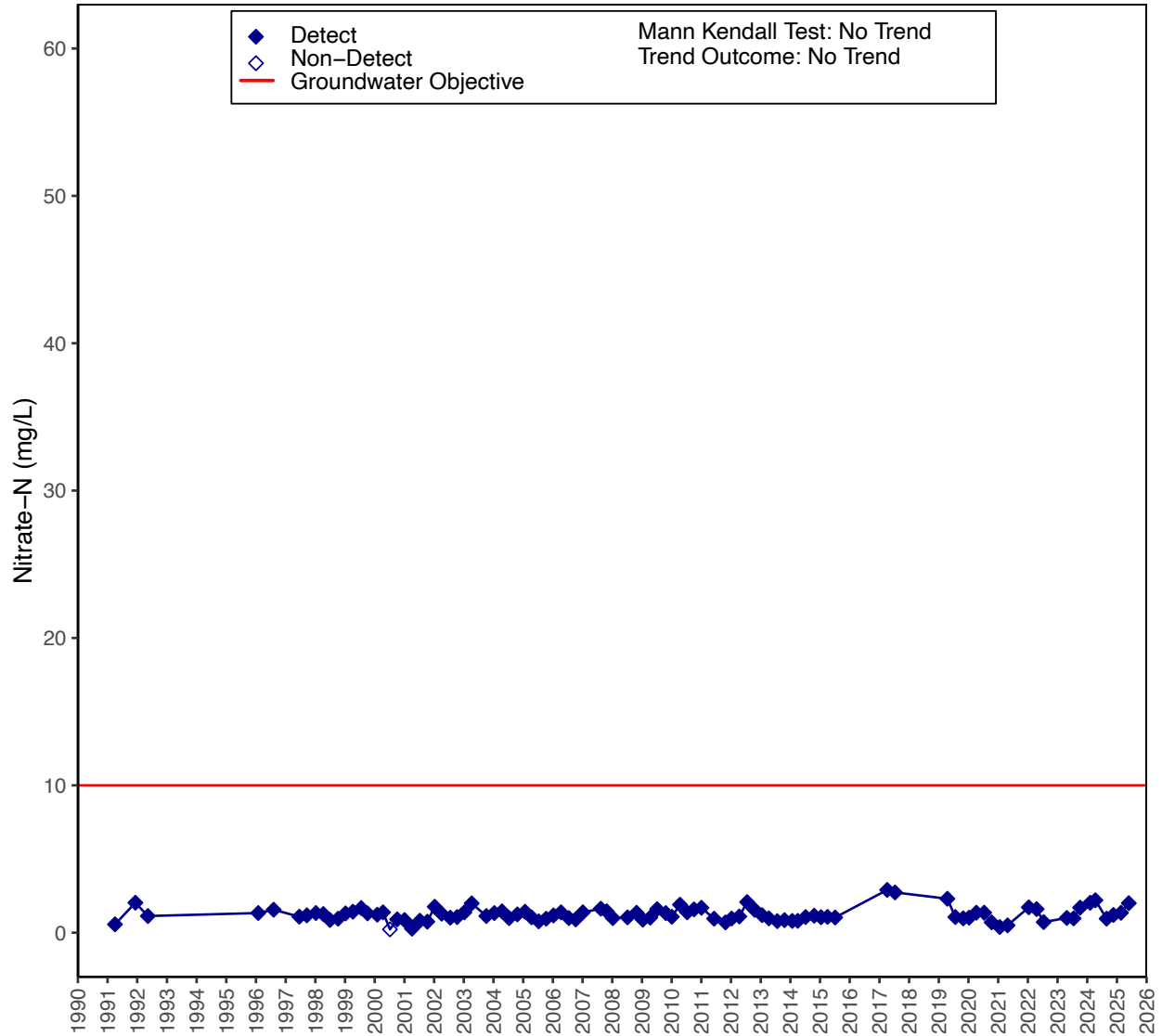
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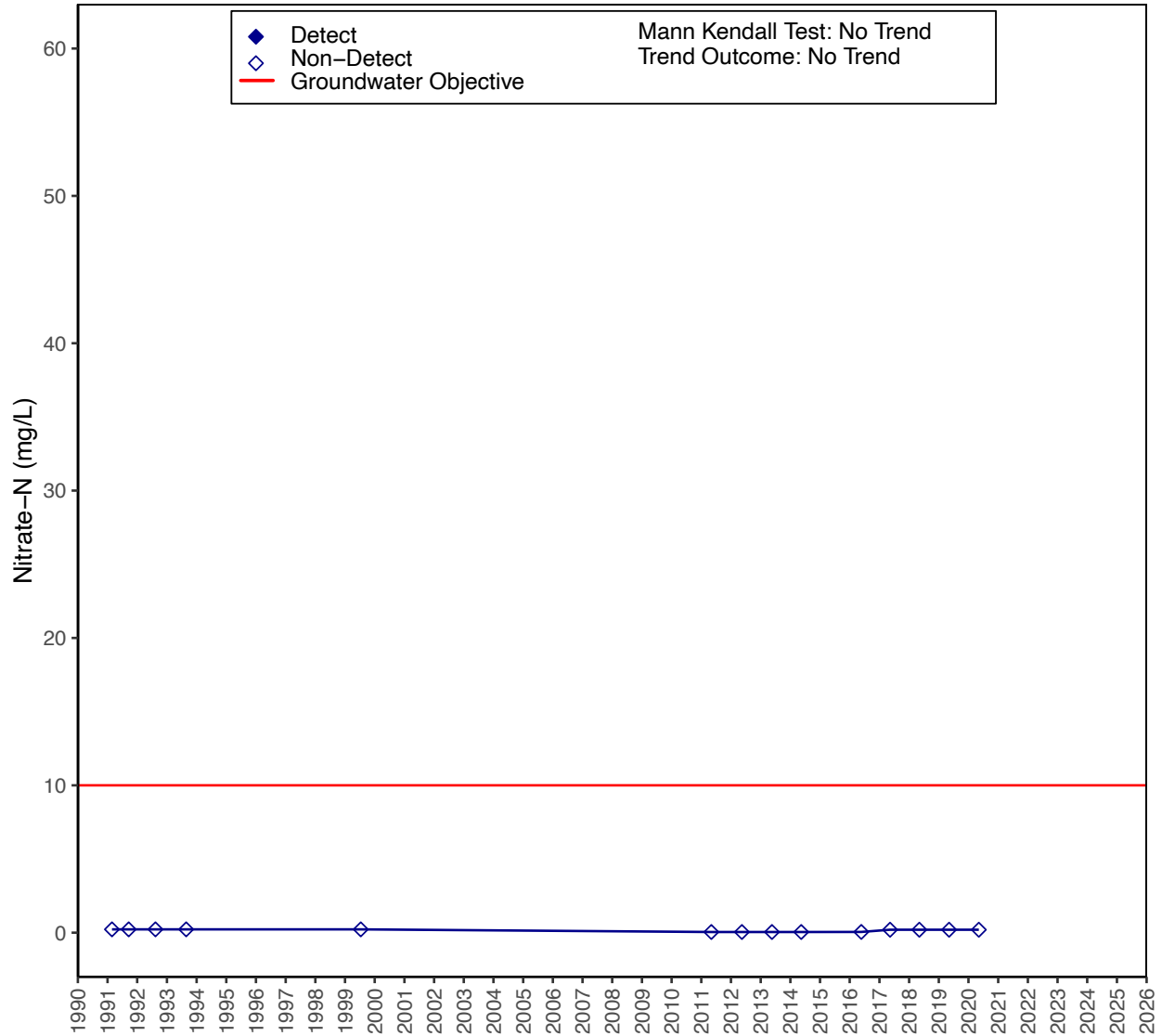
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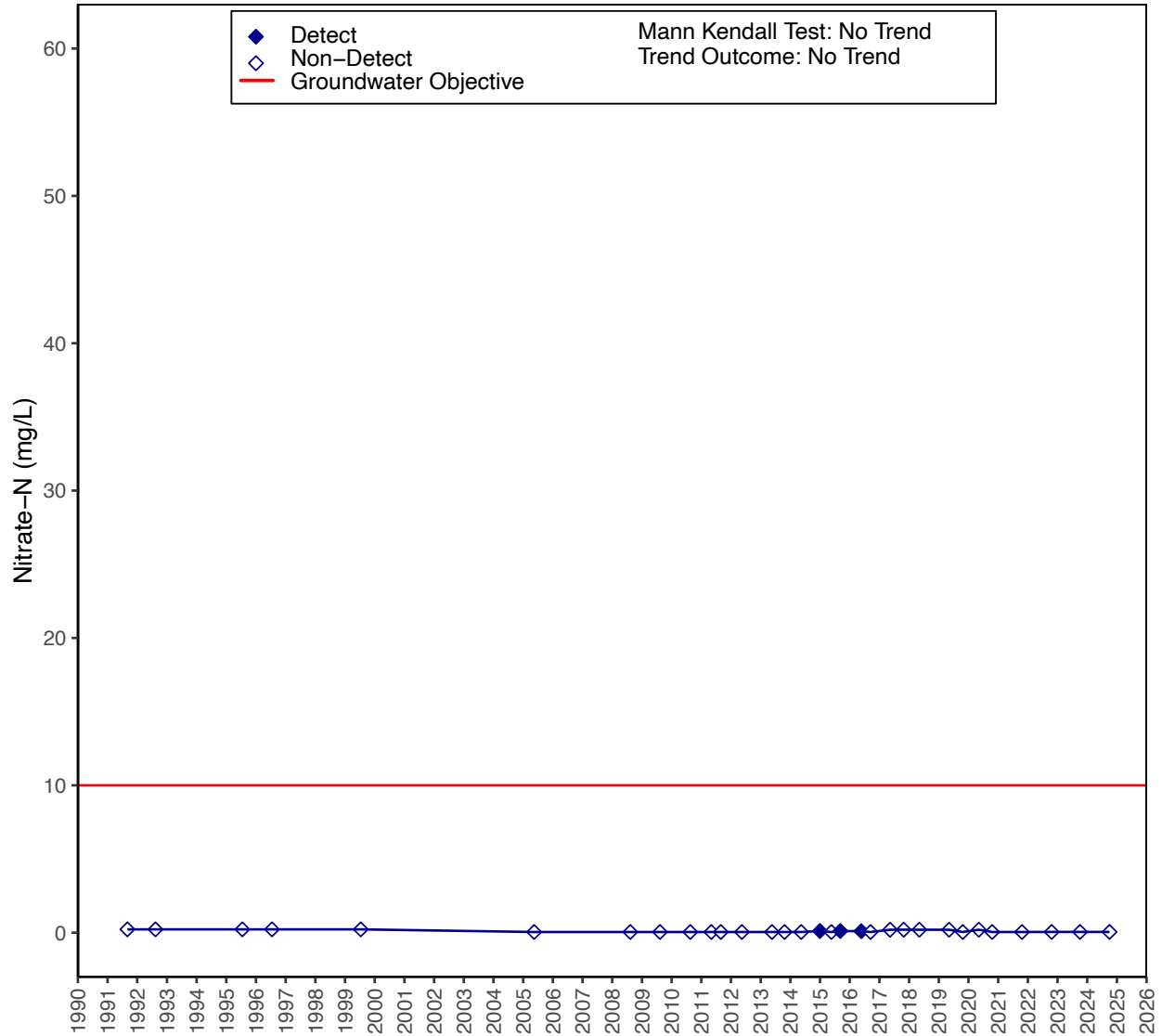
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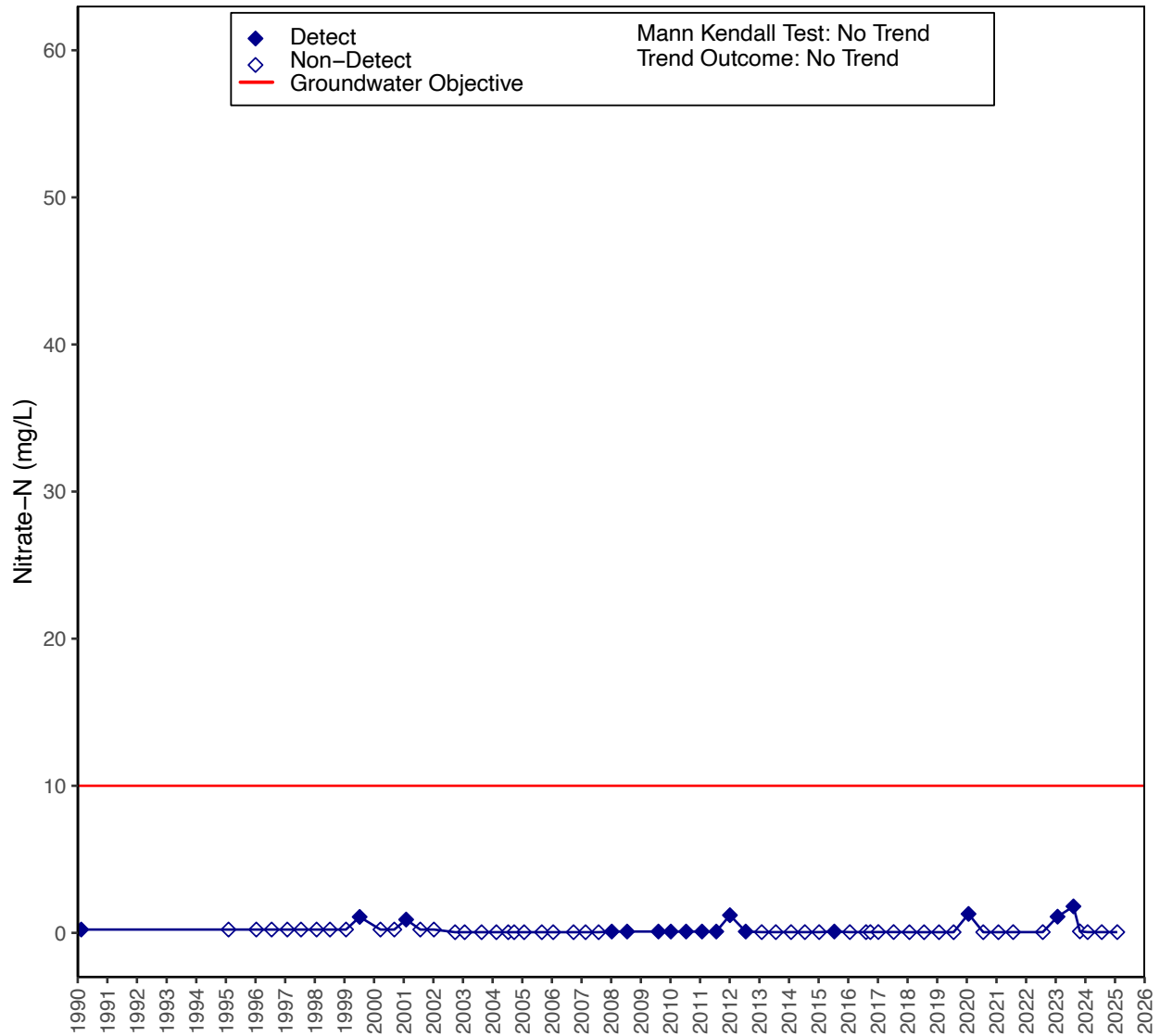
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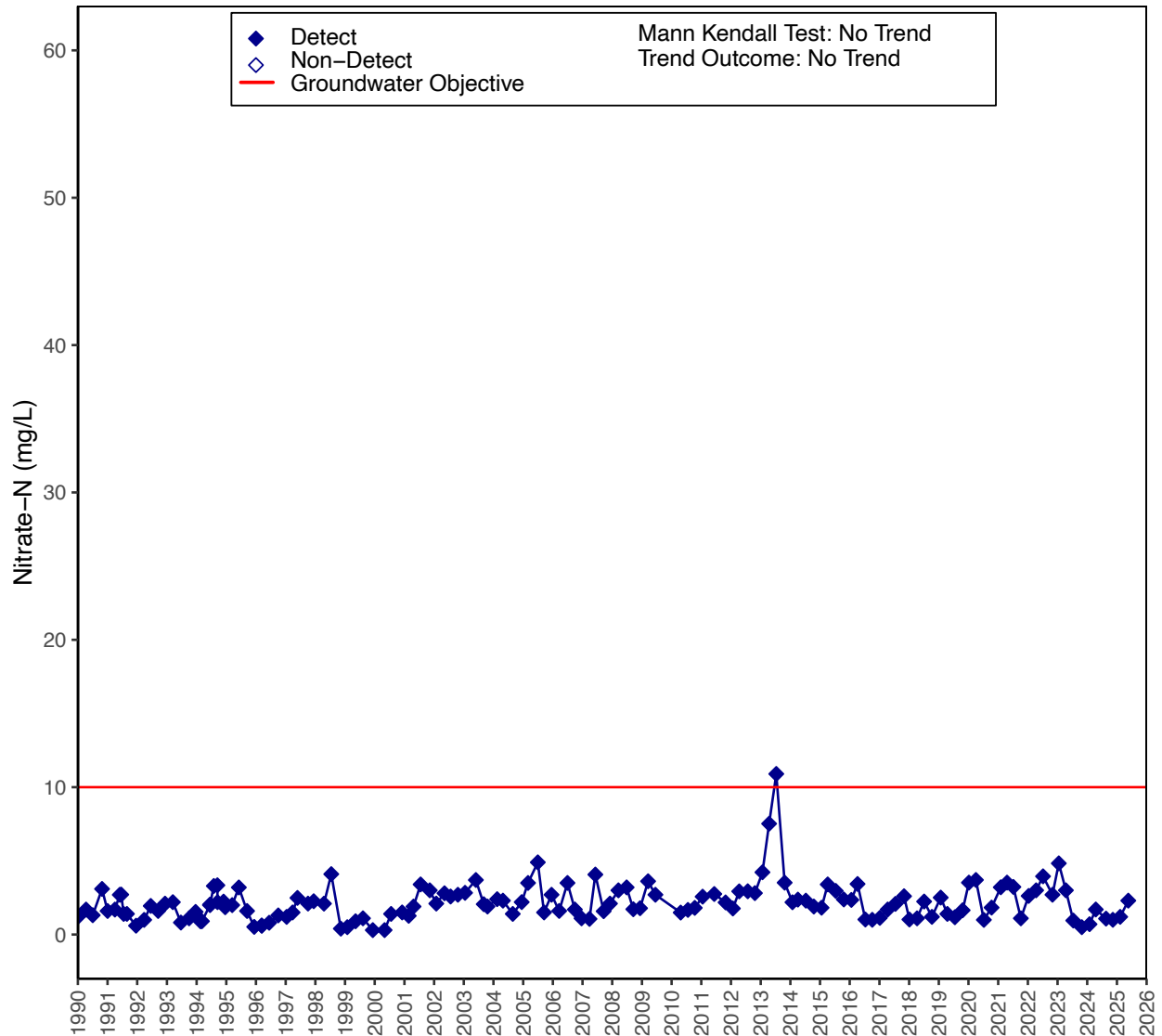
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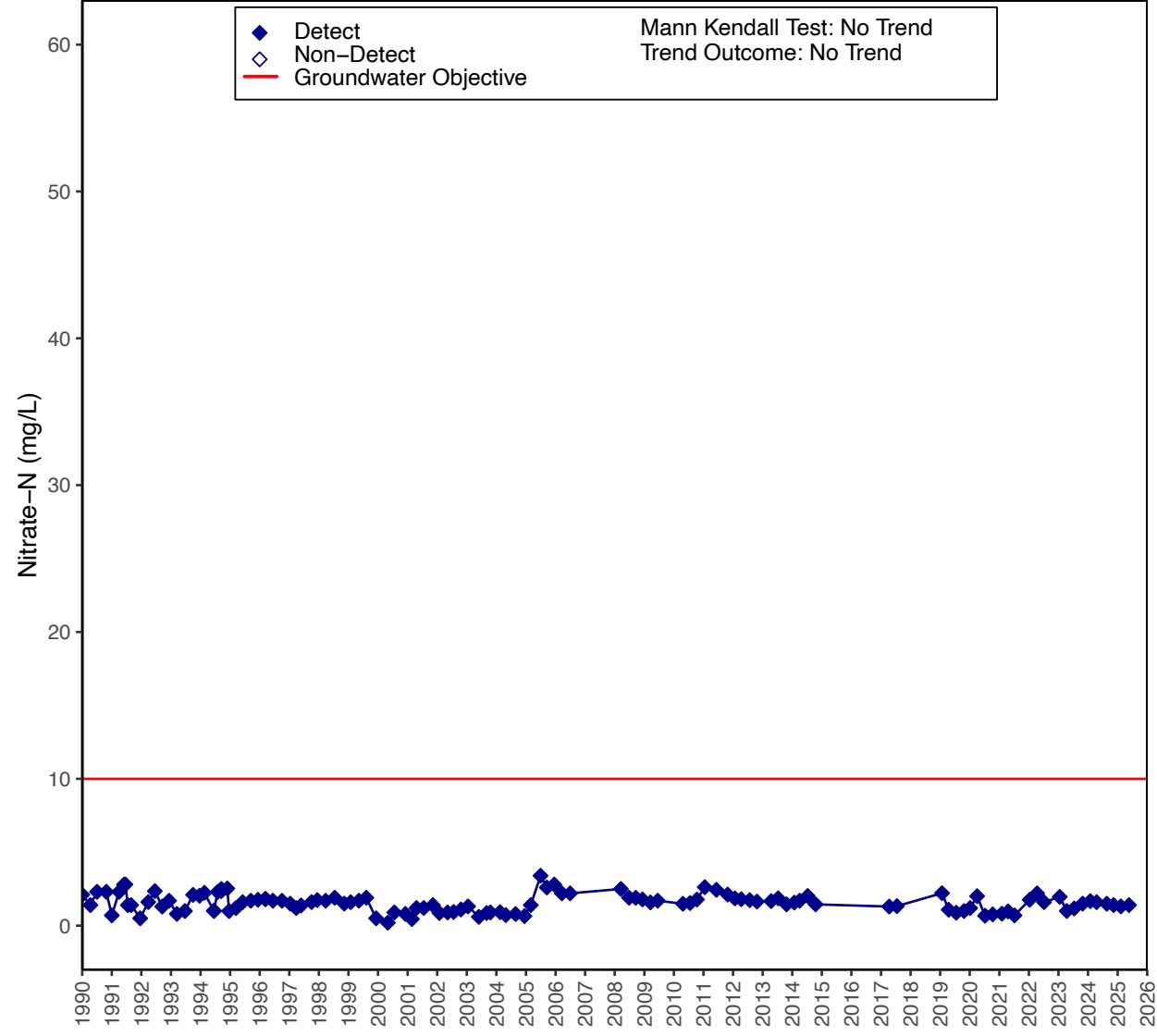
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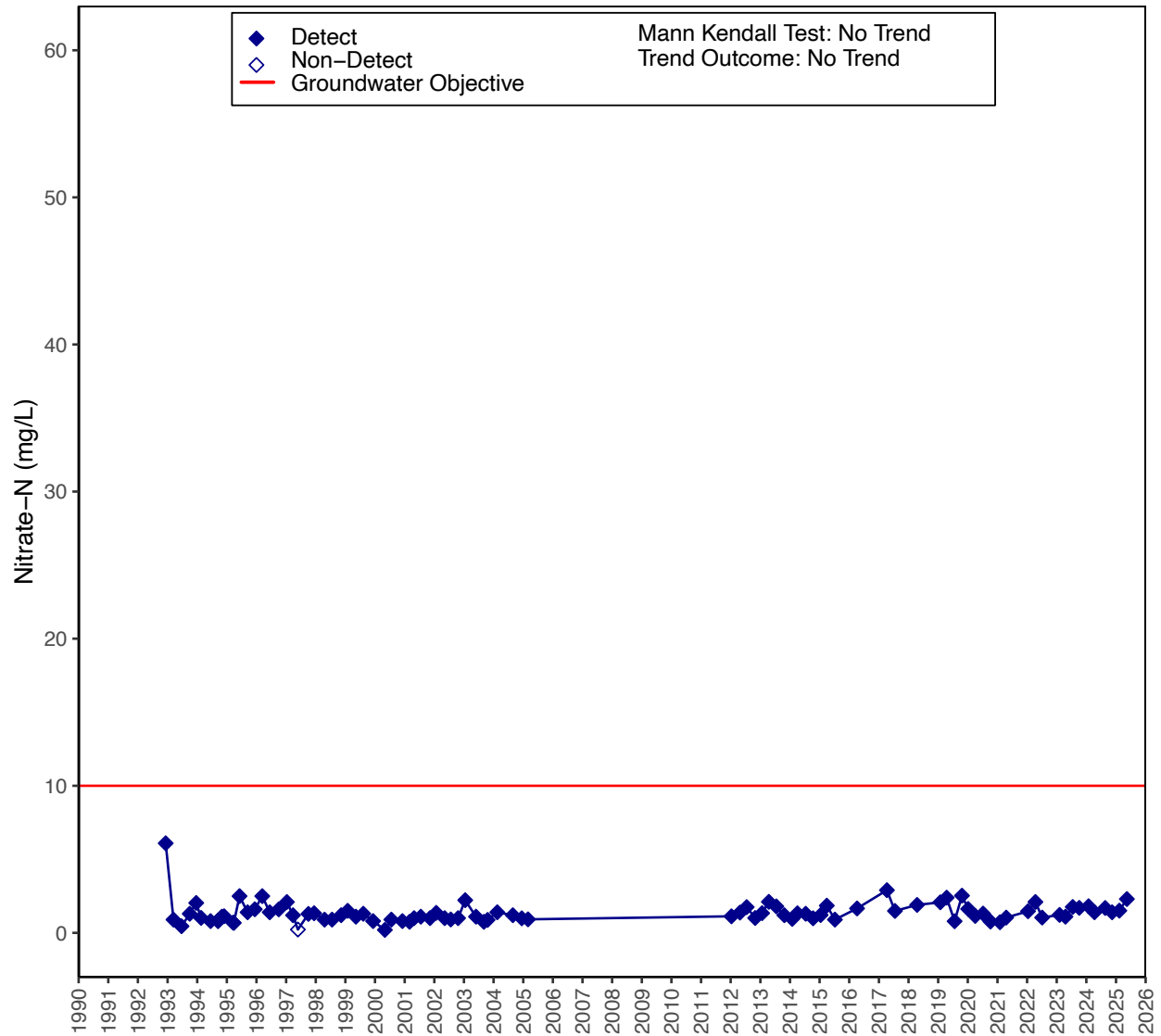
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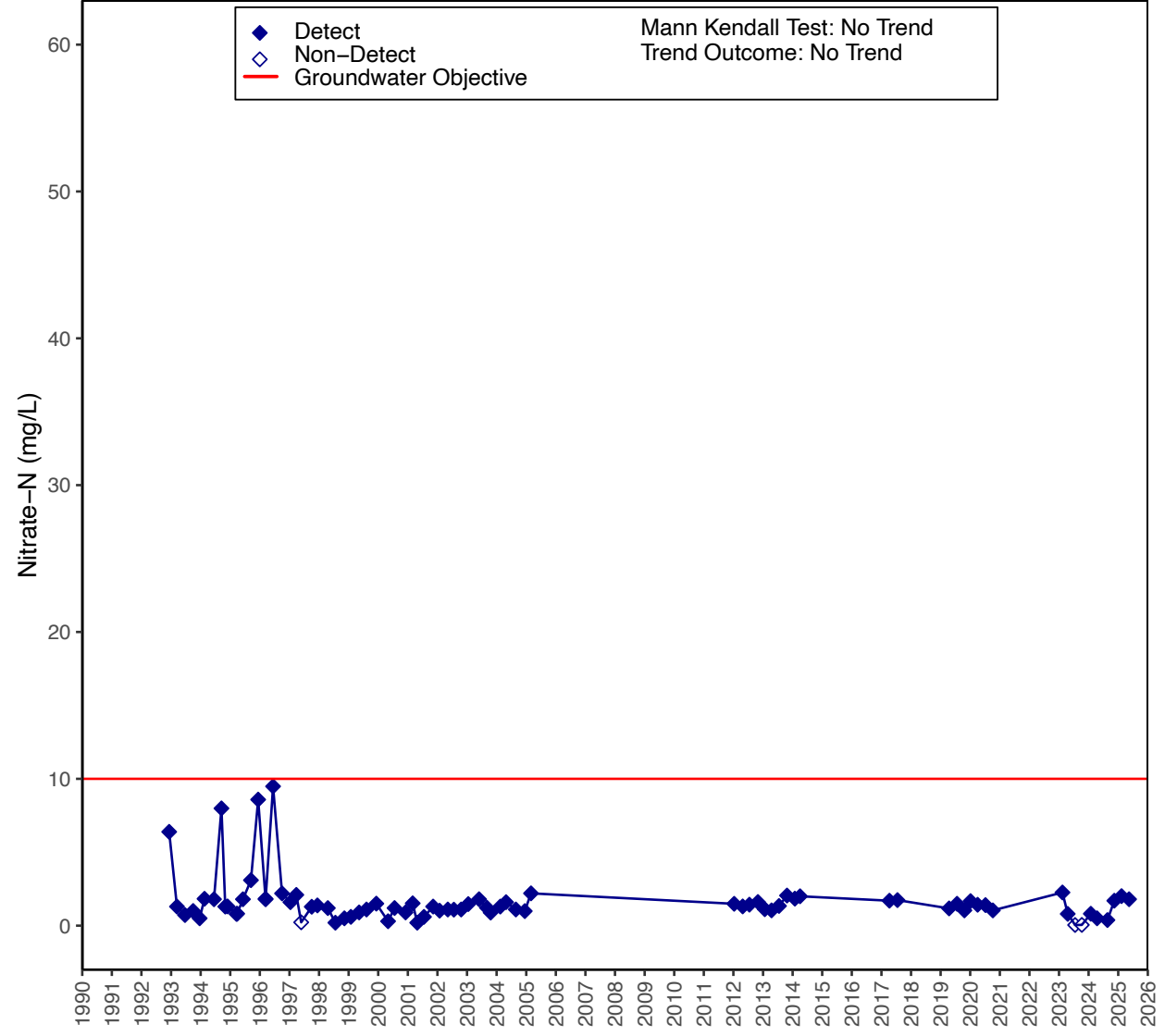
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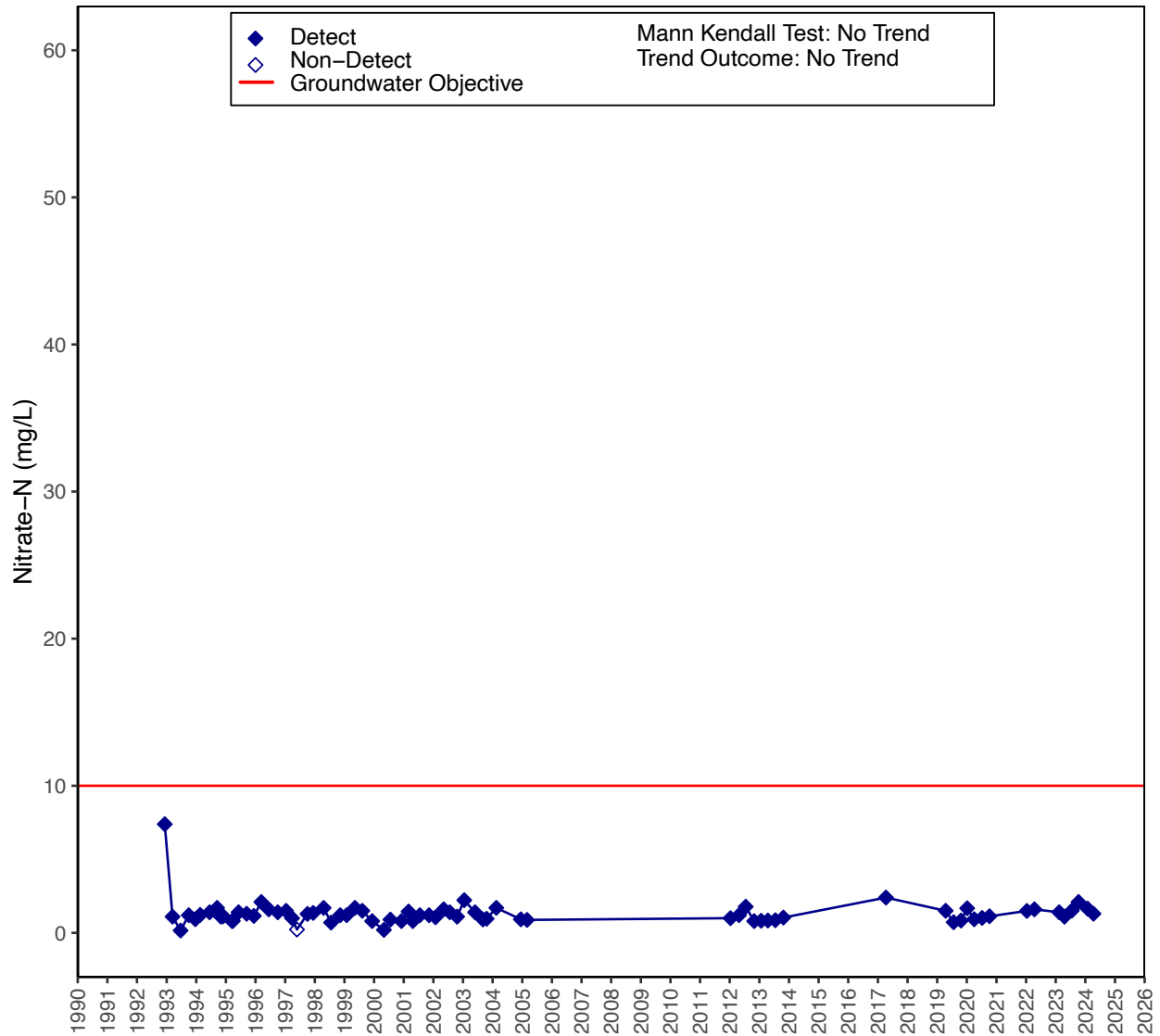
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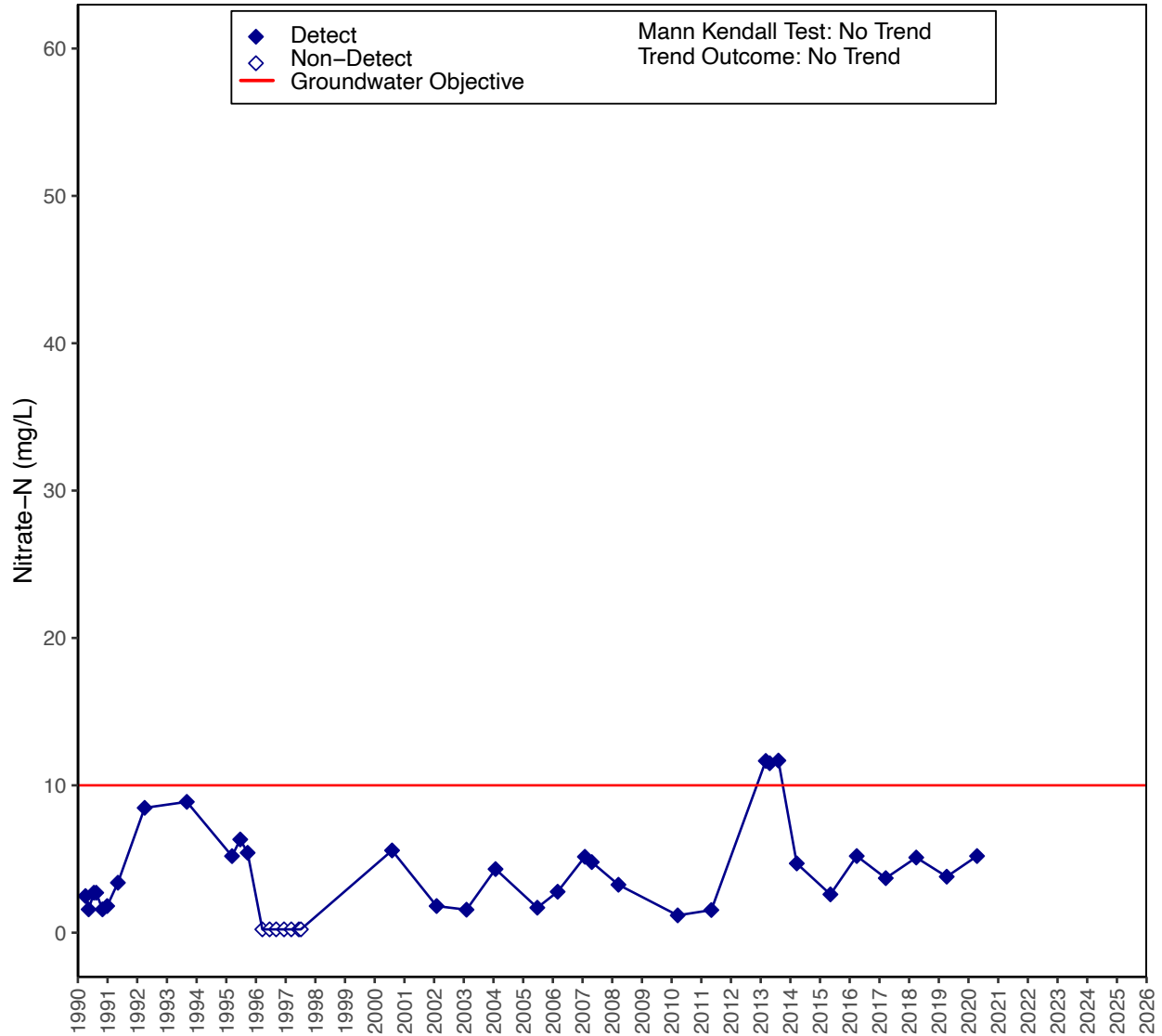
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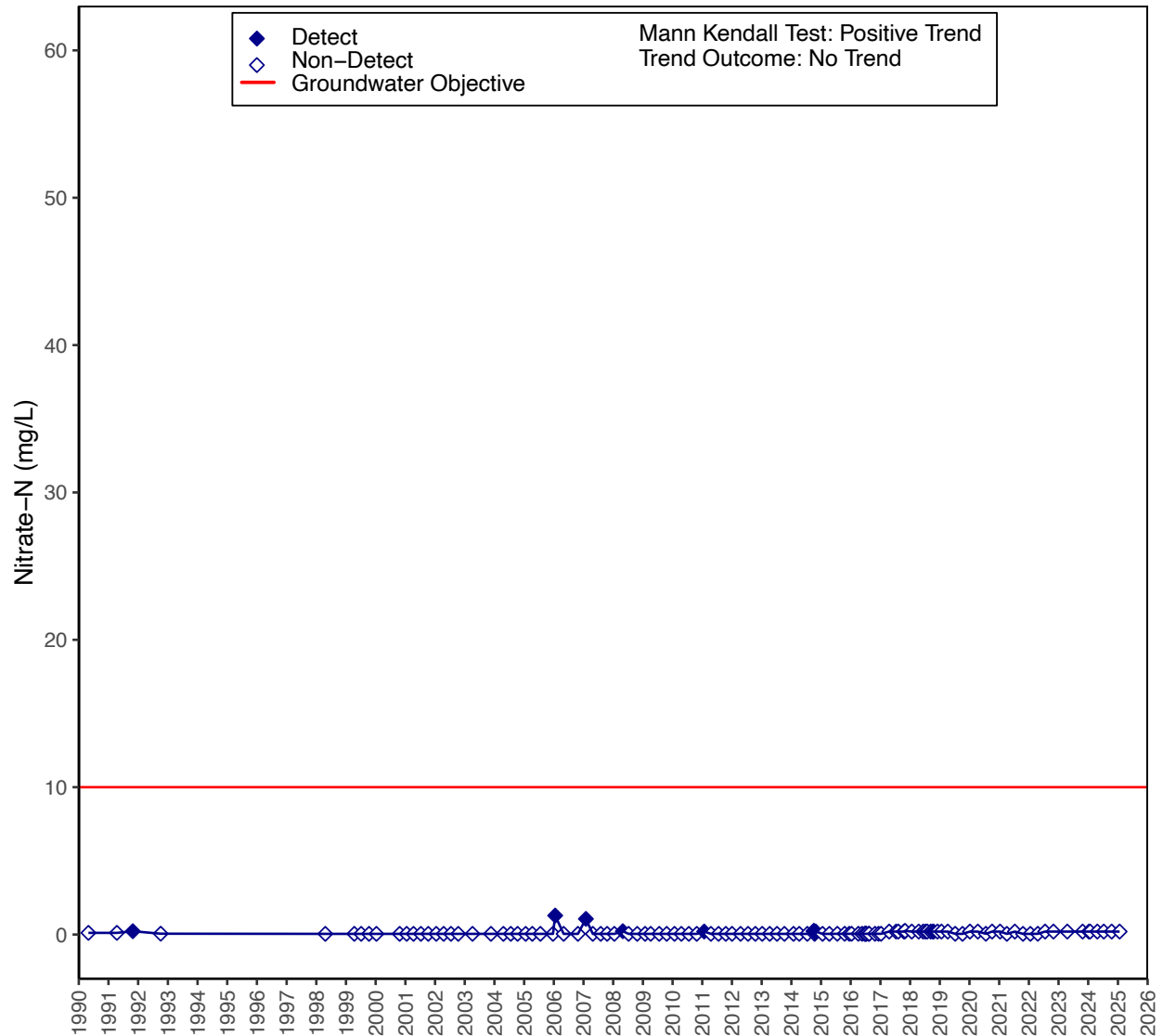
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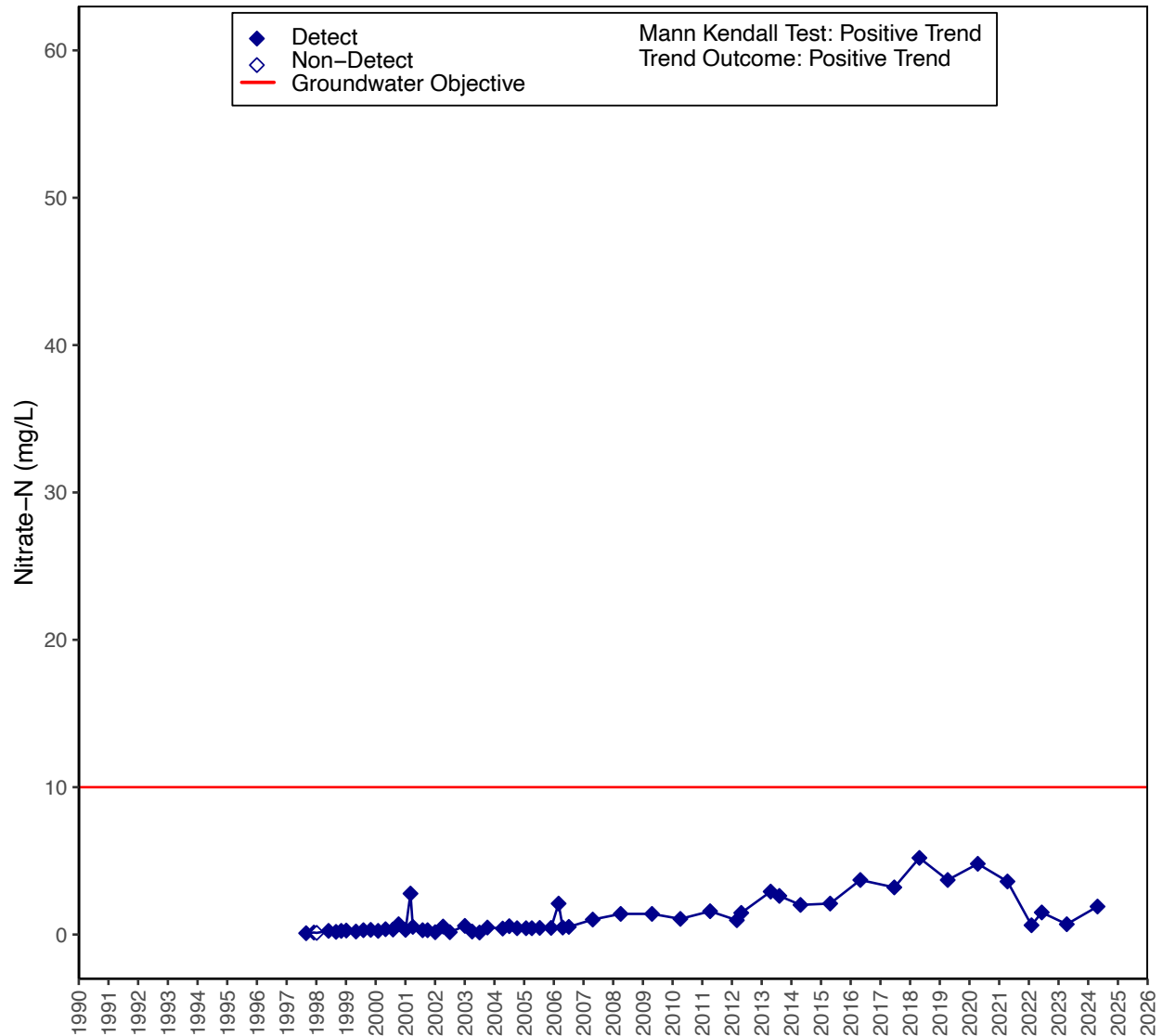
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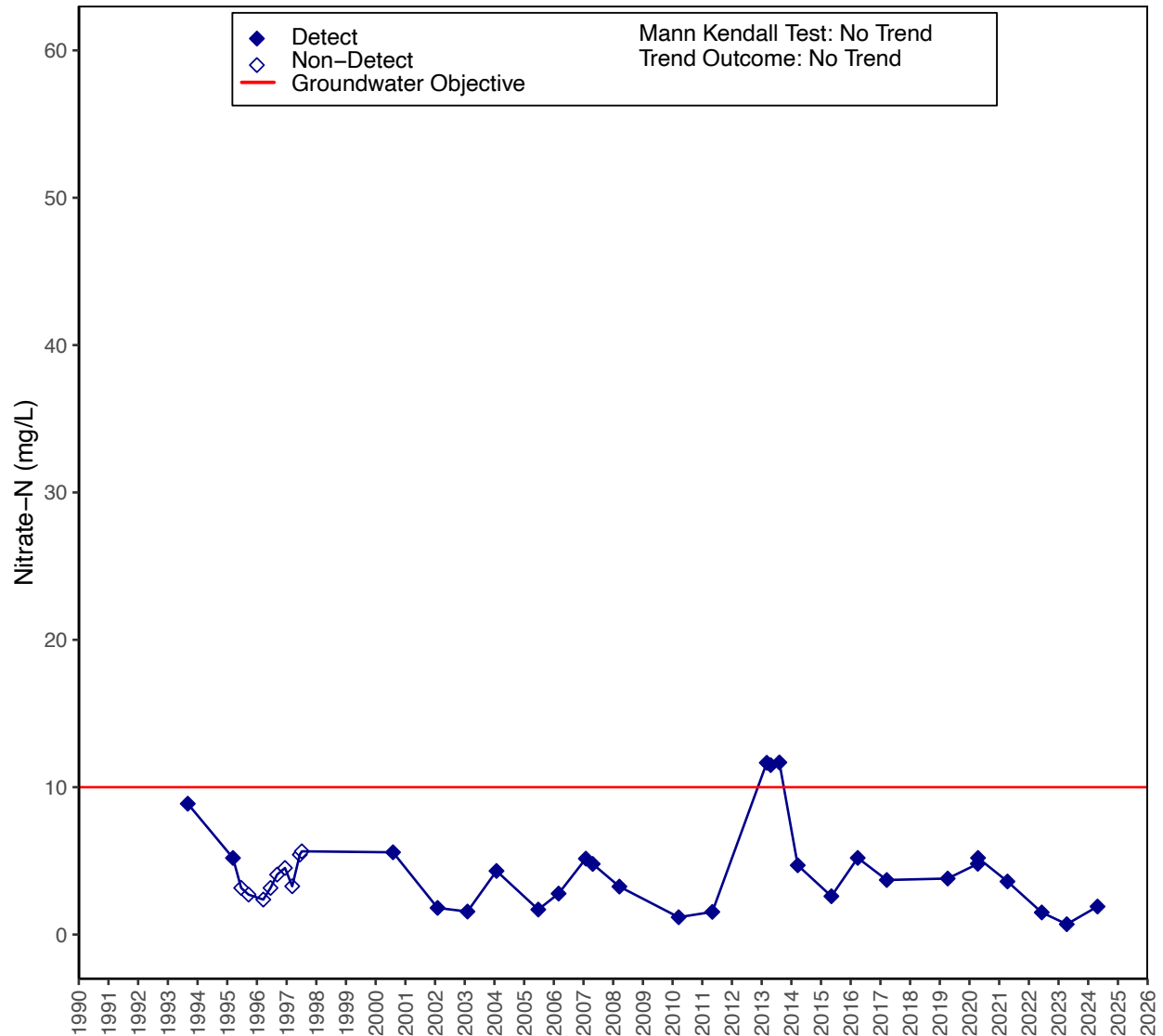
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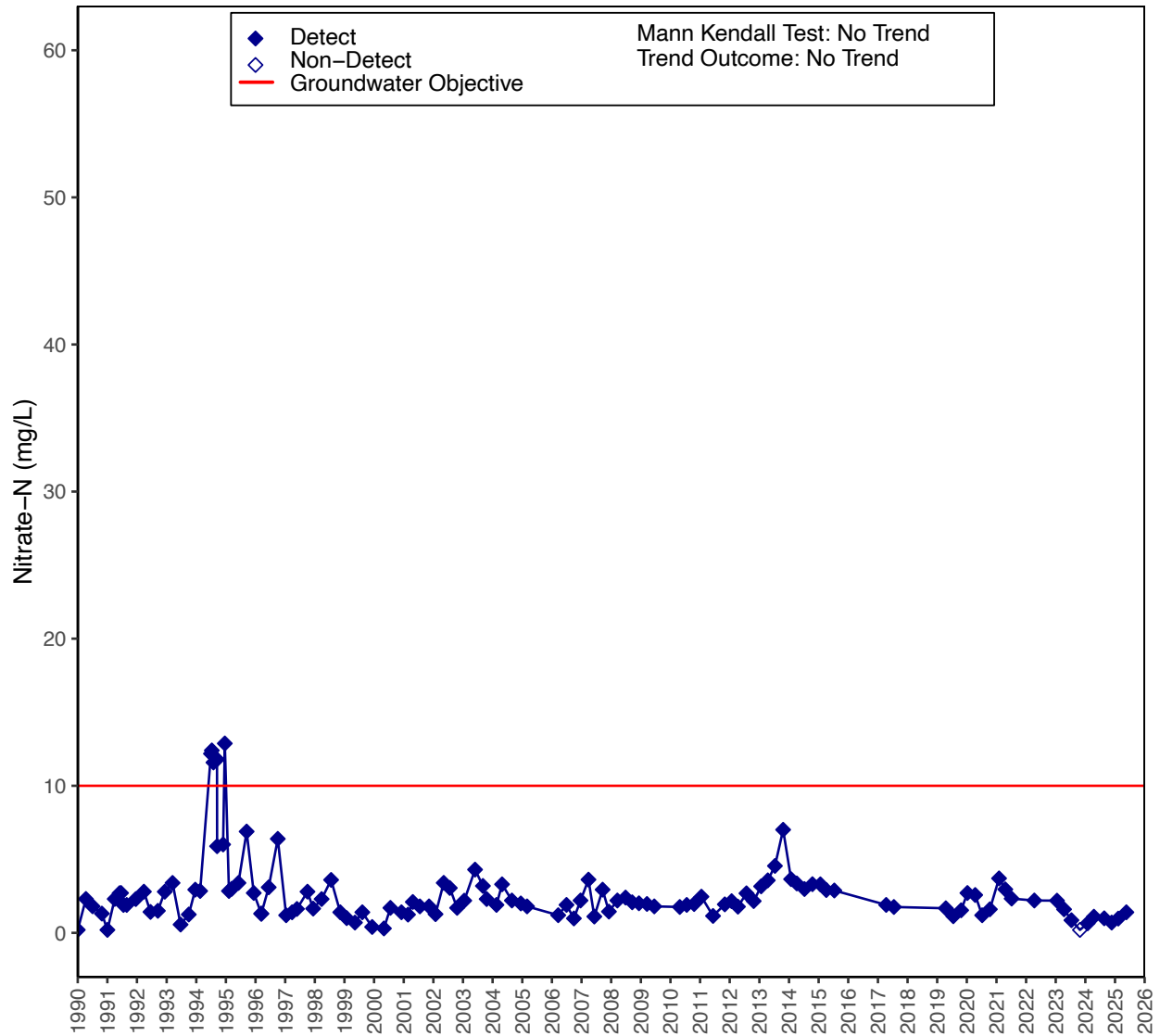
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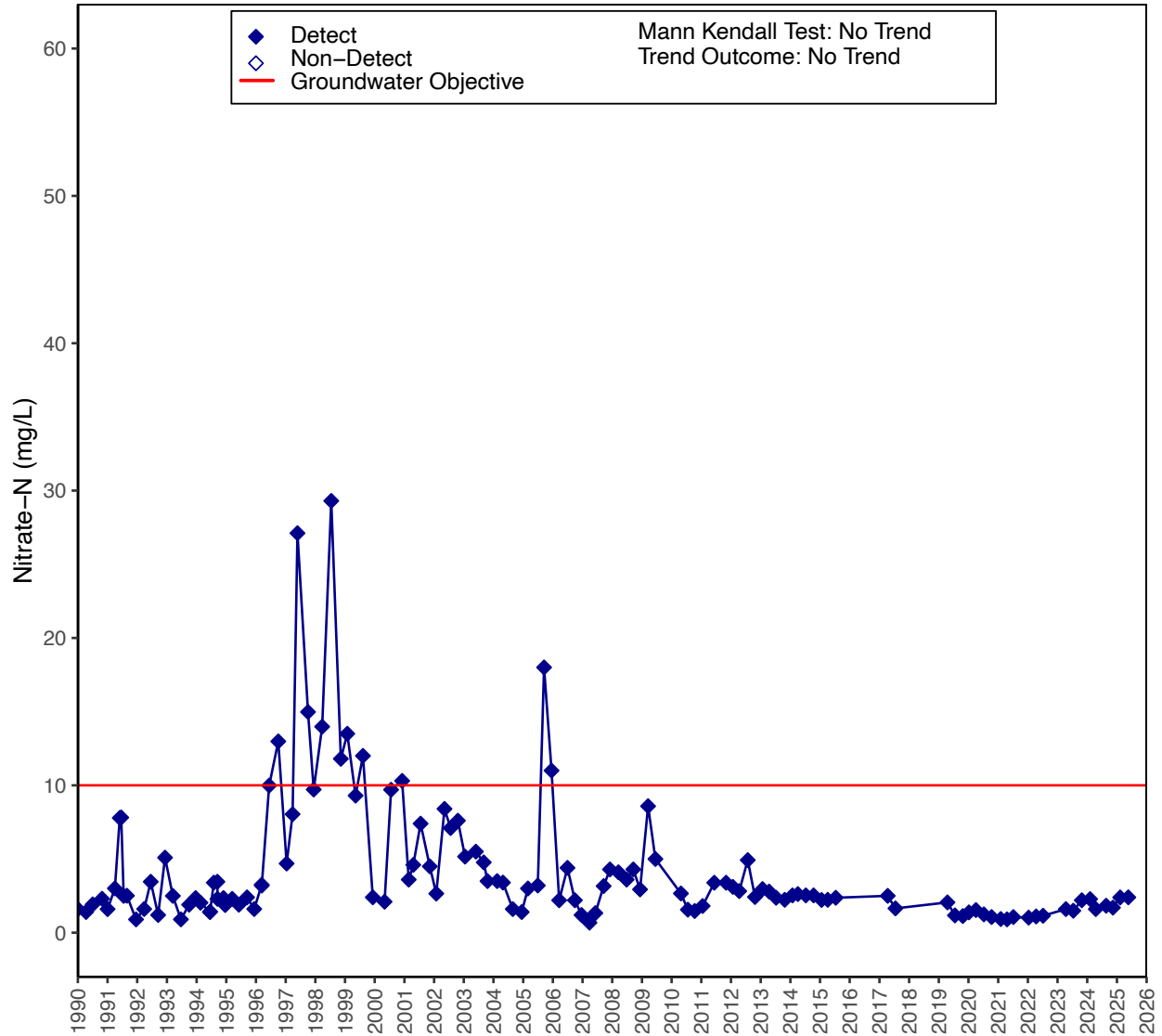
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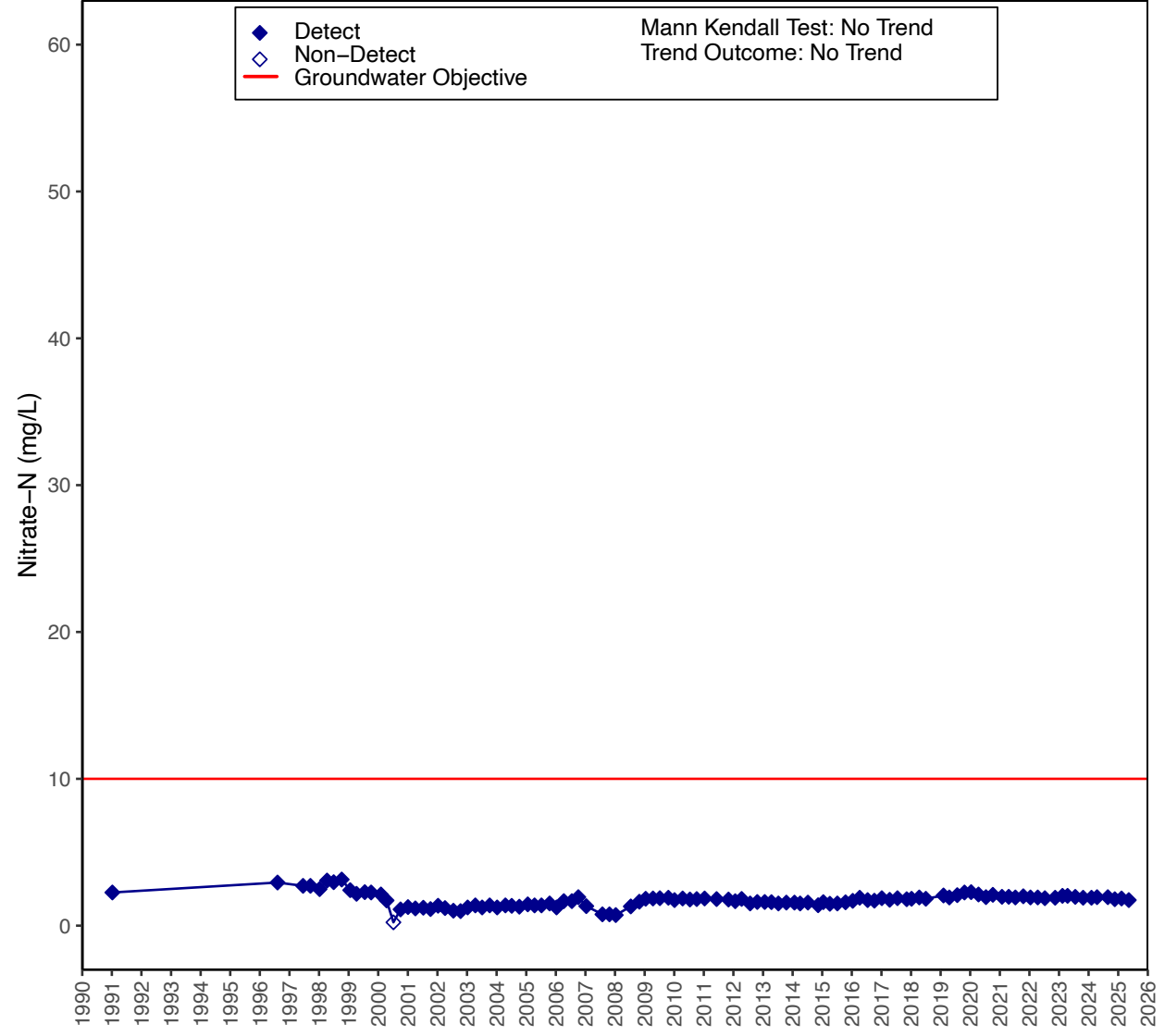
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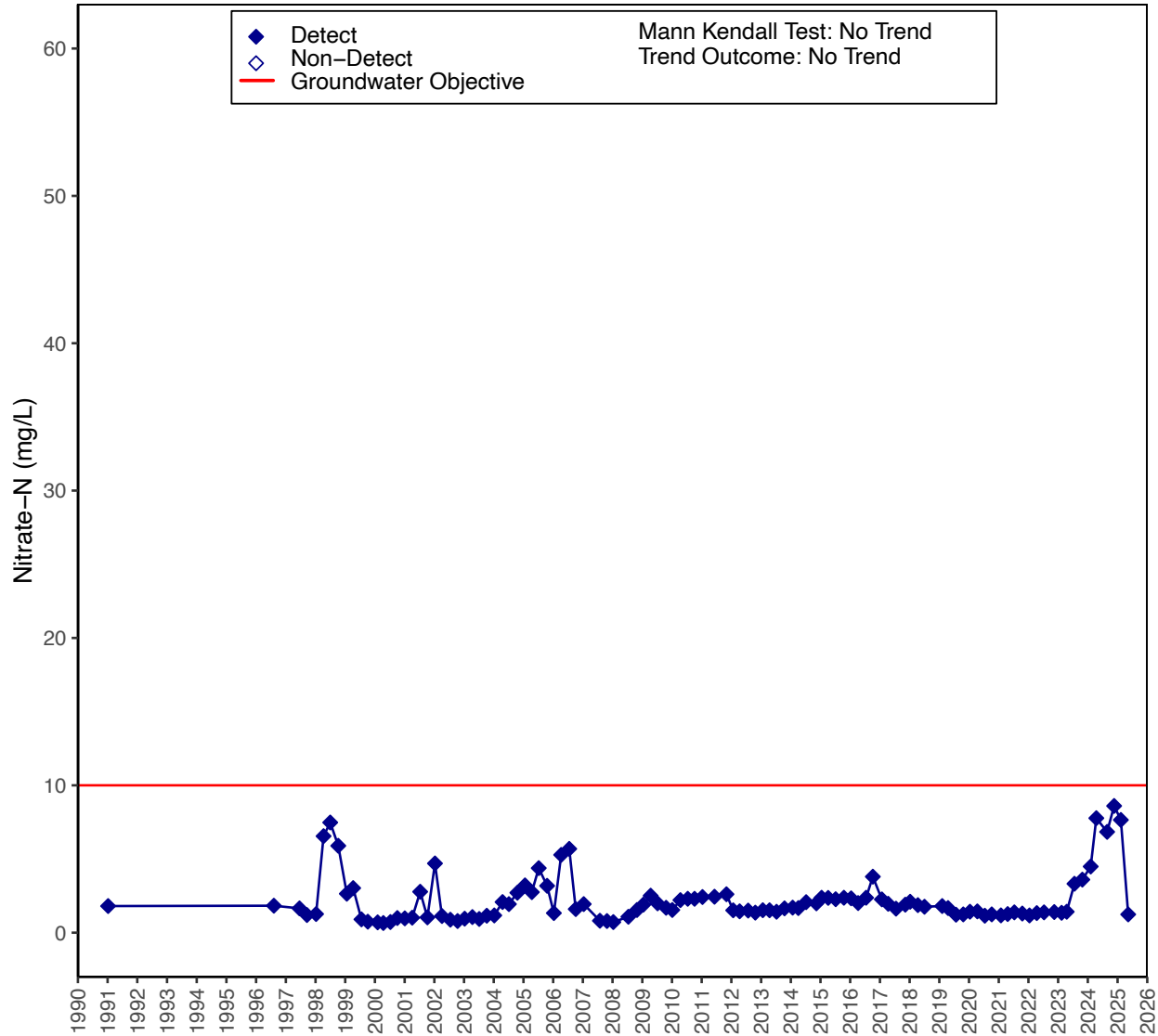
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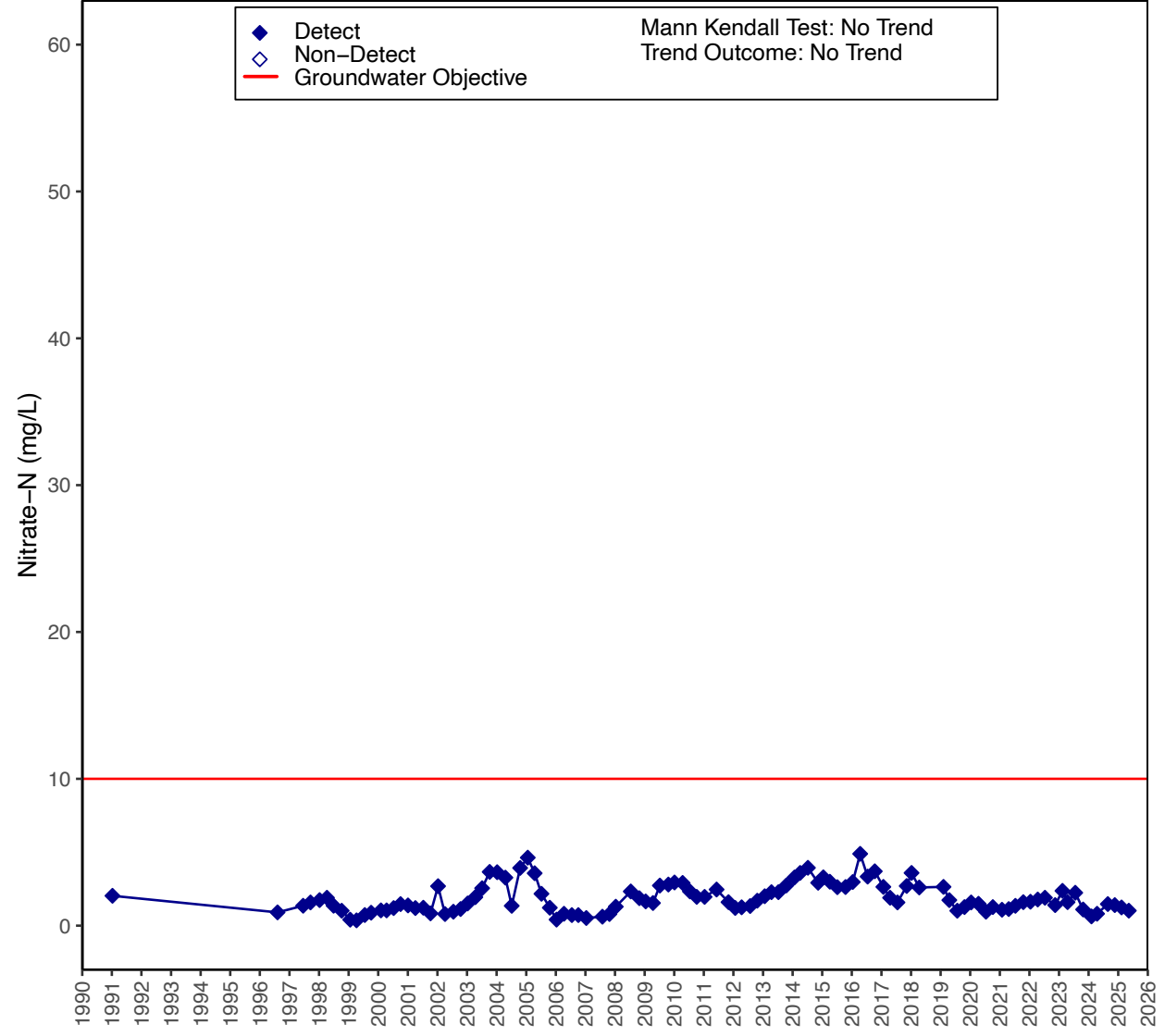
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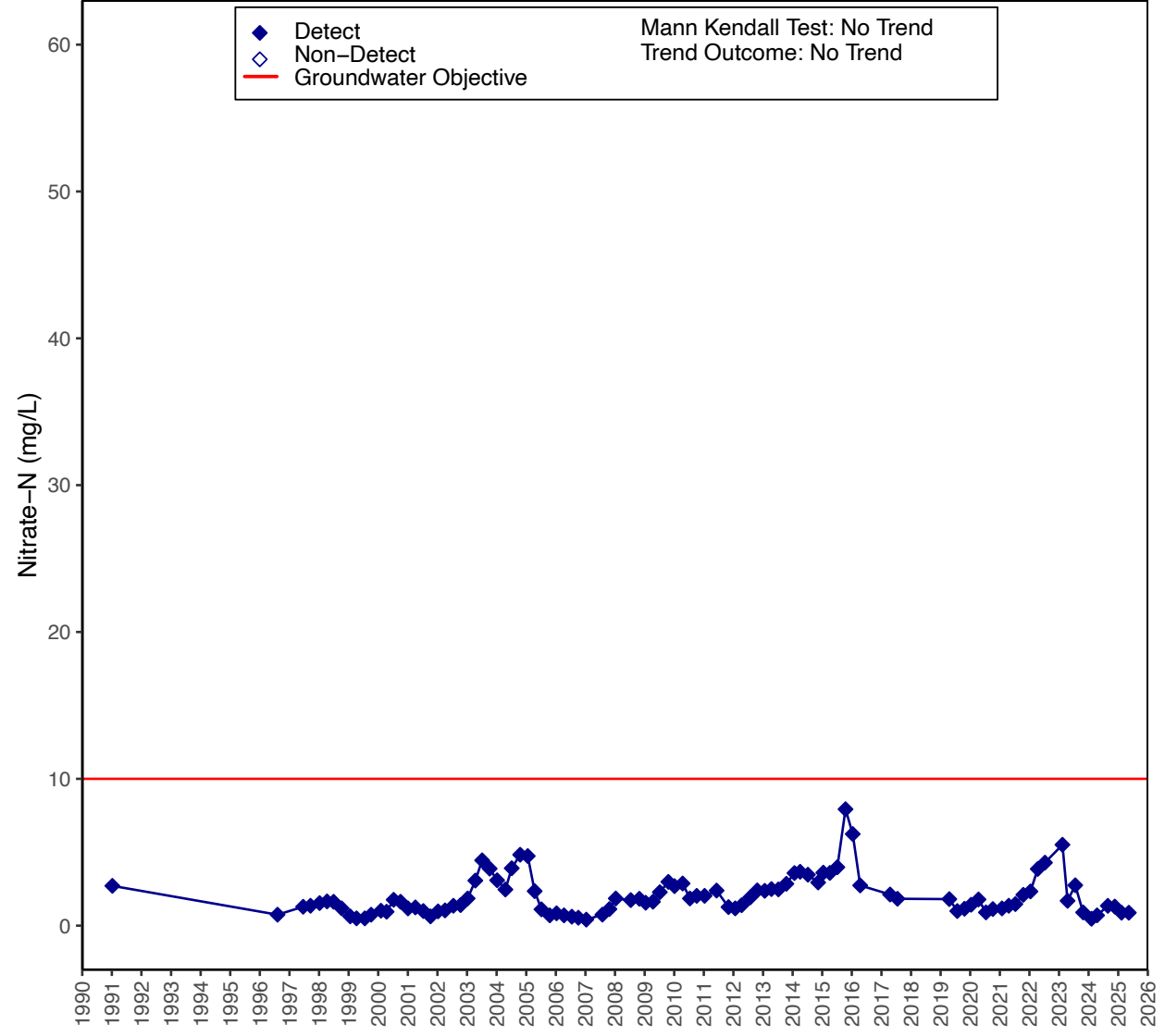
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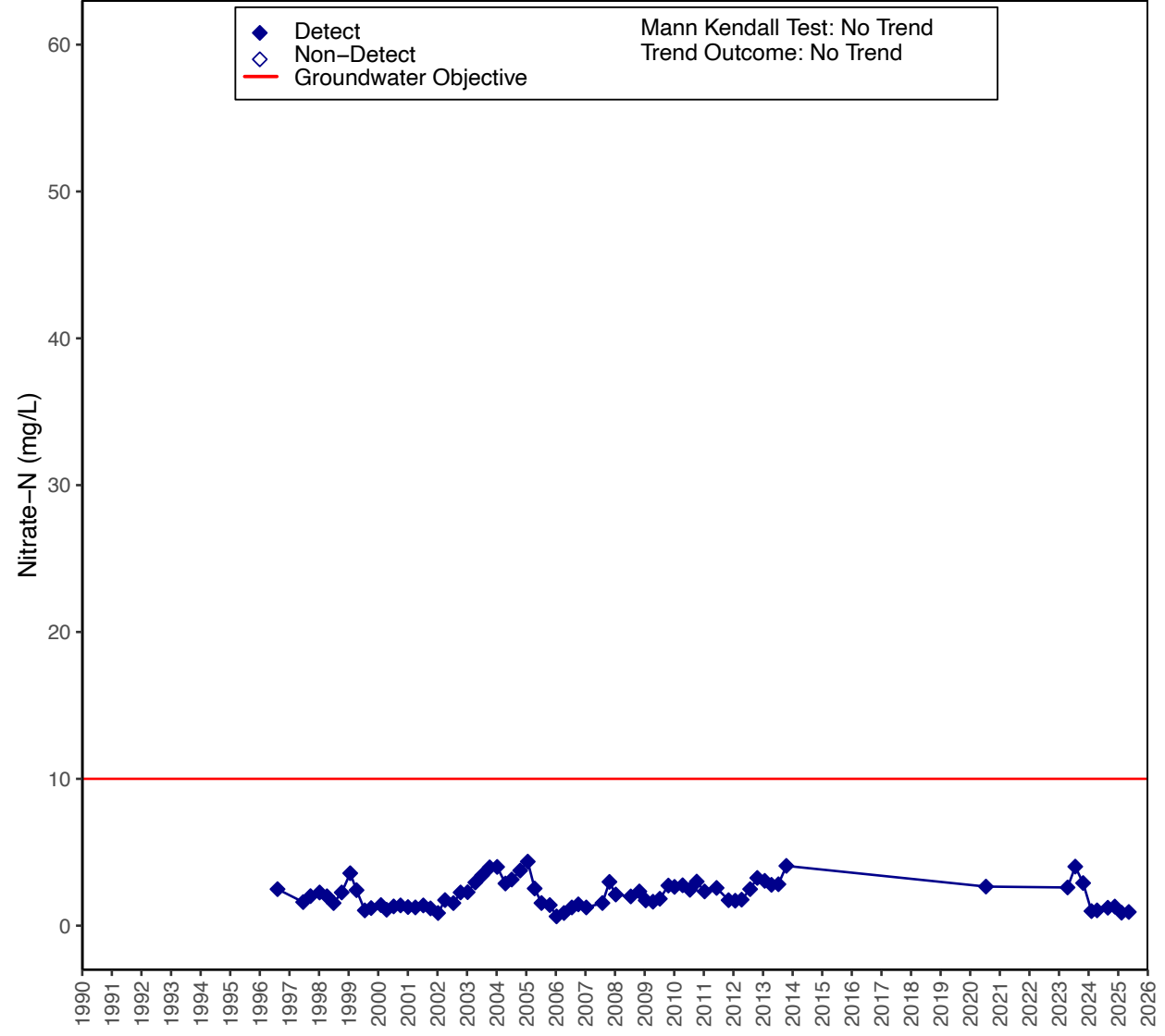
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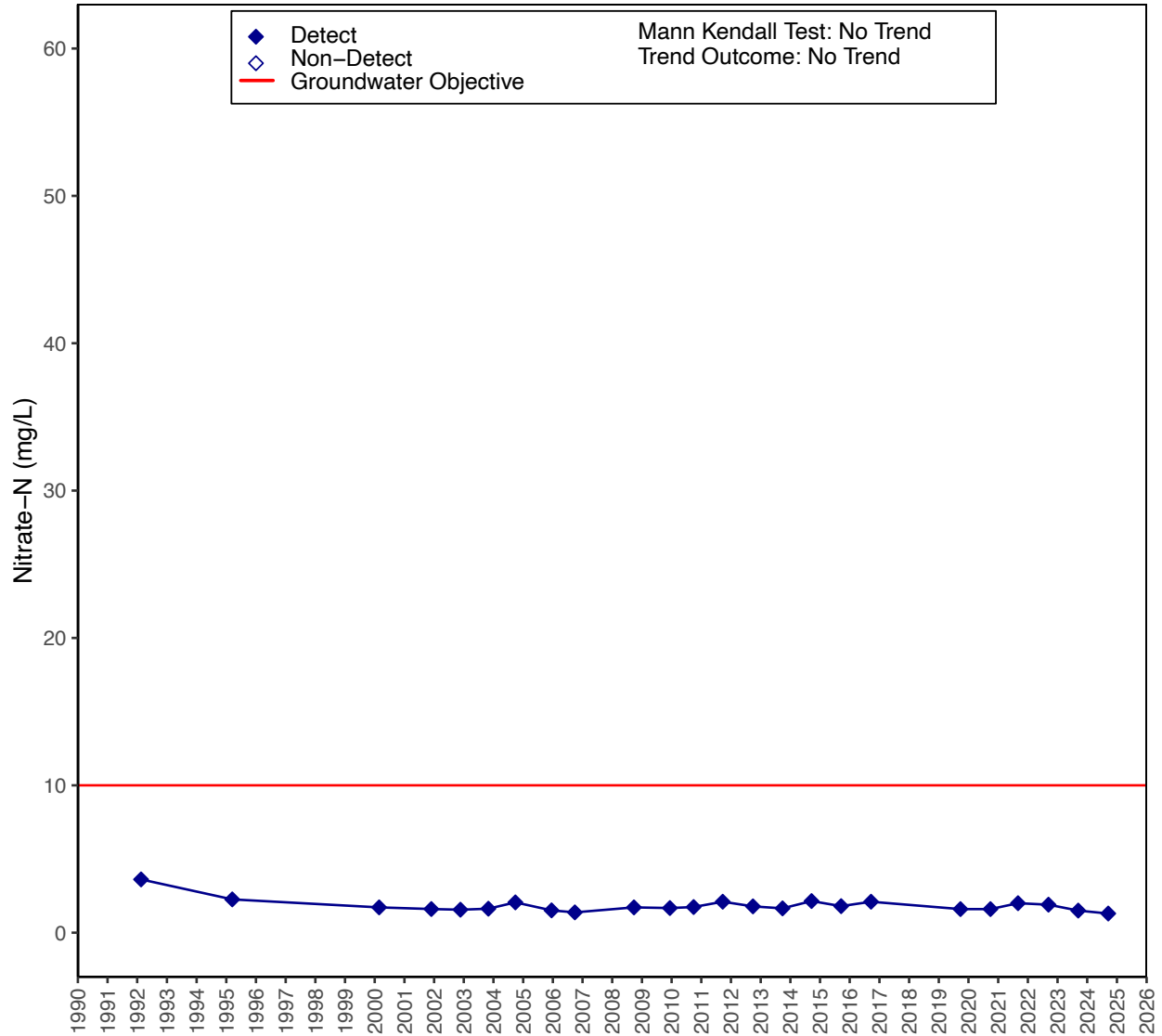
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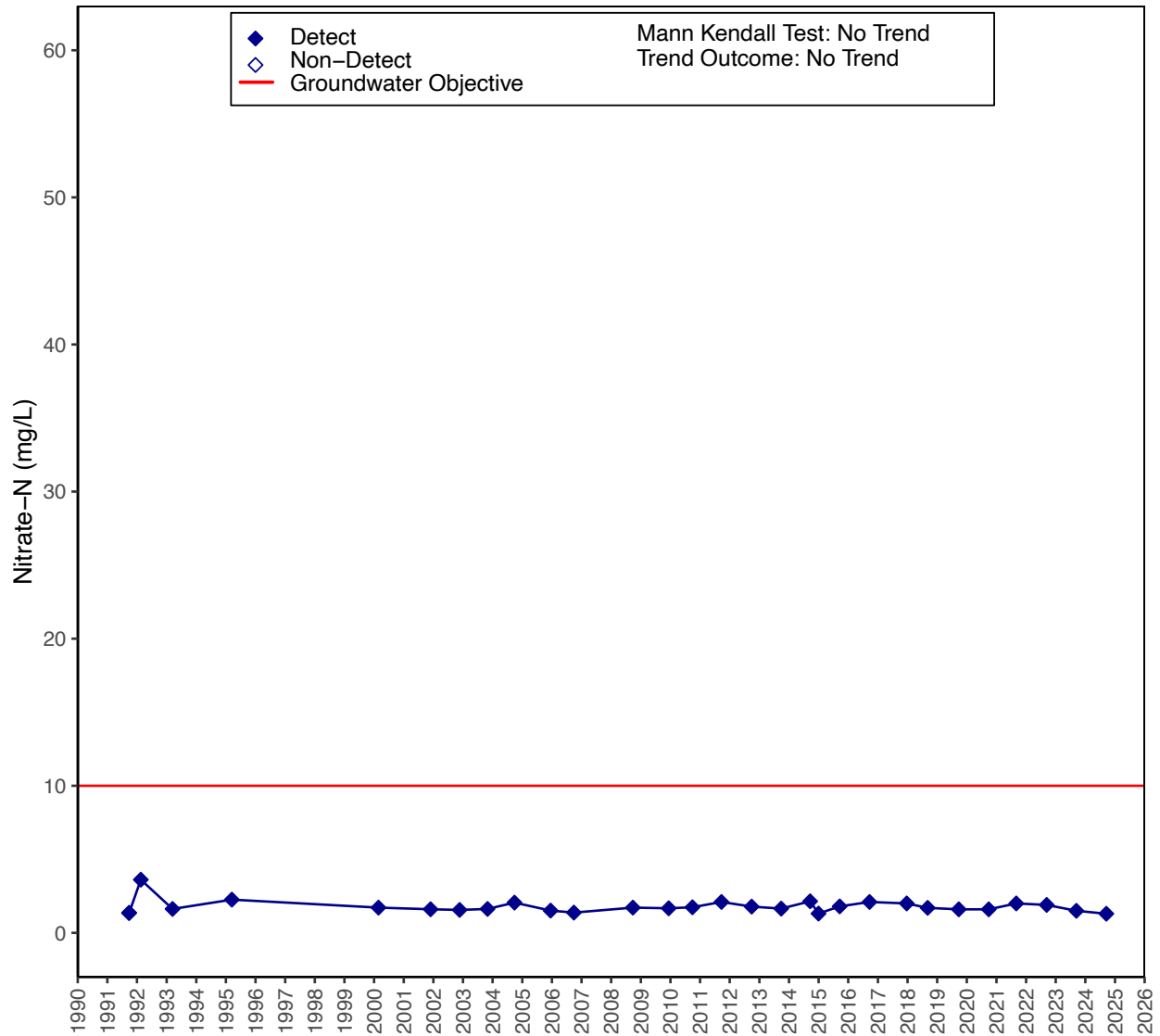
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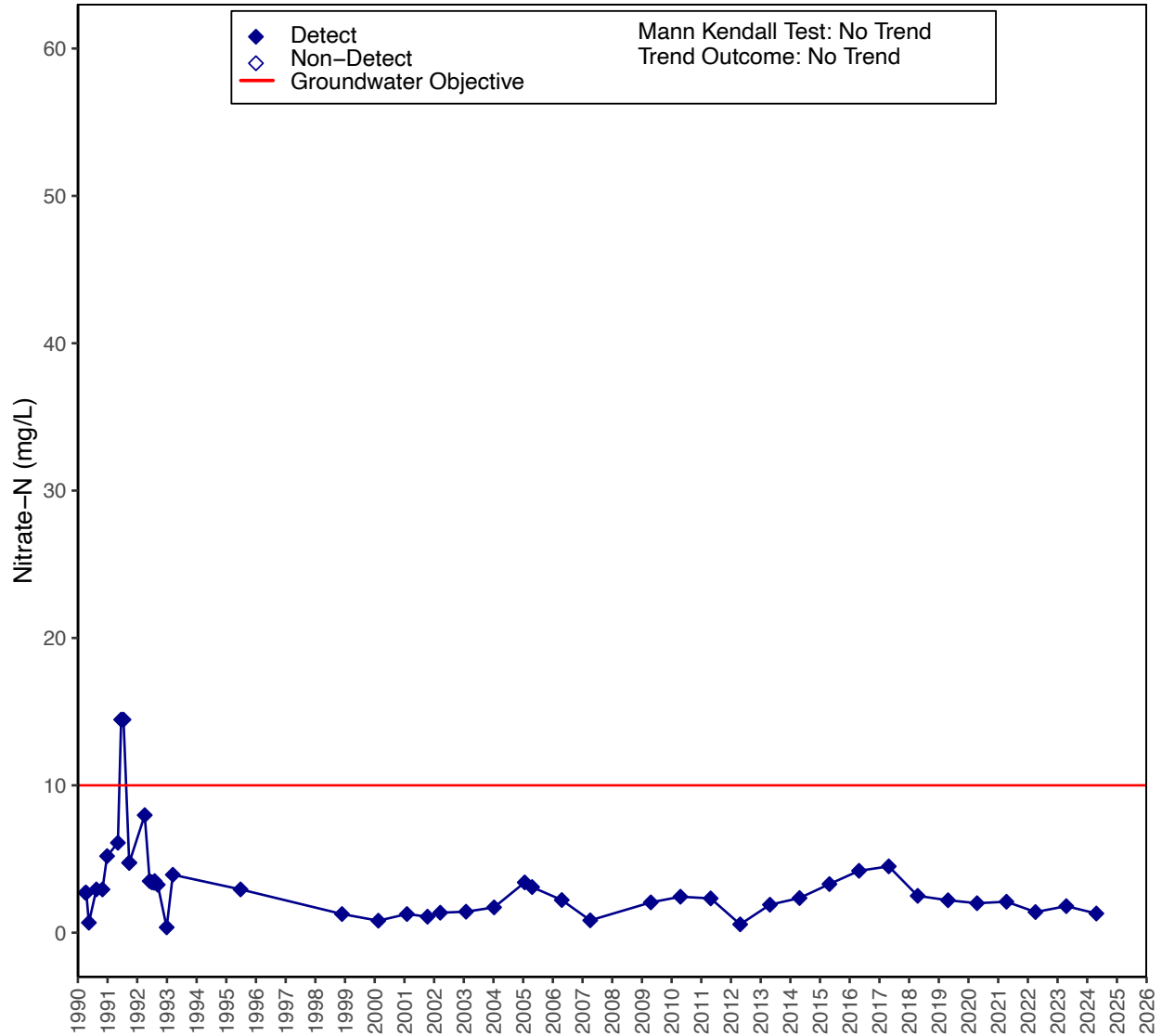
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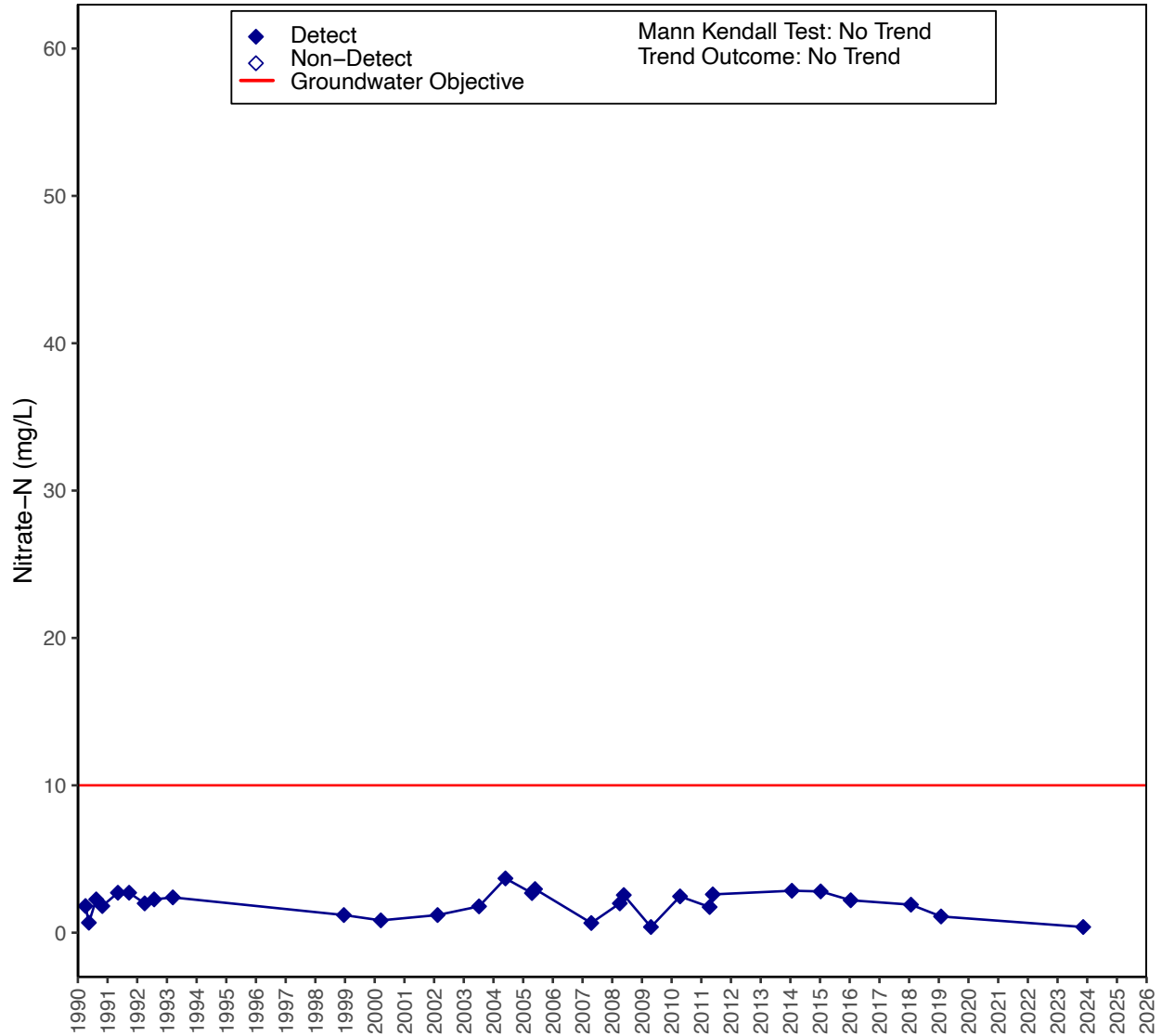
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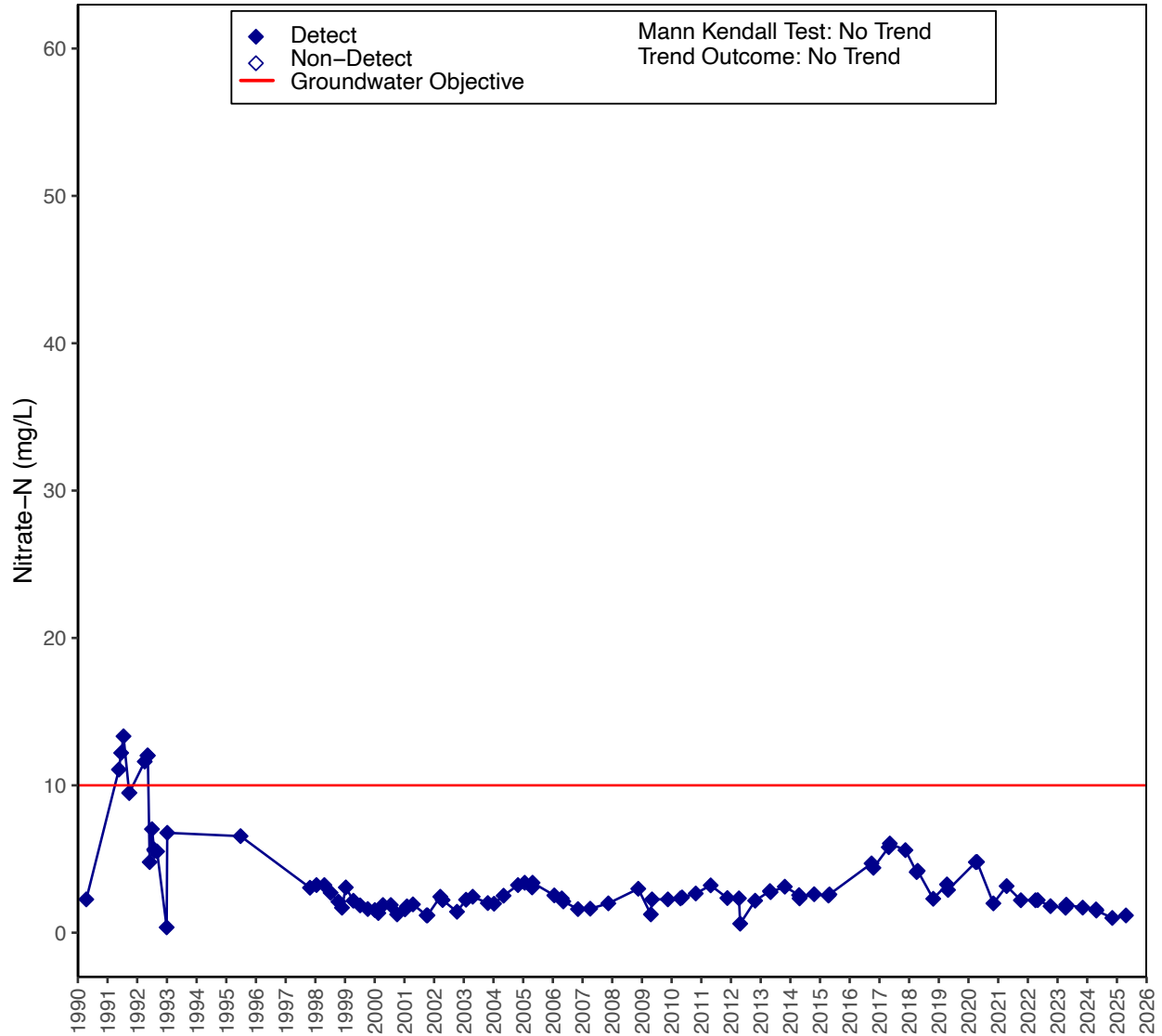
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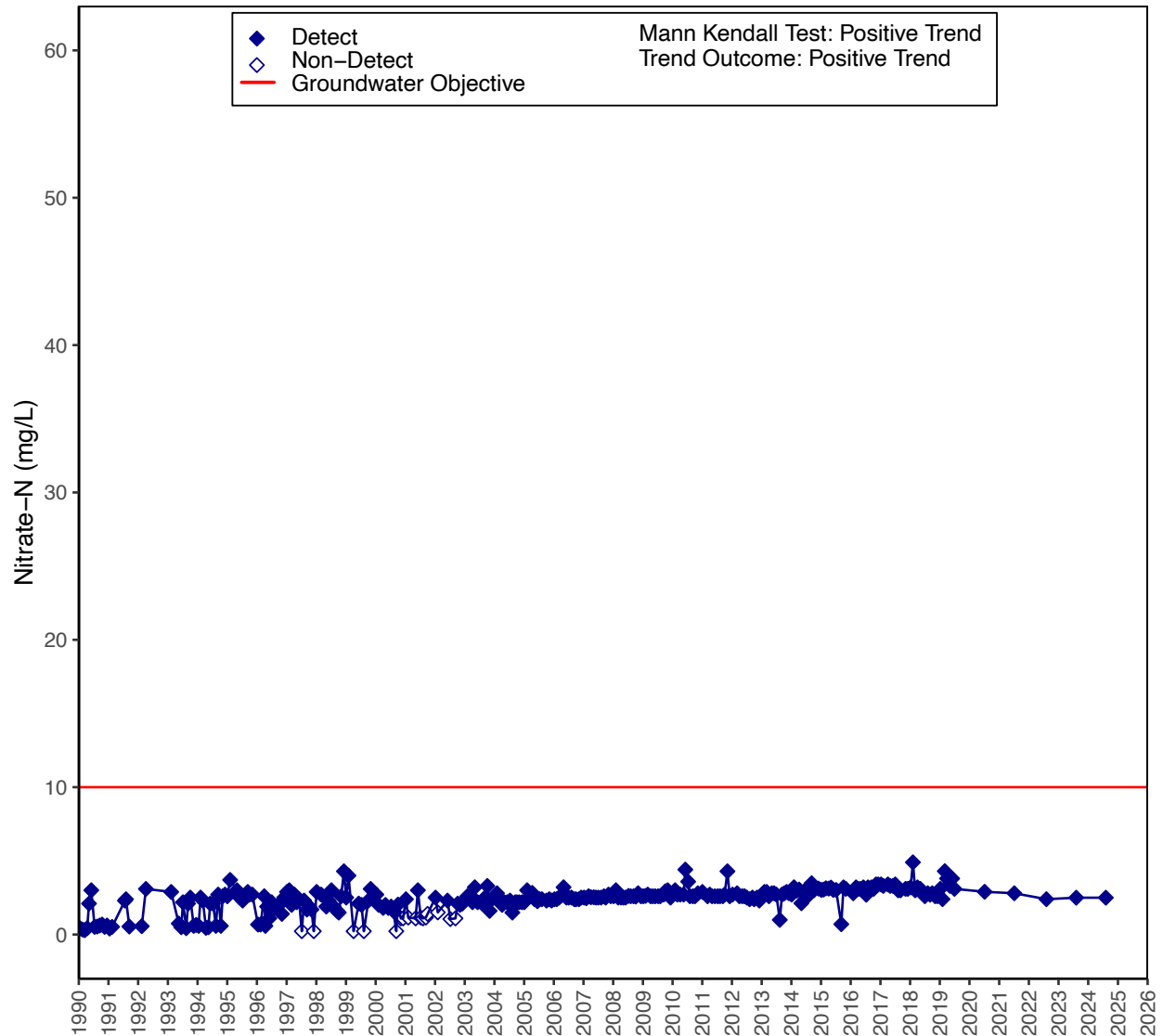
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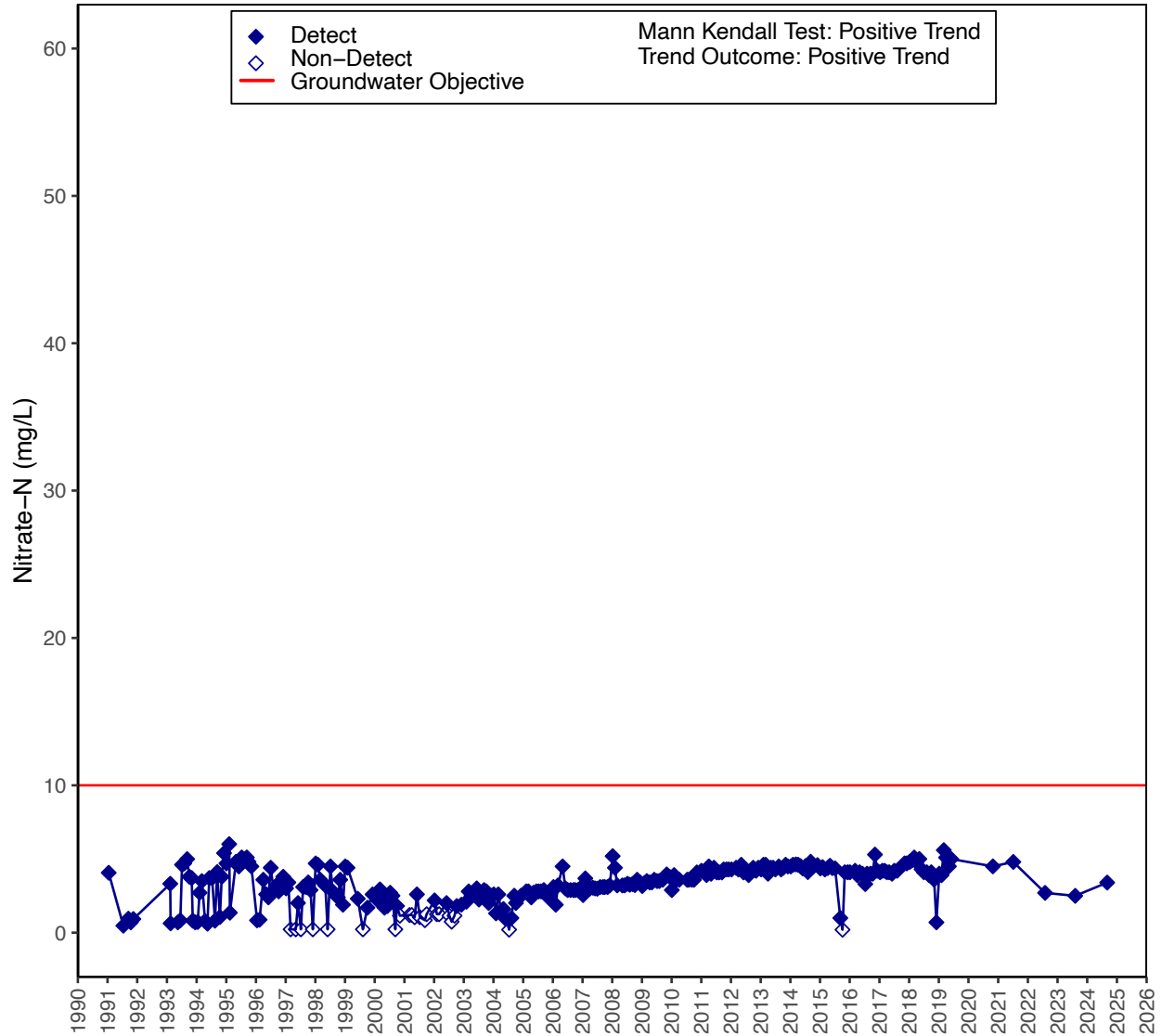
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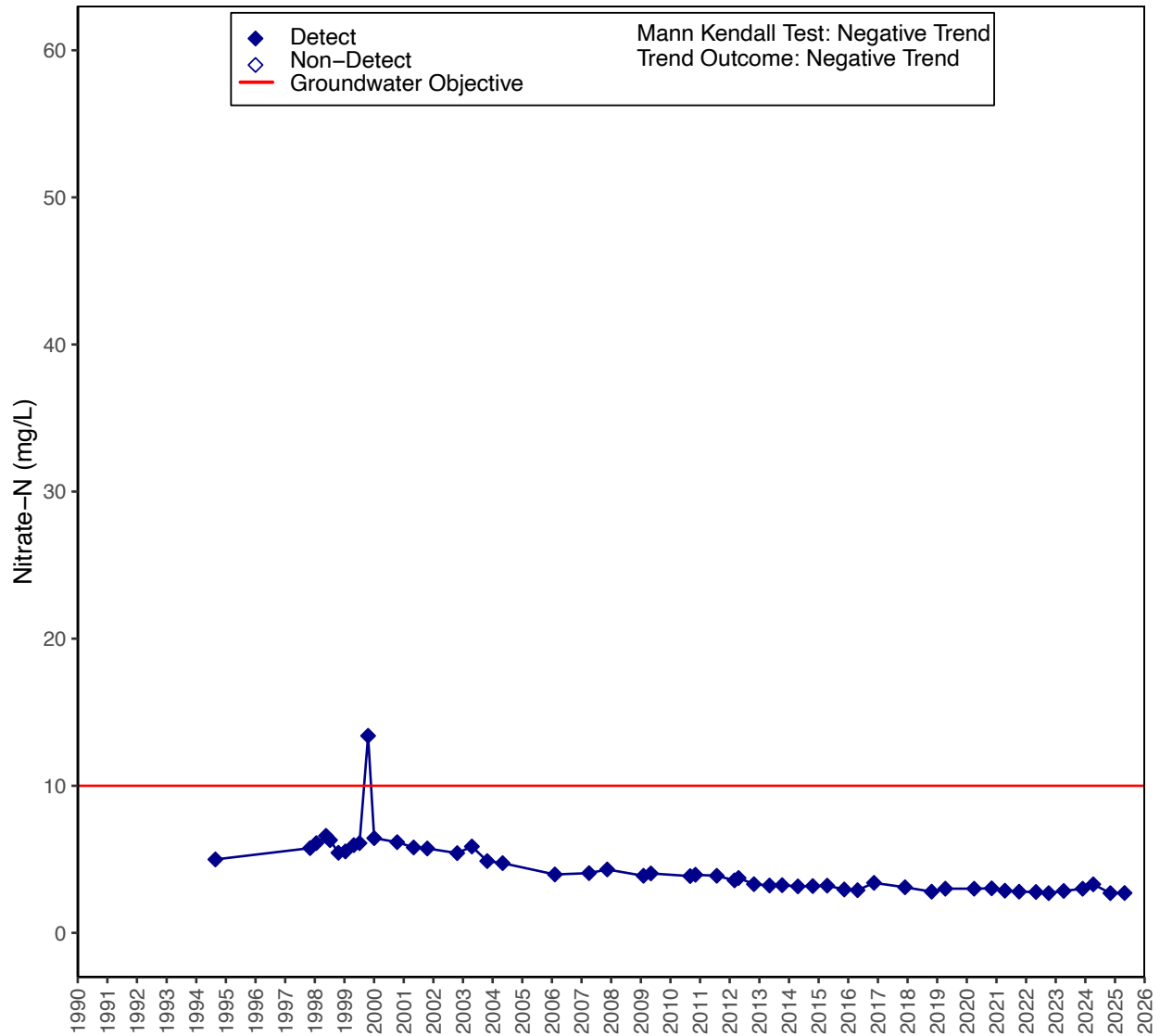
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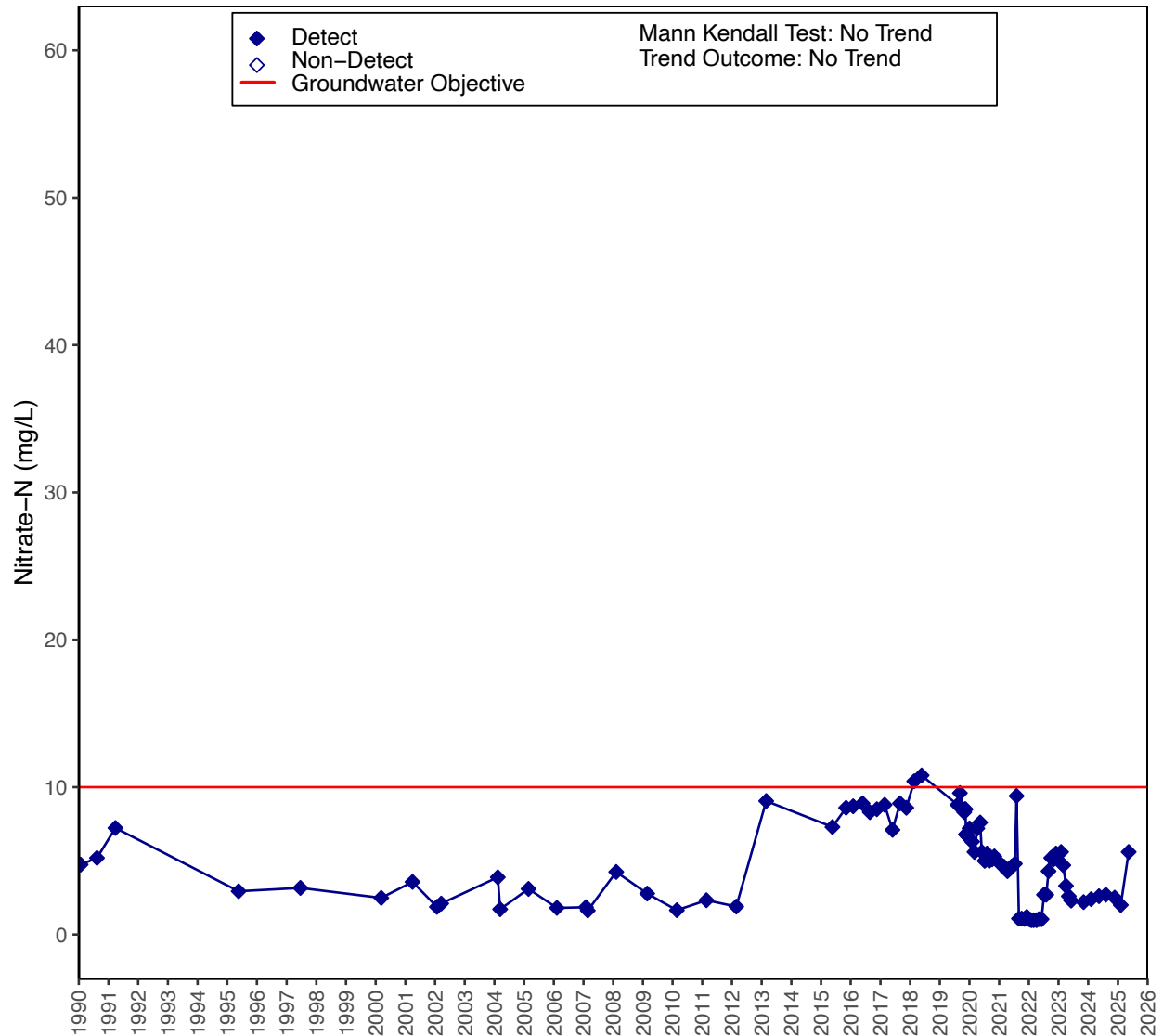
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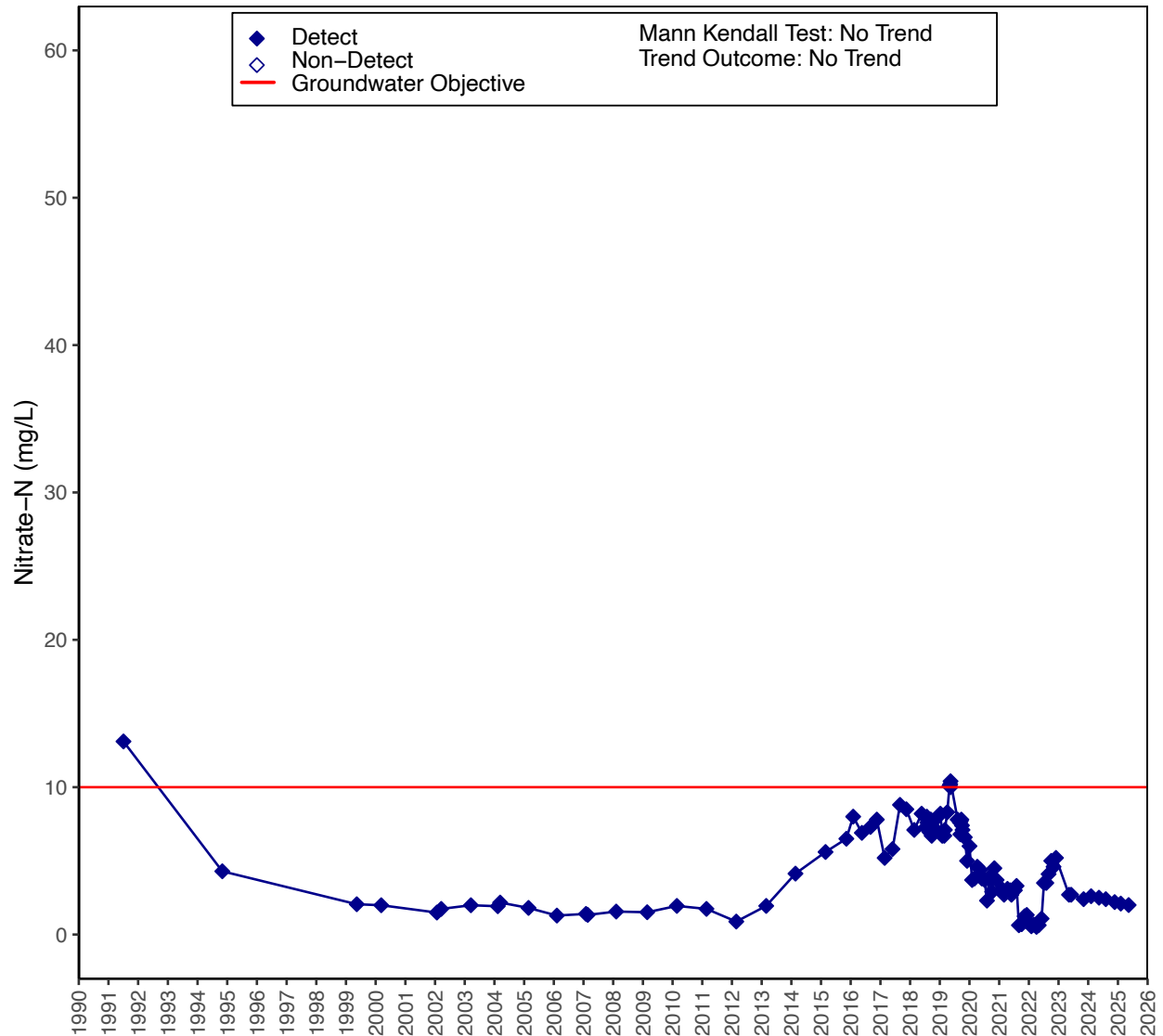
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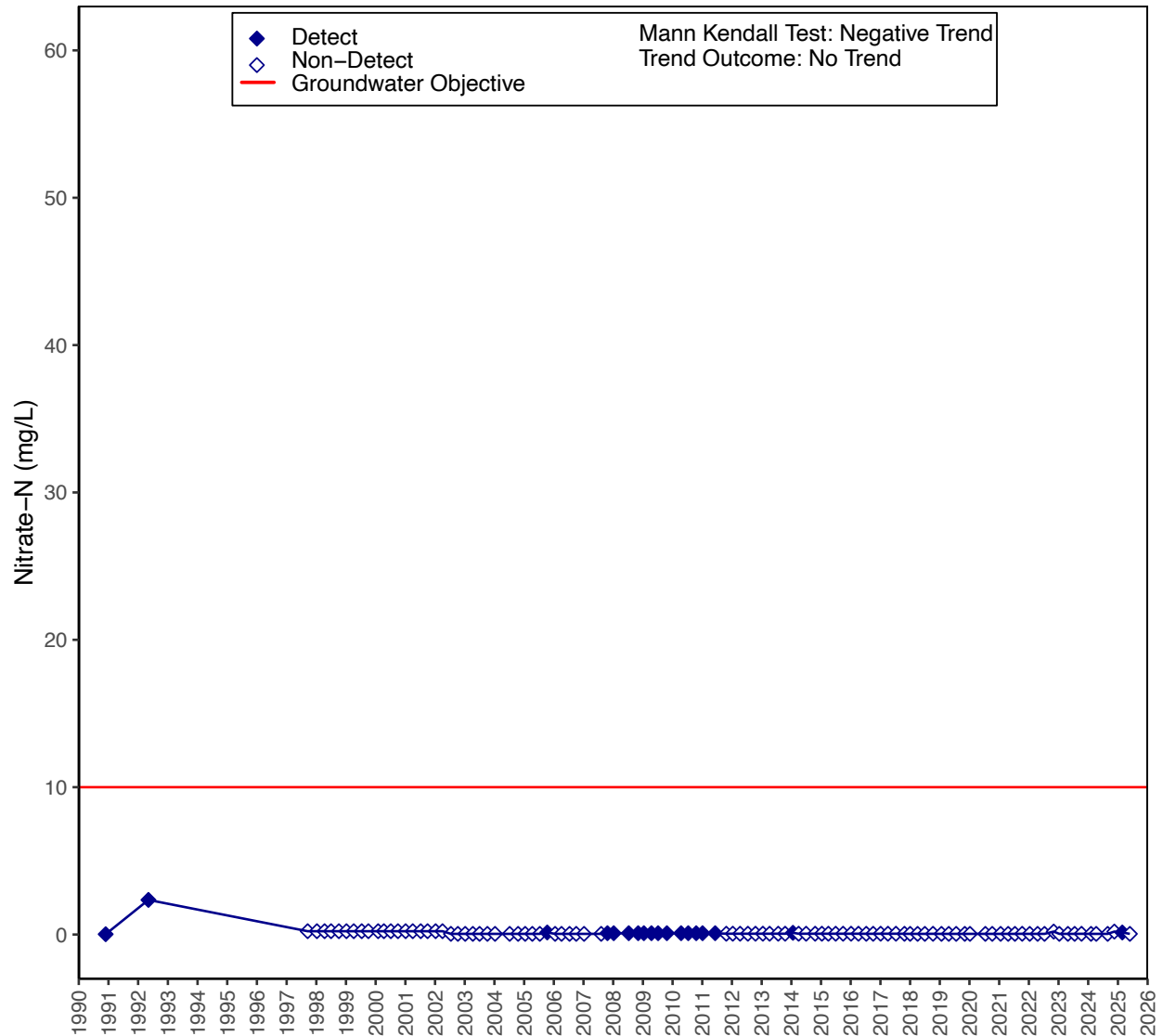
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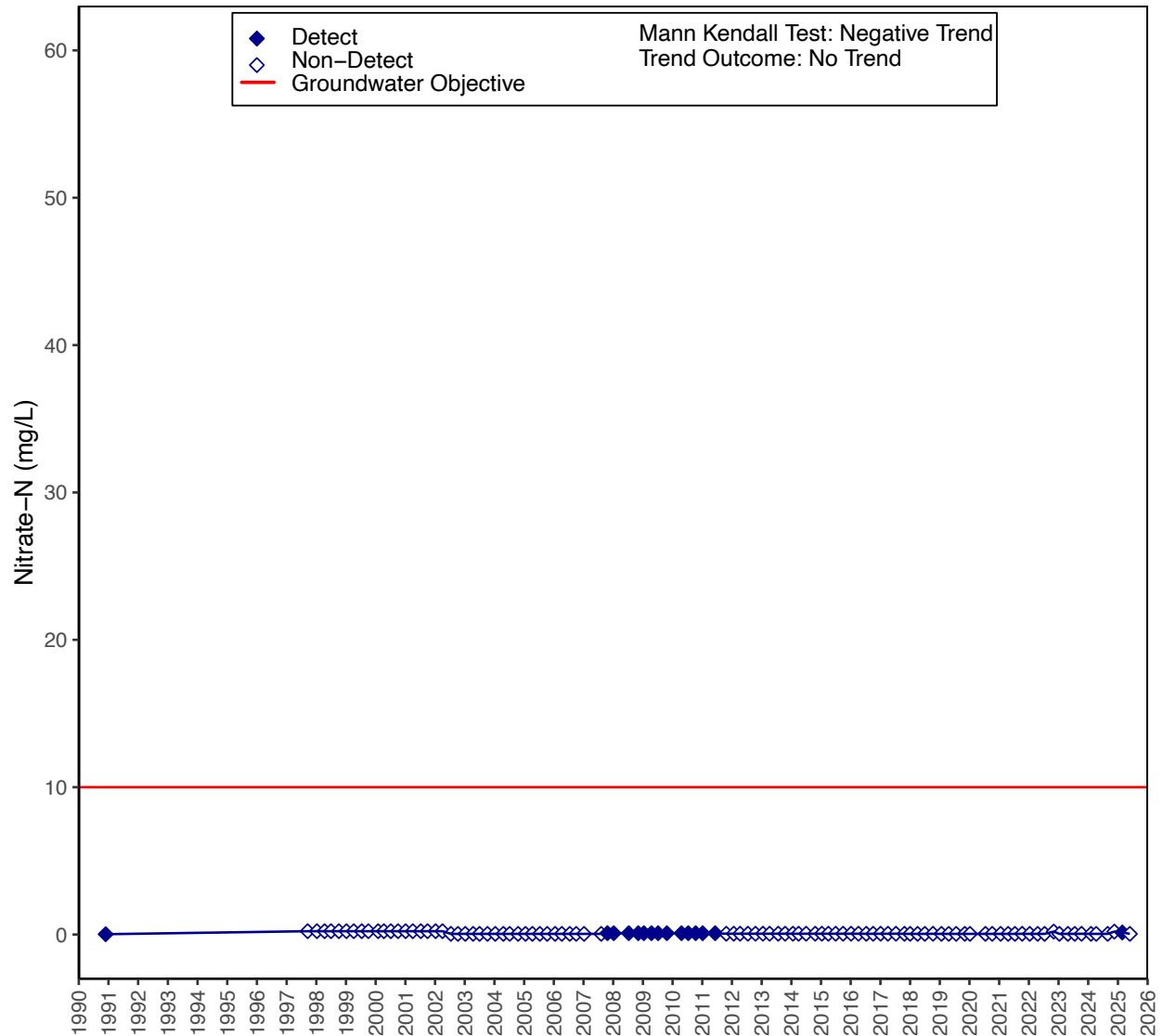
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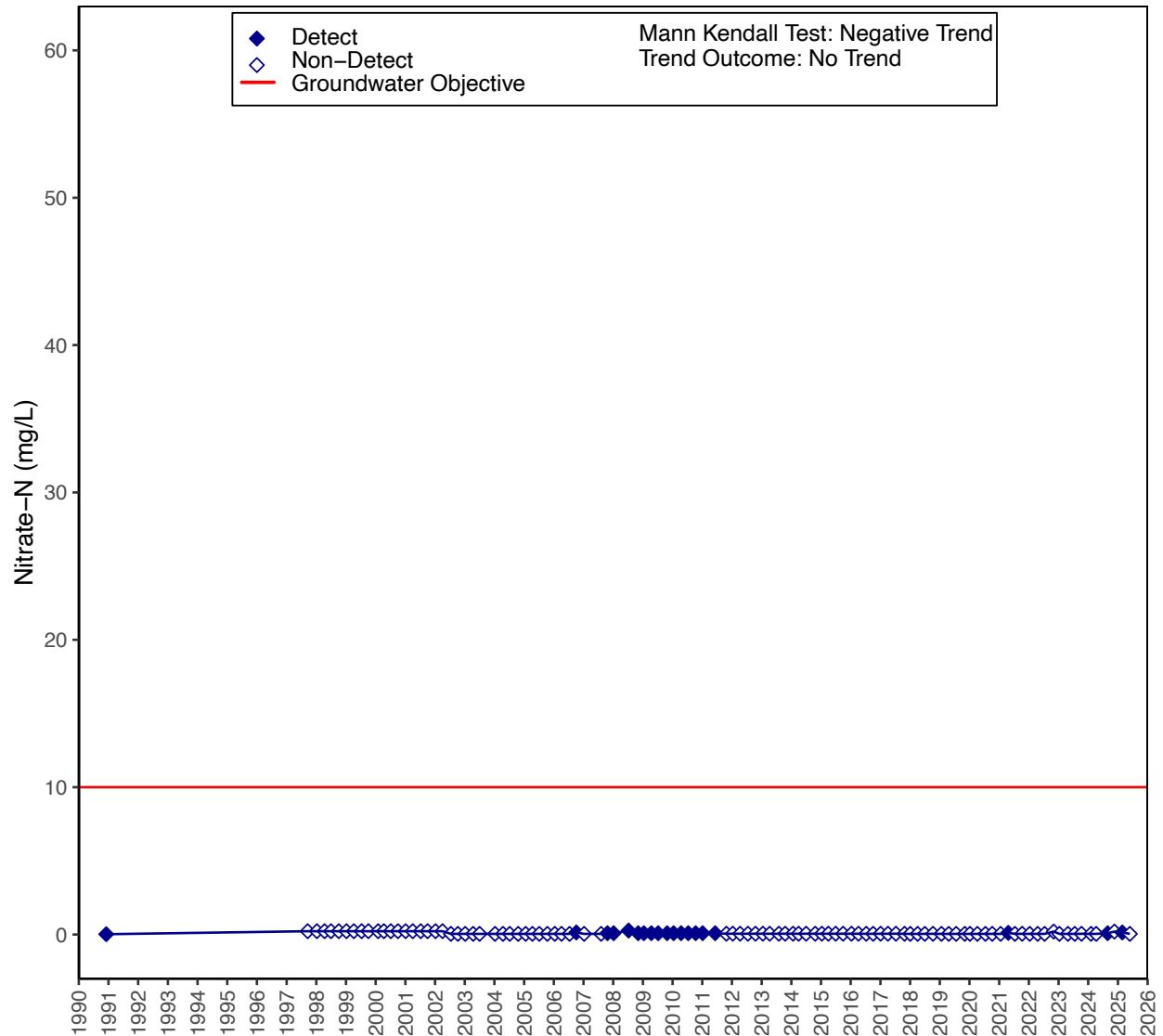
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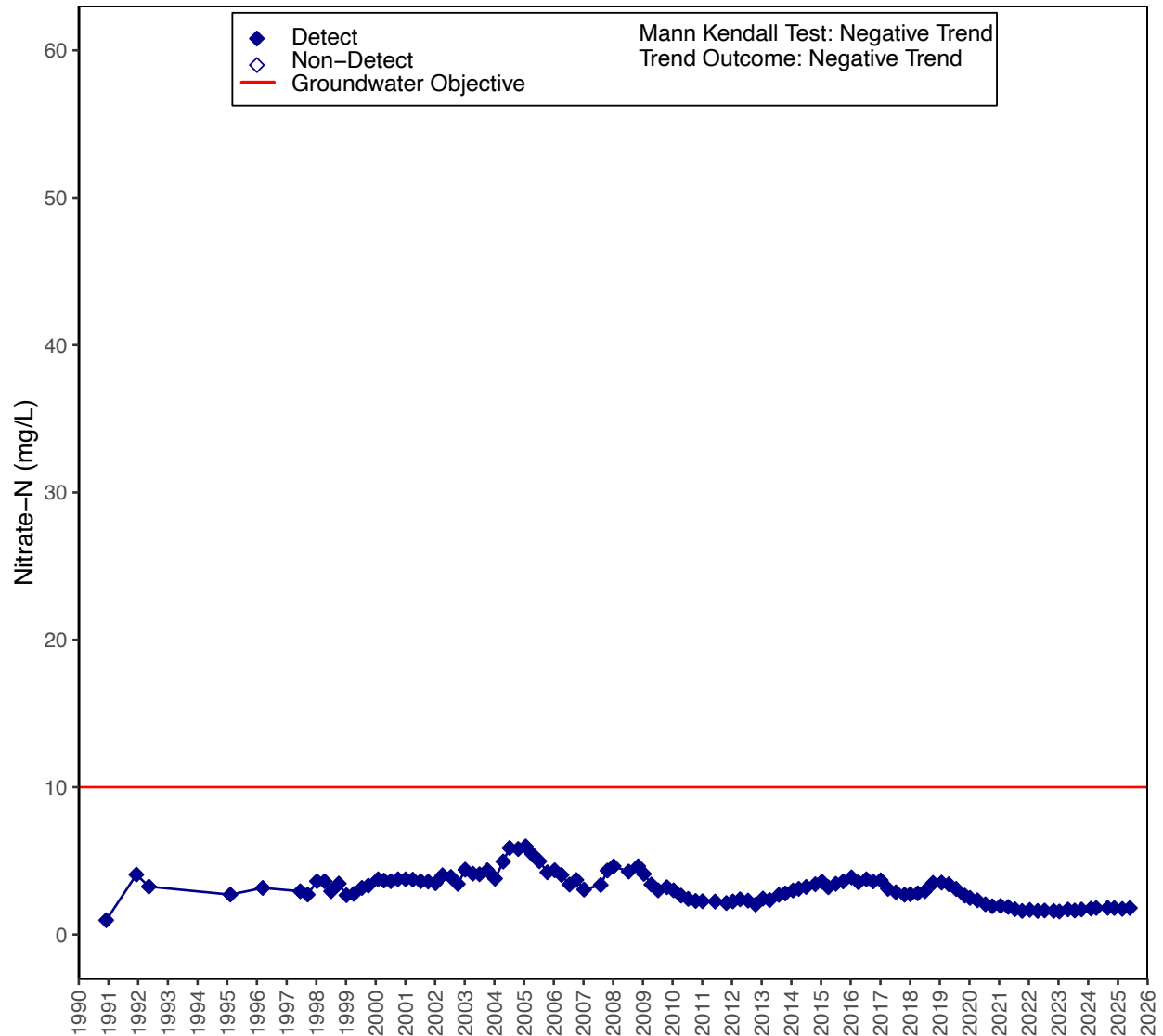
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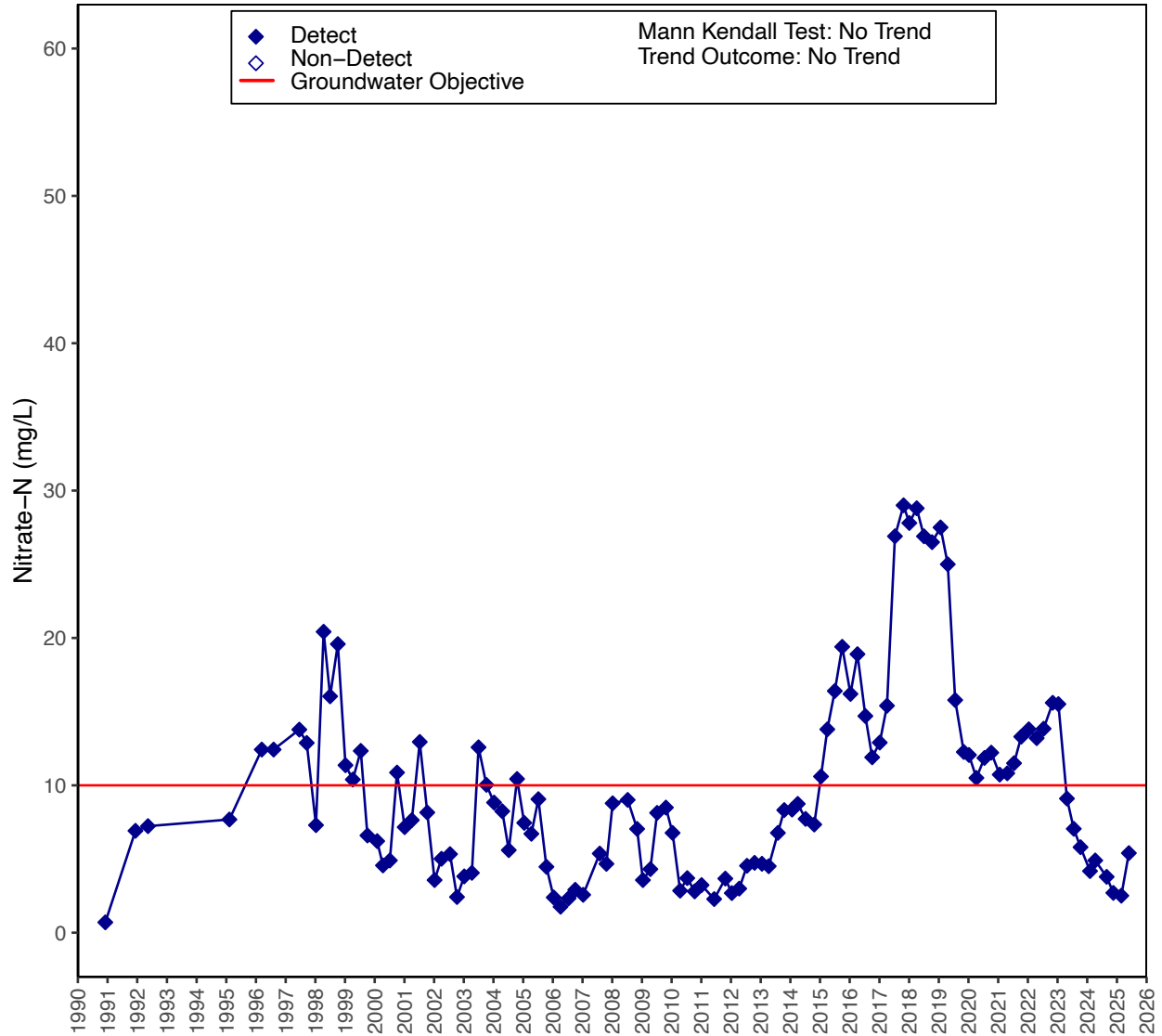
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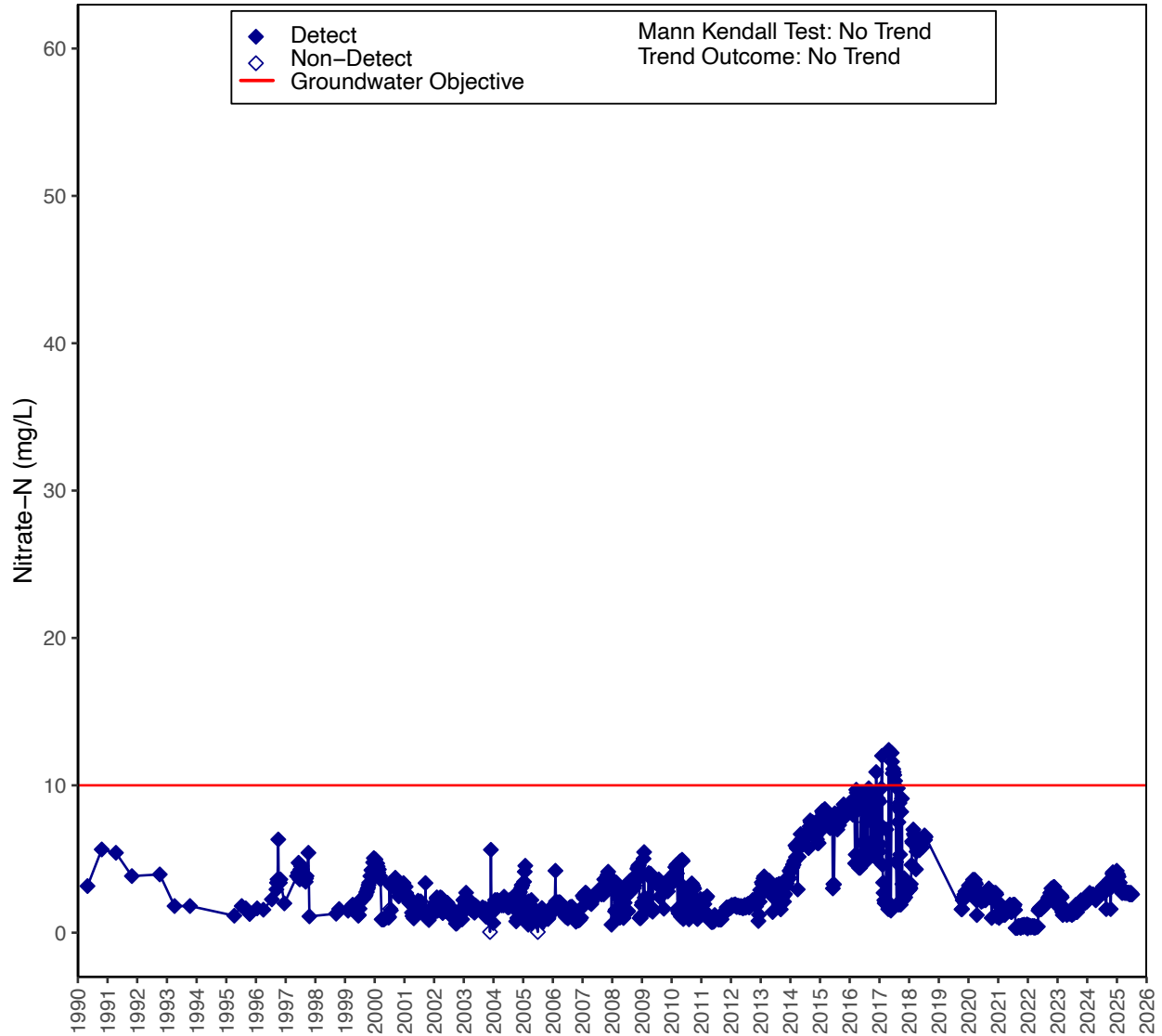
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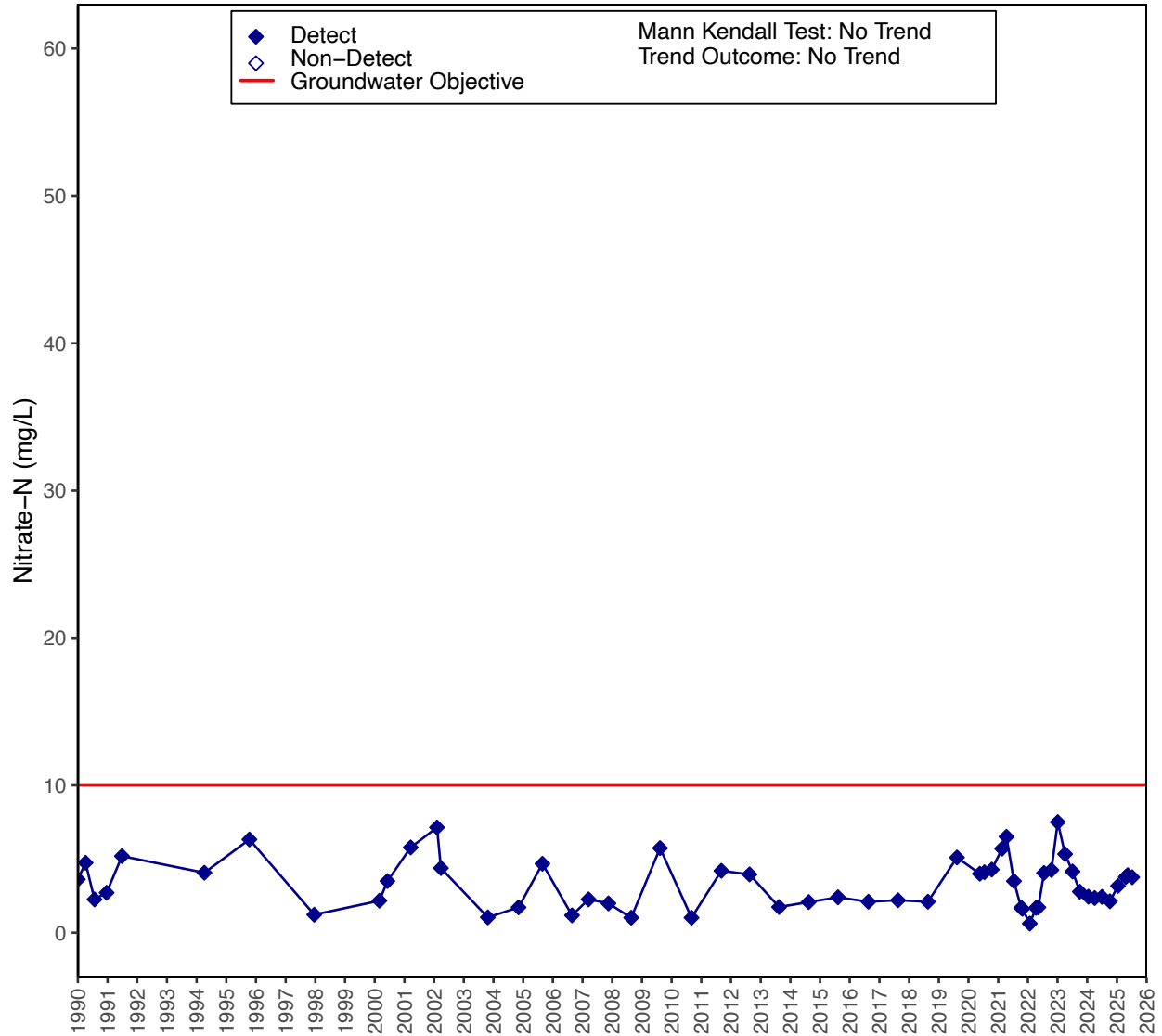
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02N22W23B07S_B07S**



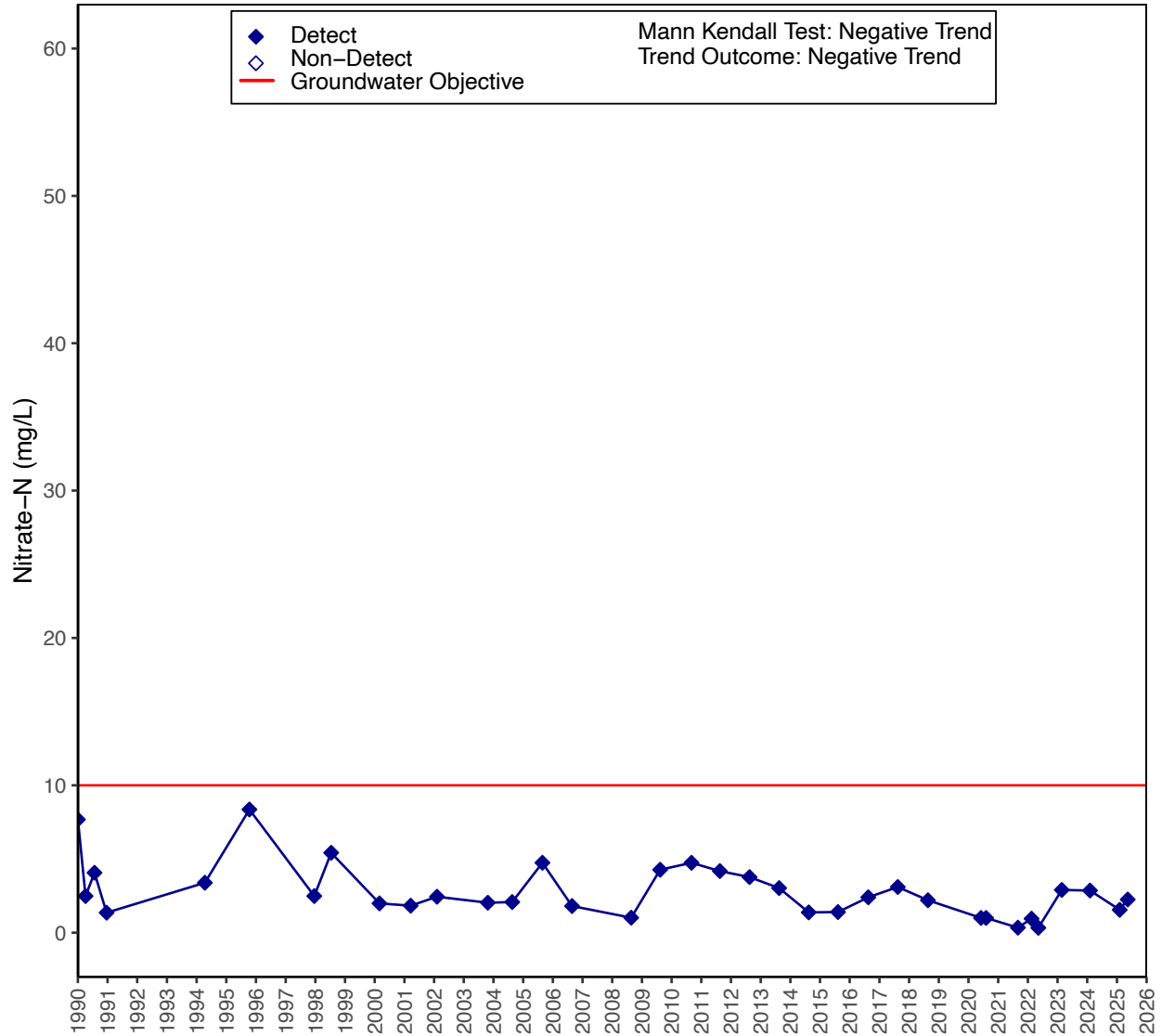
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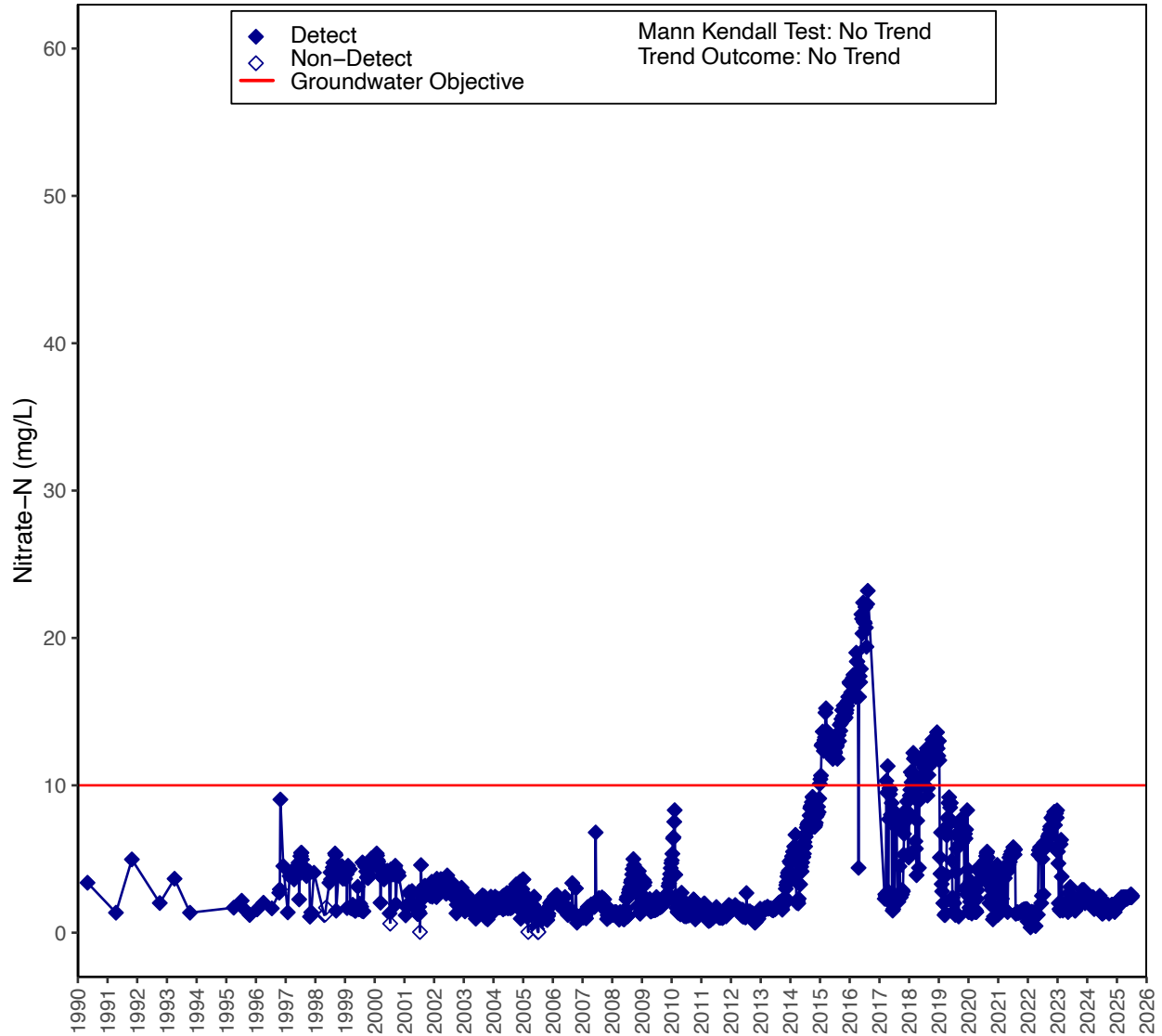
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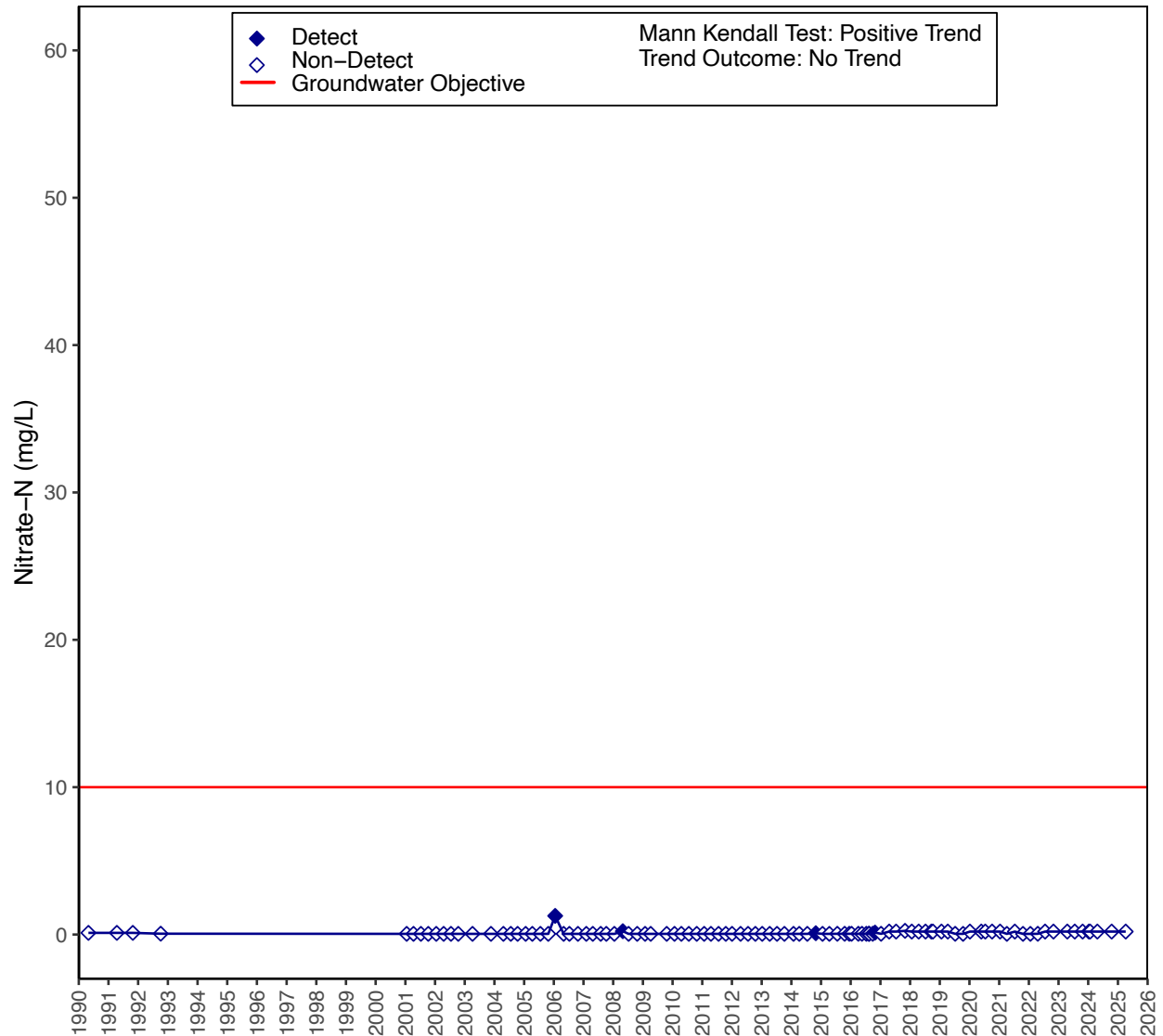
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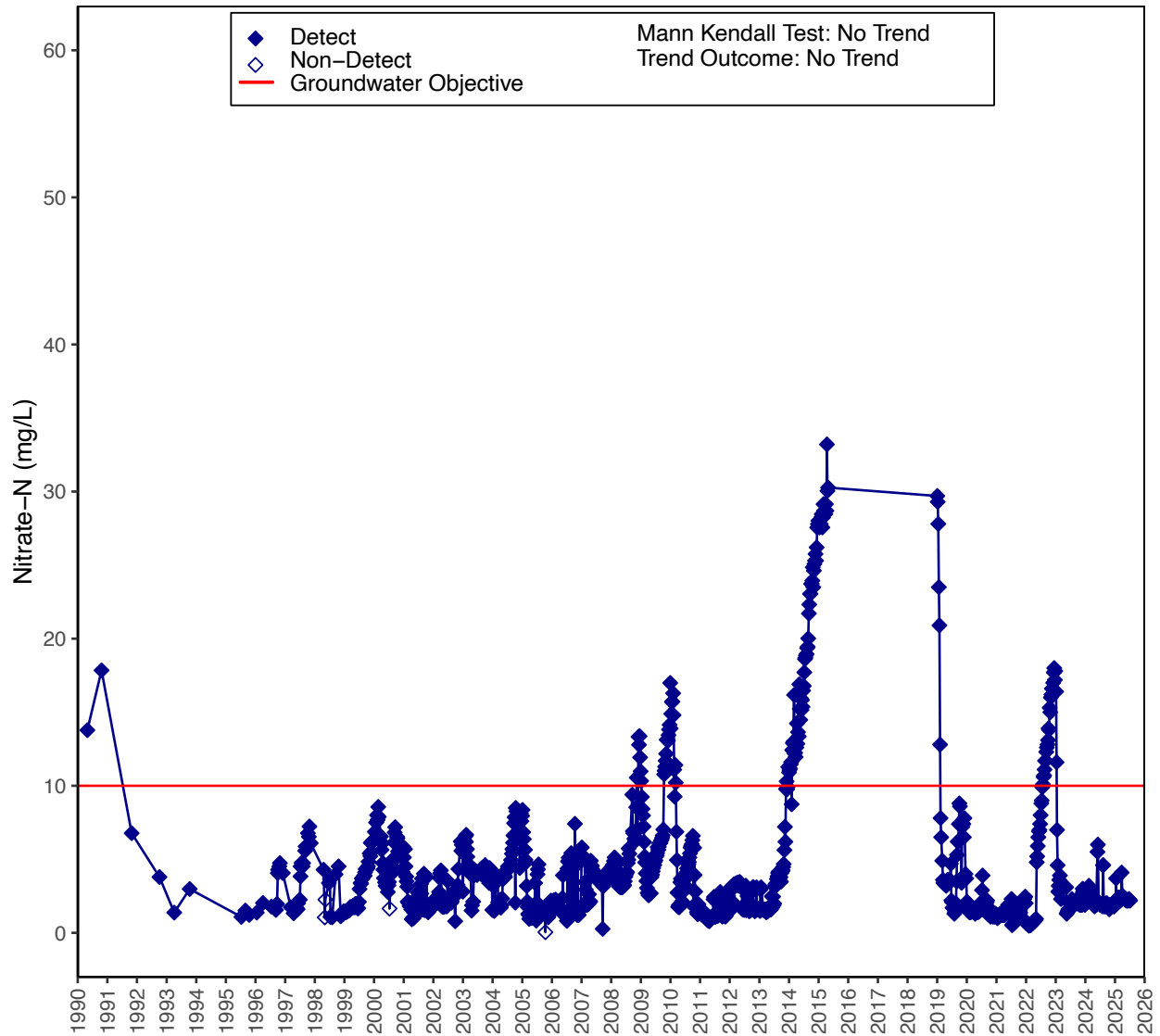
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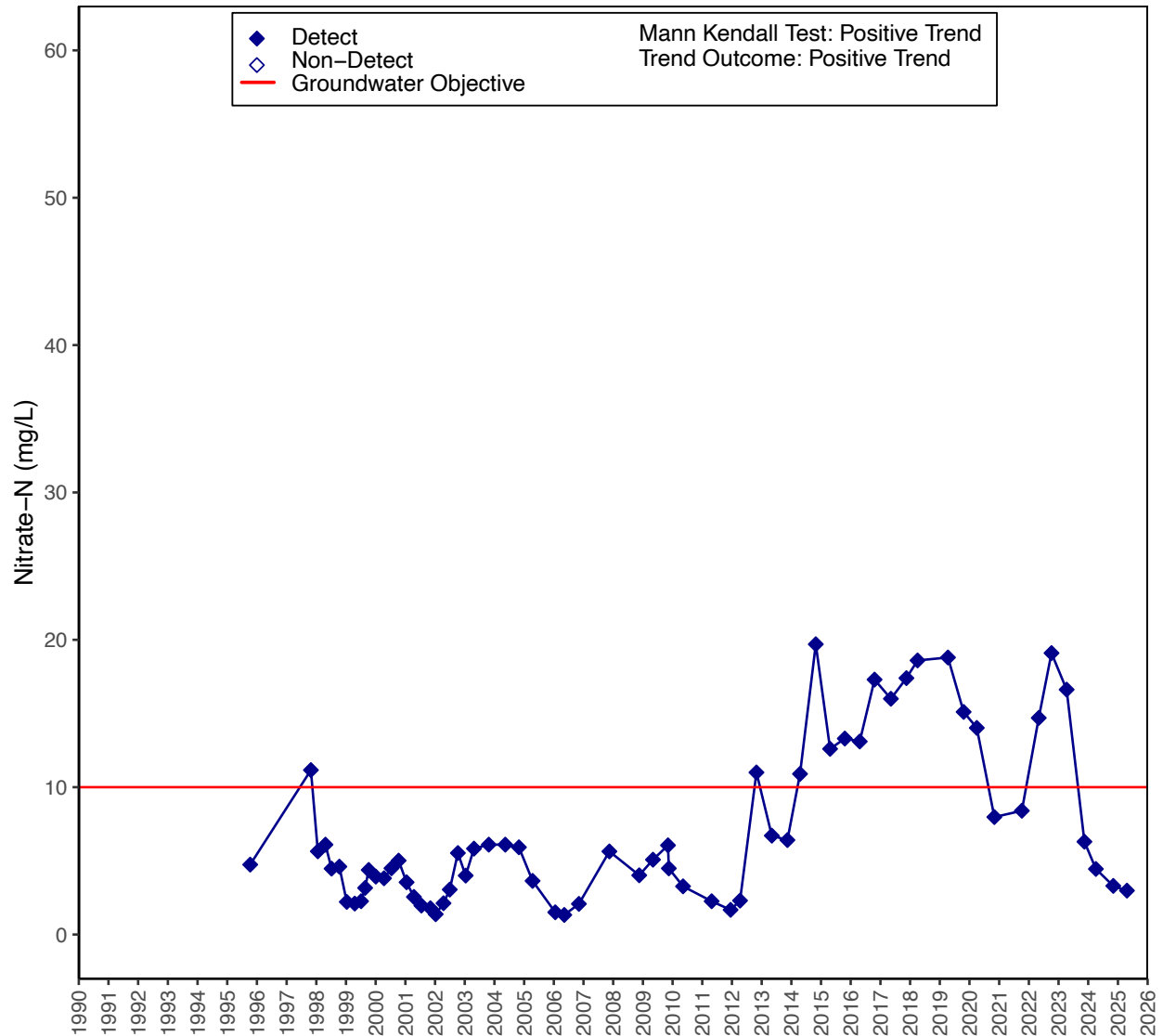
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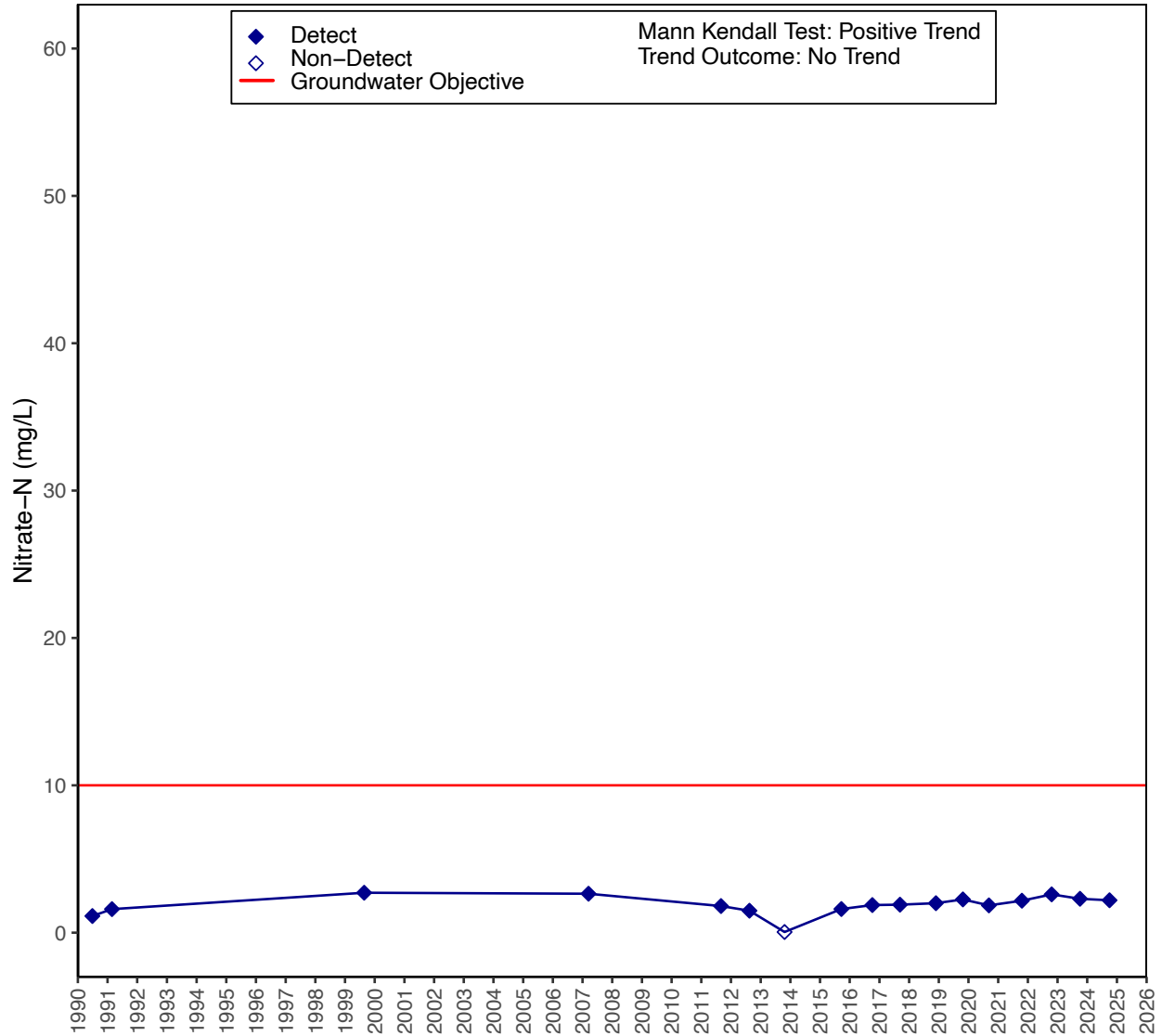
Oxnard Basin
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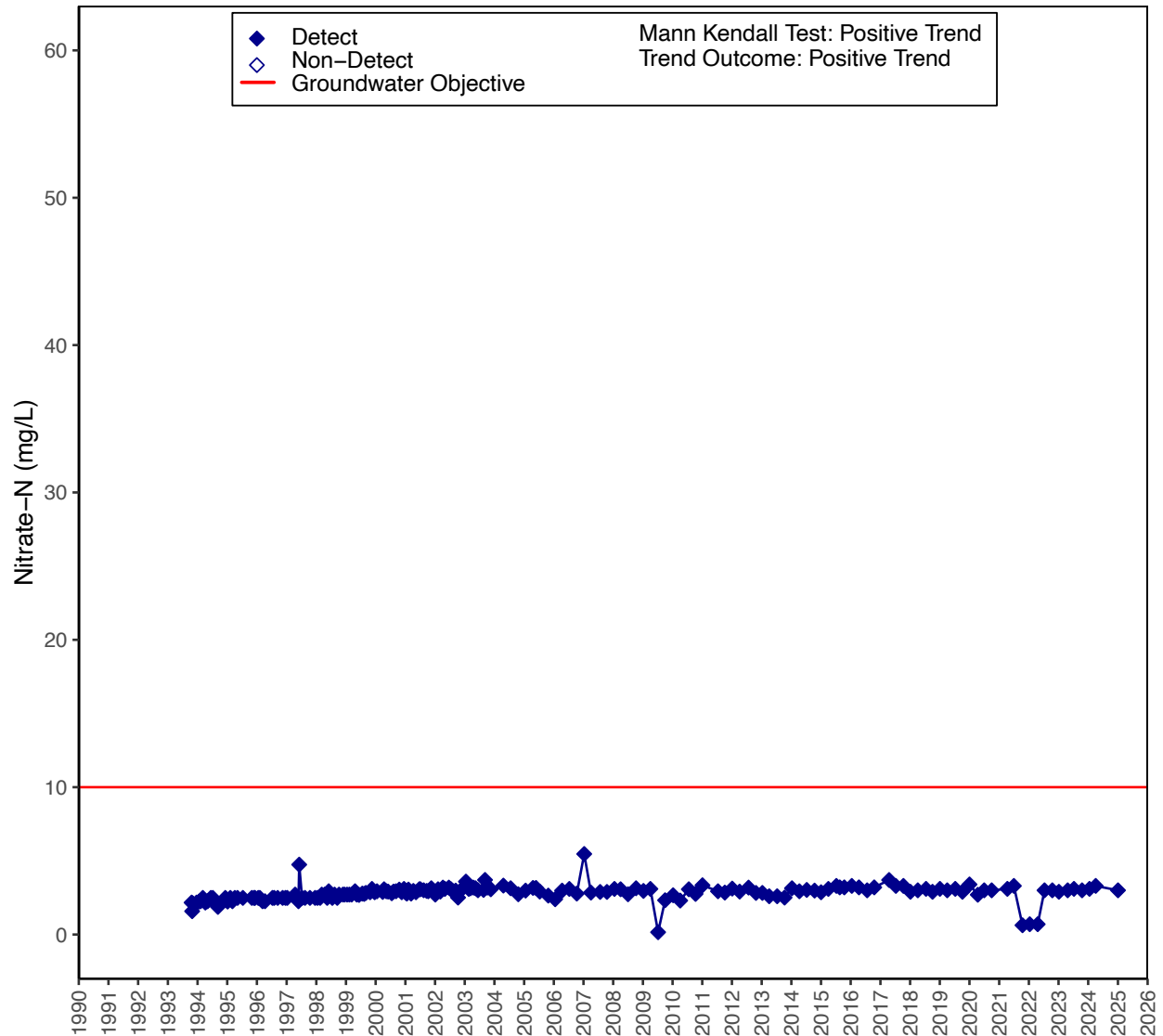
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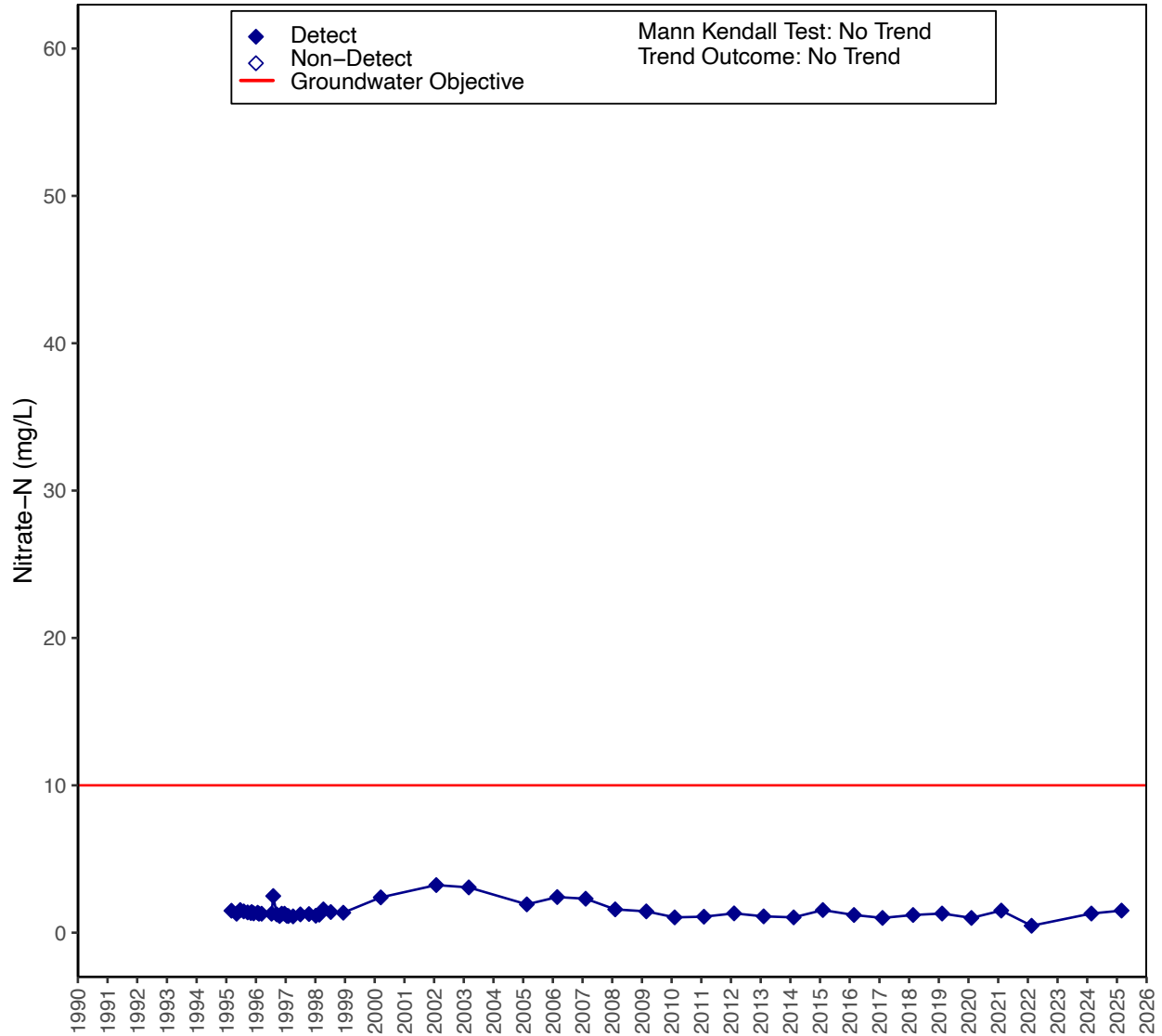
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02N22W24P02S_P02S**



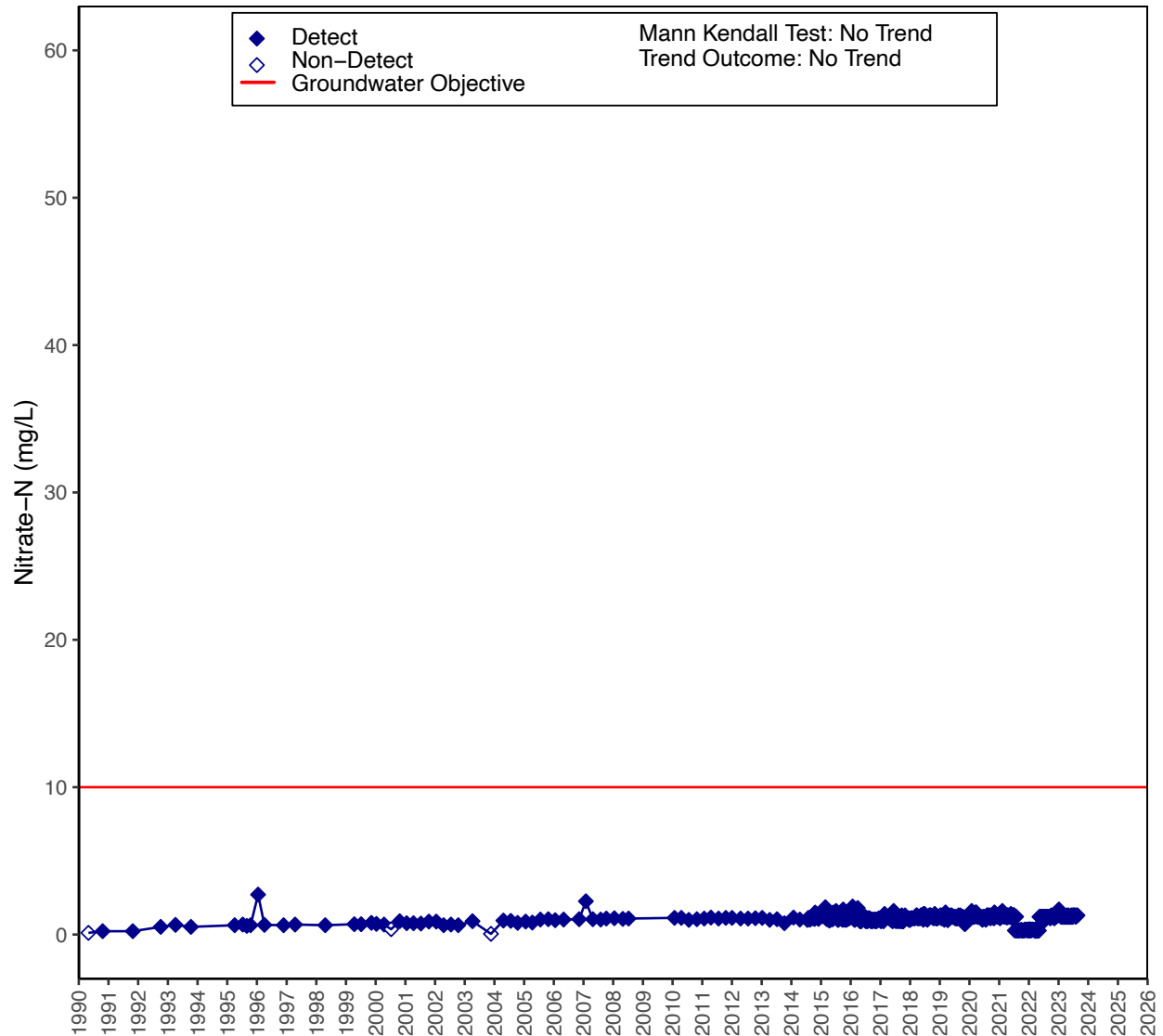
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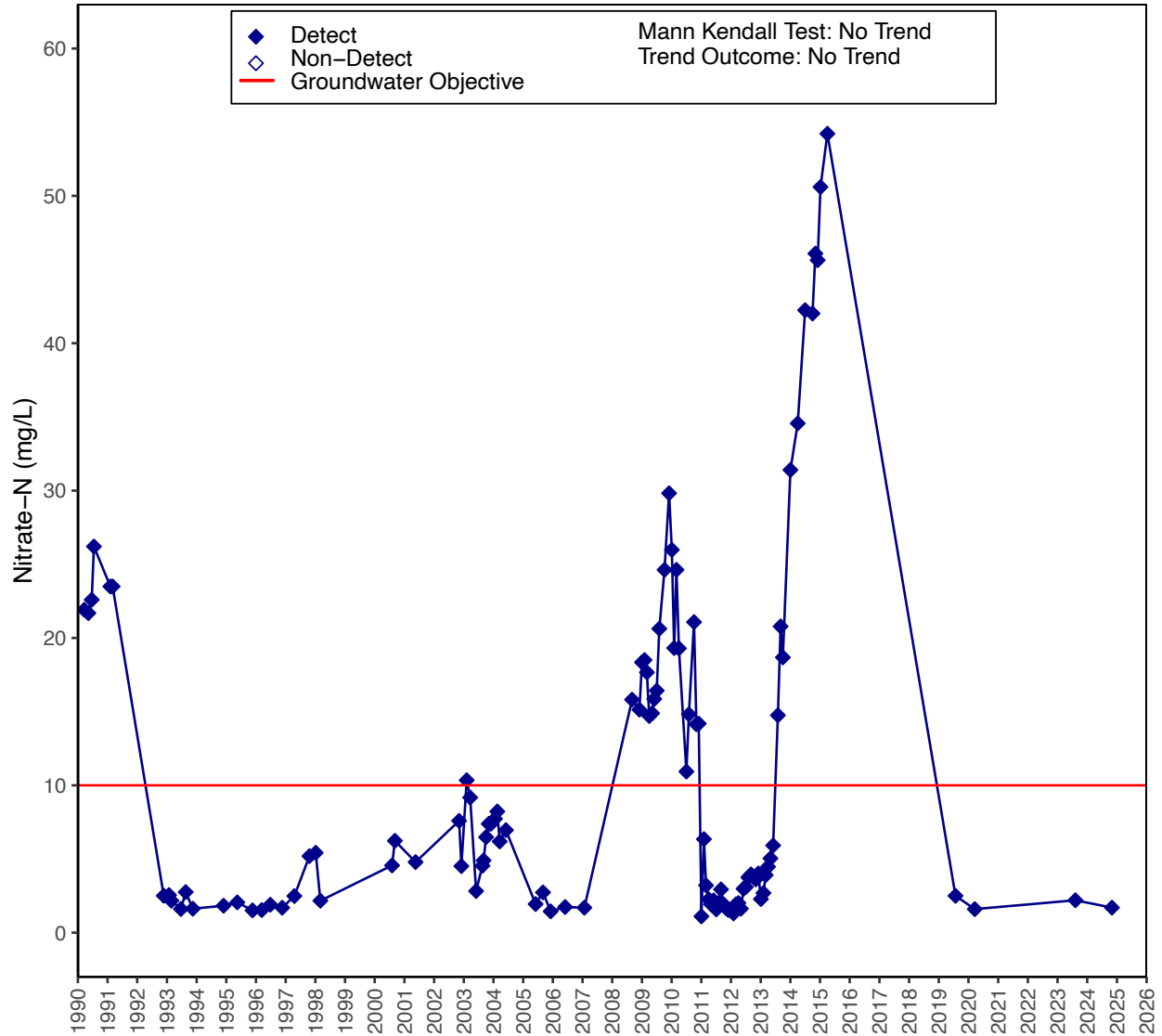
Oxnard Basin
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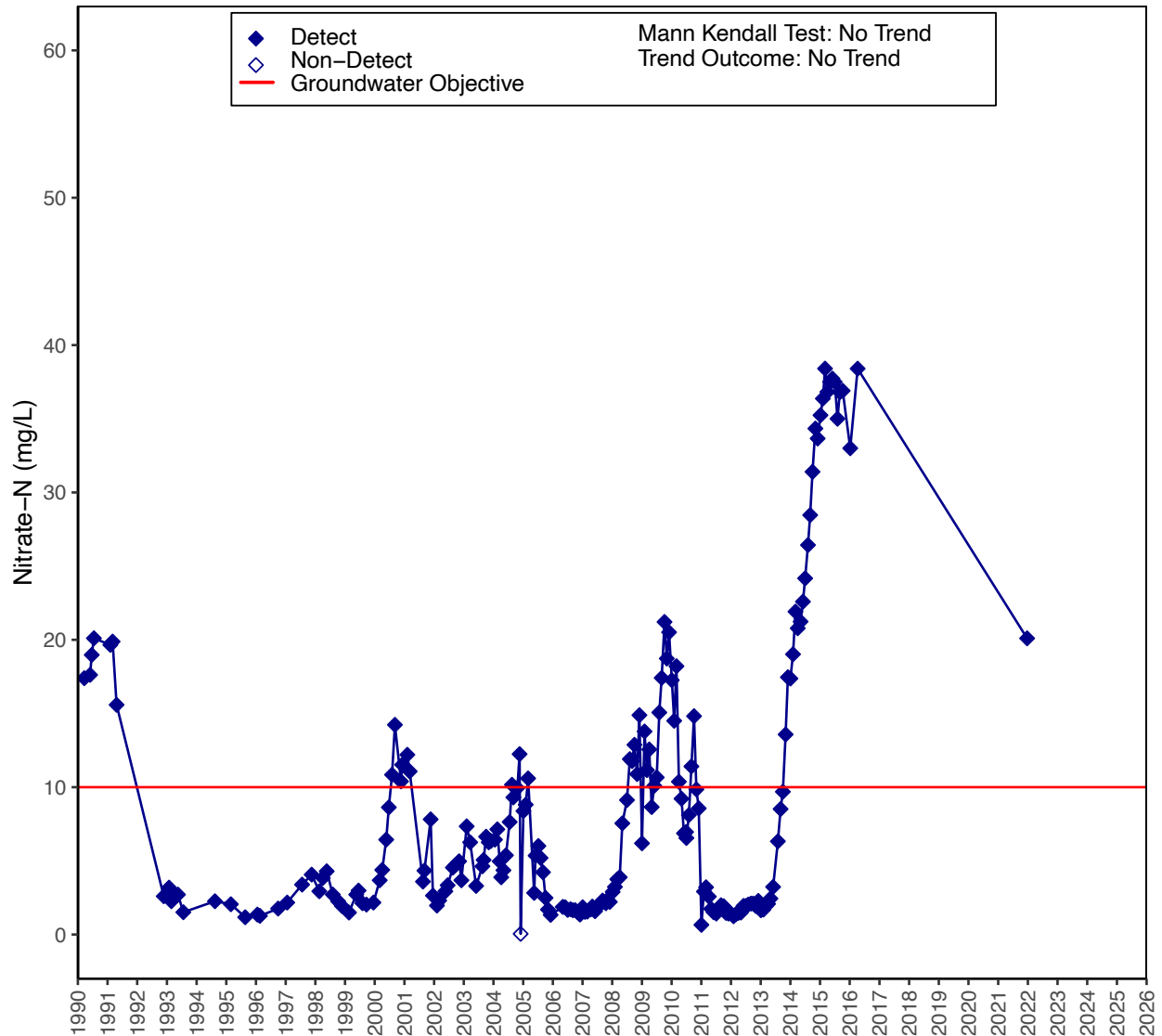
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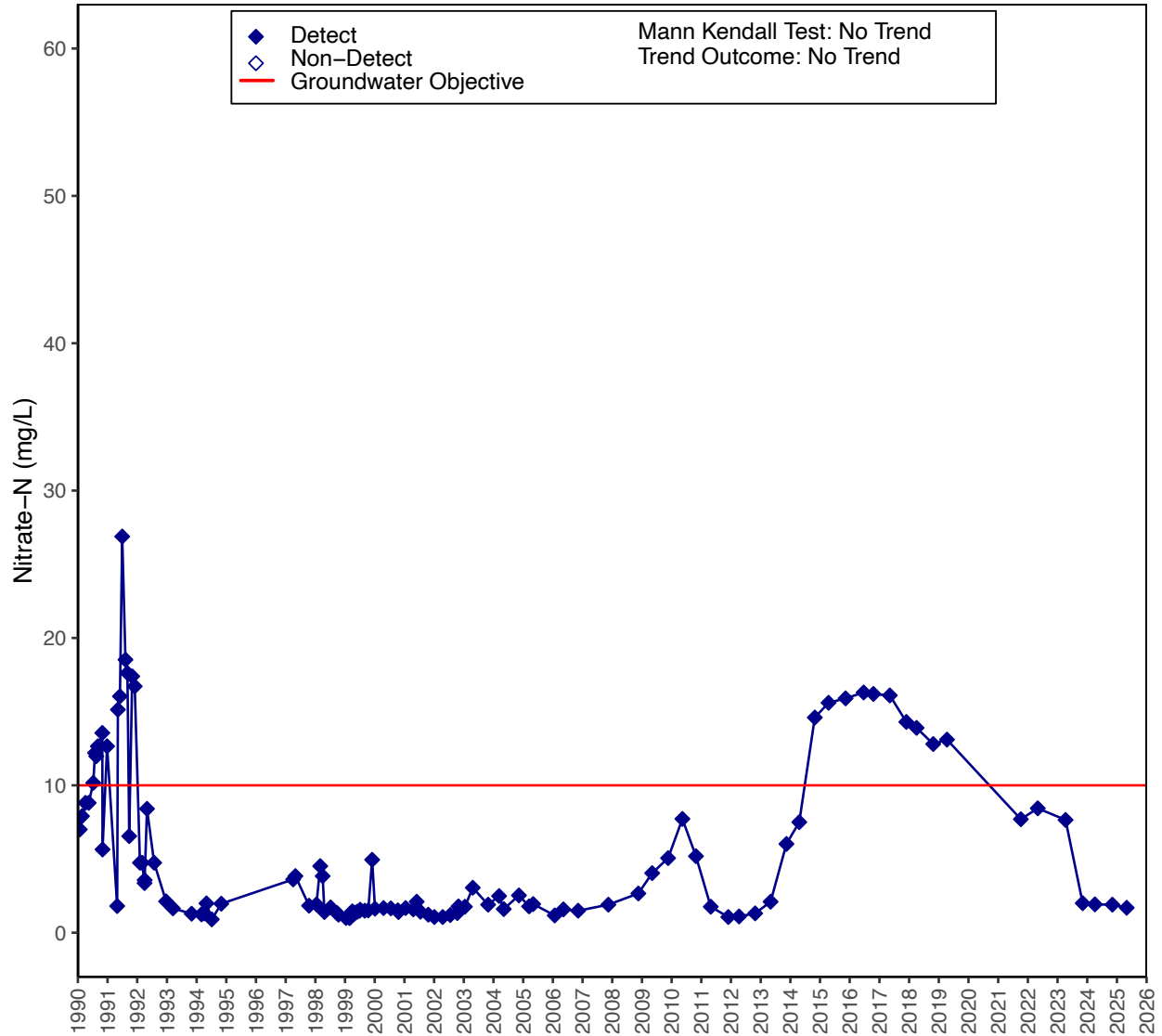
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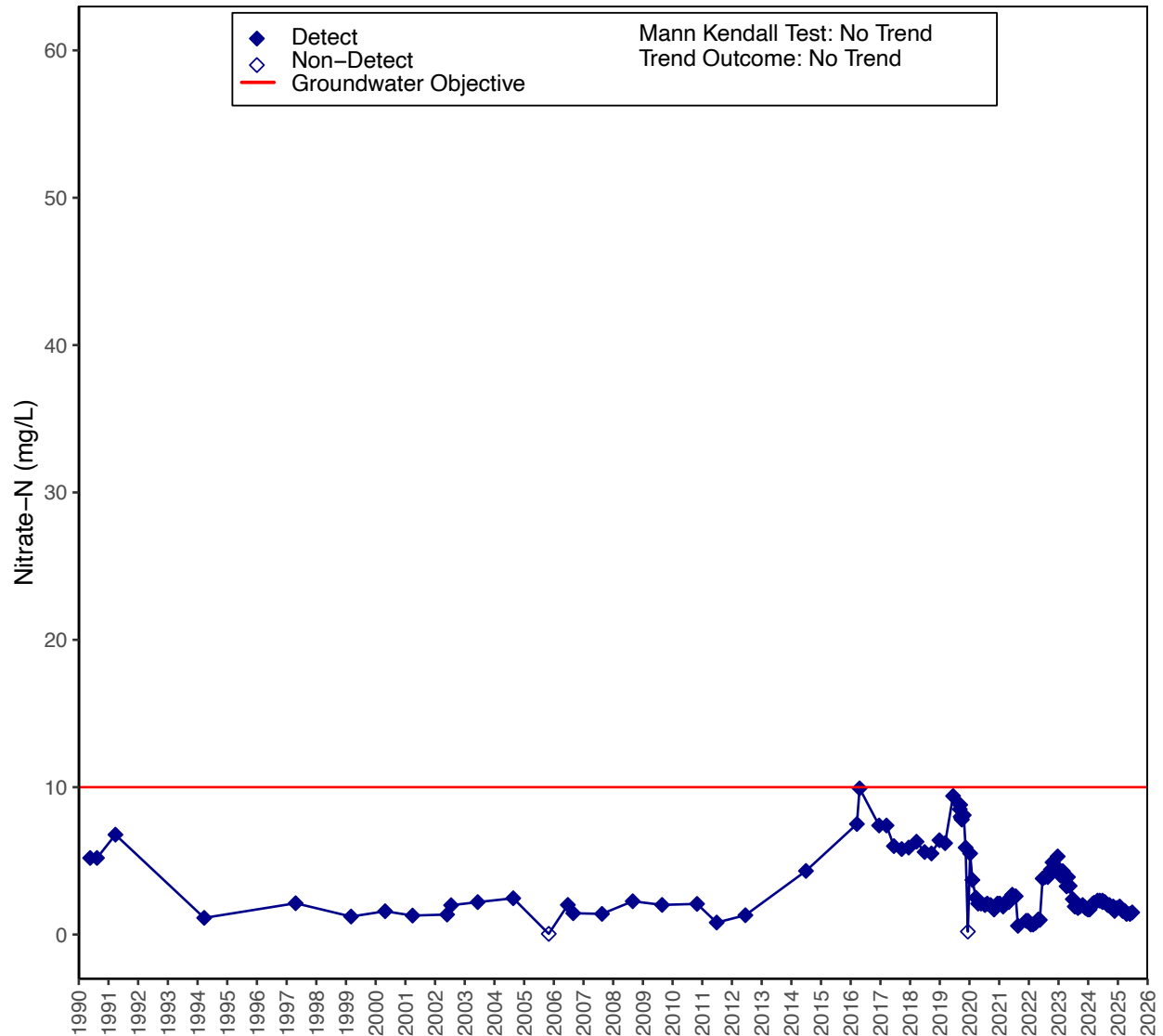
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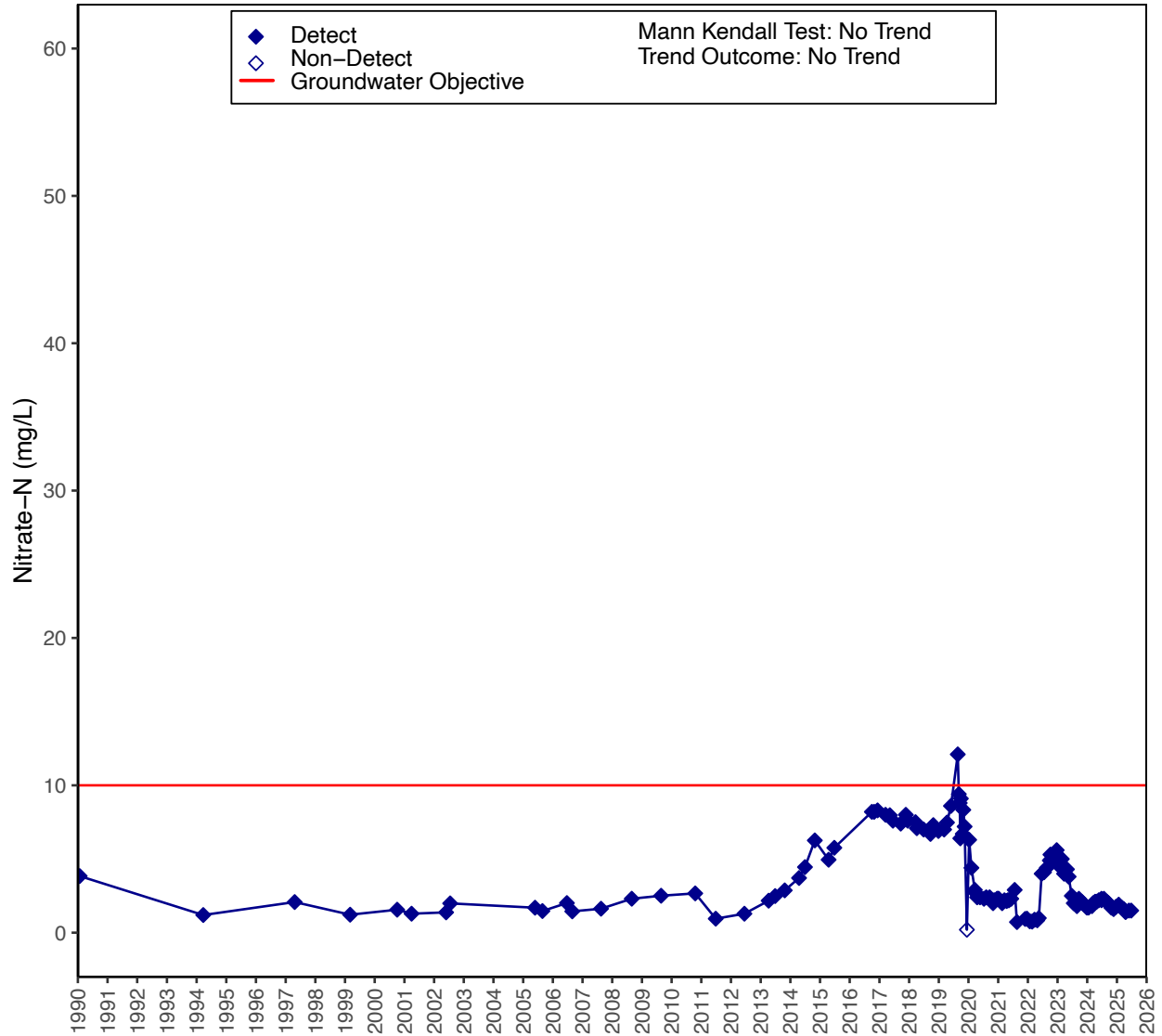
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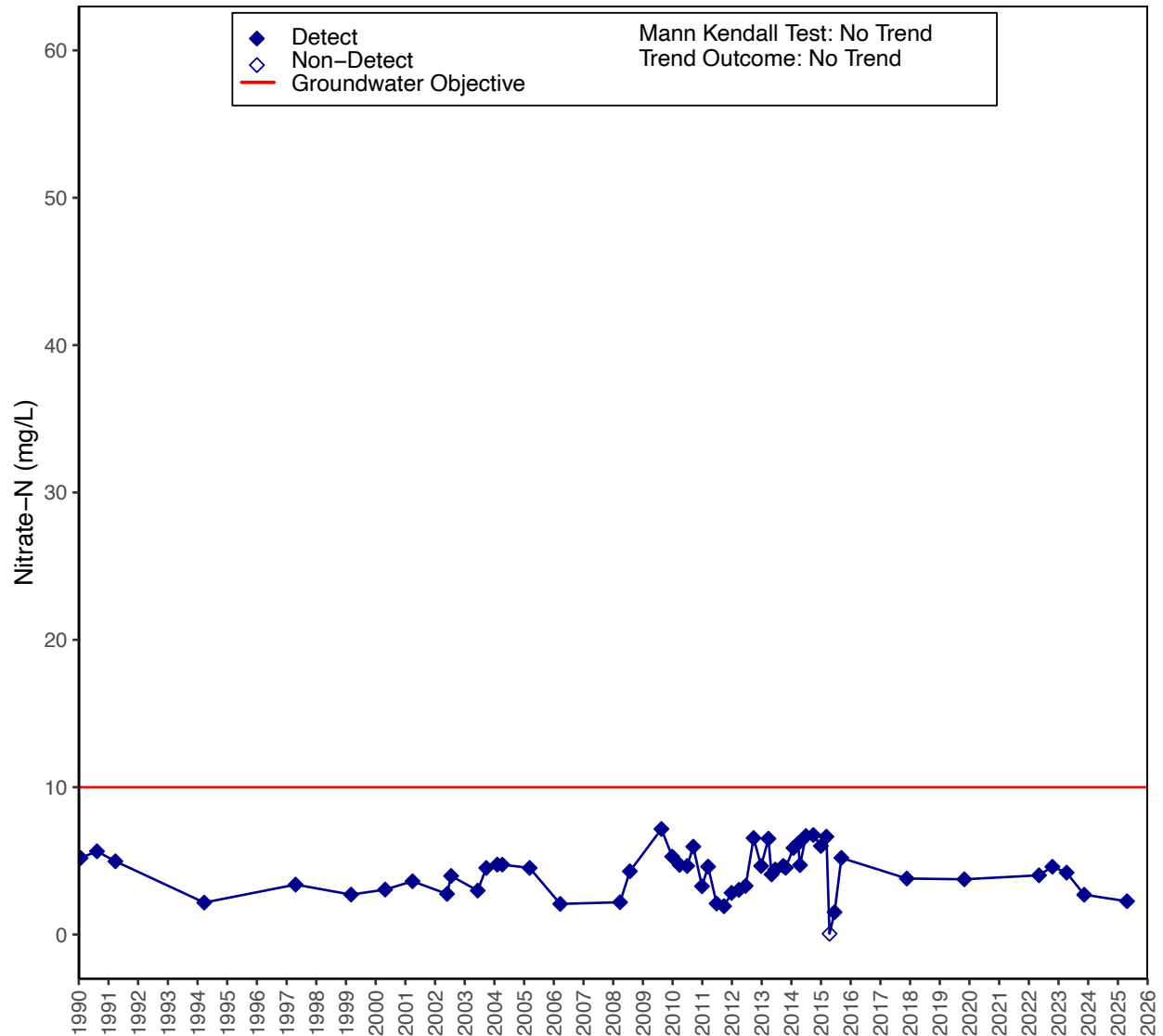
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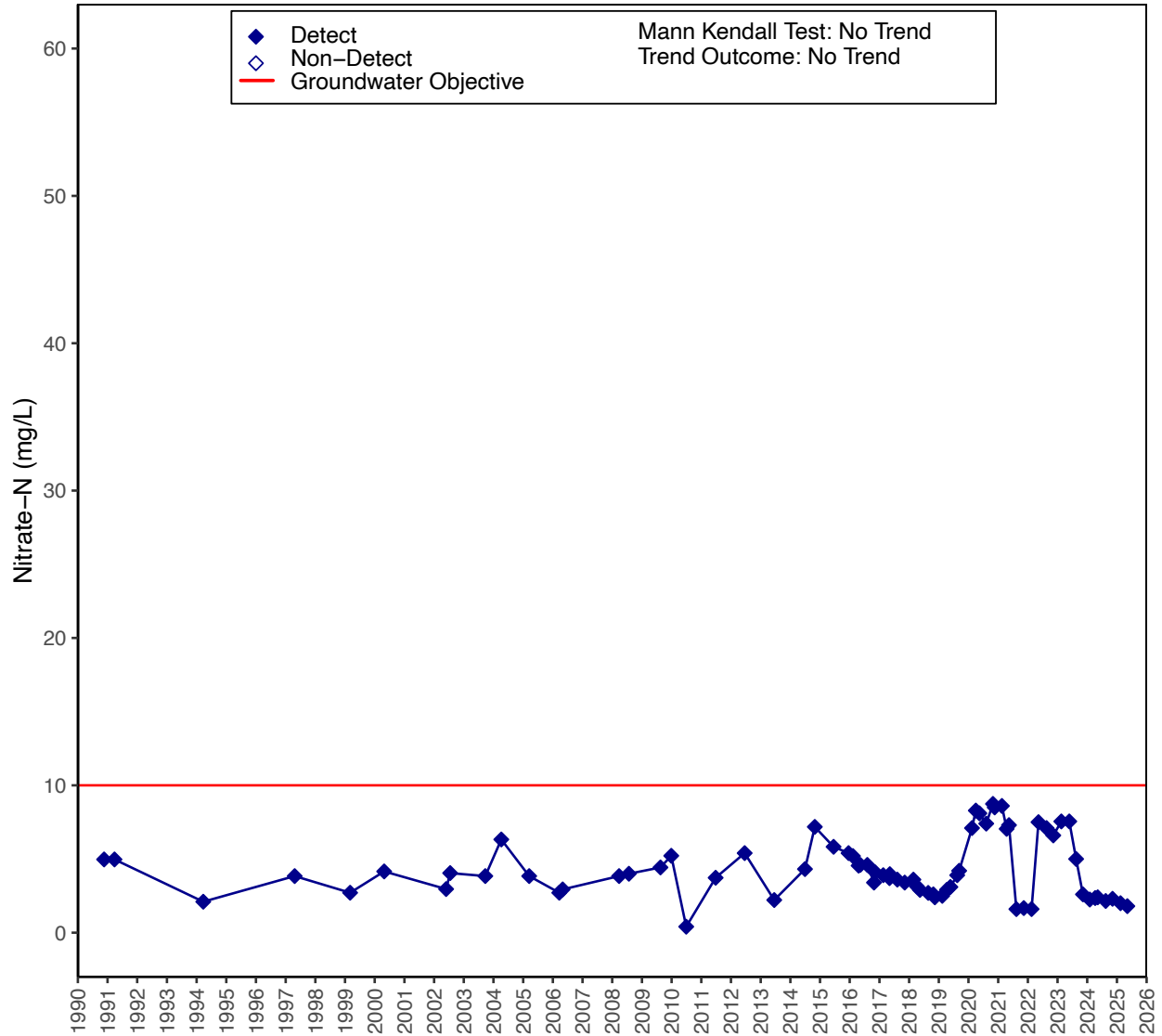
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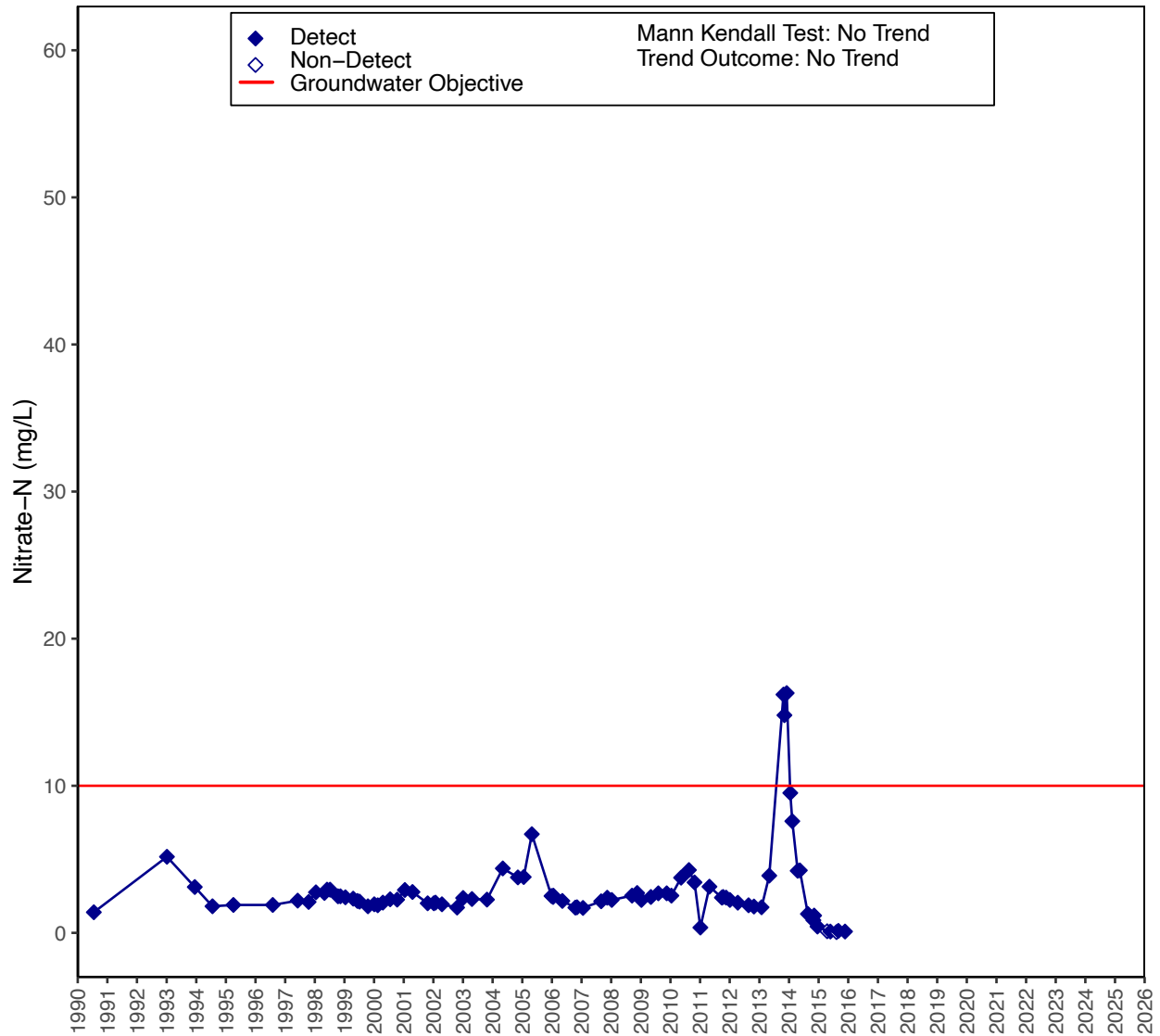
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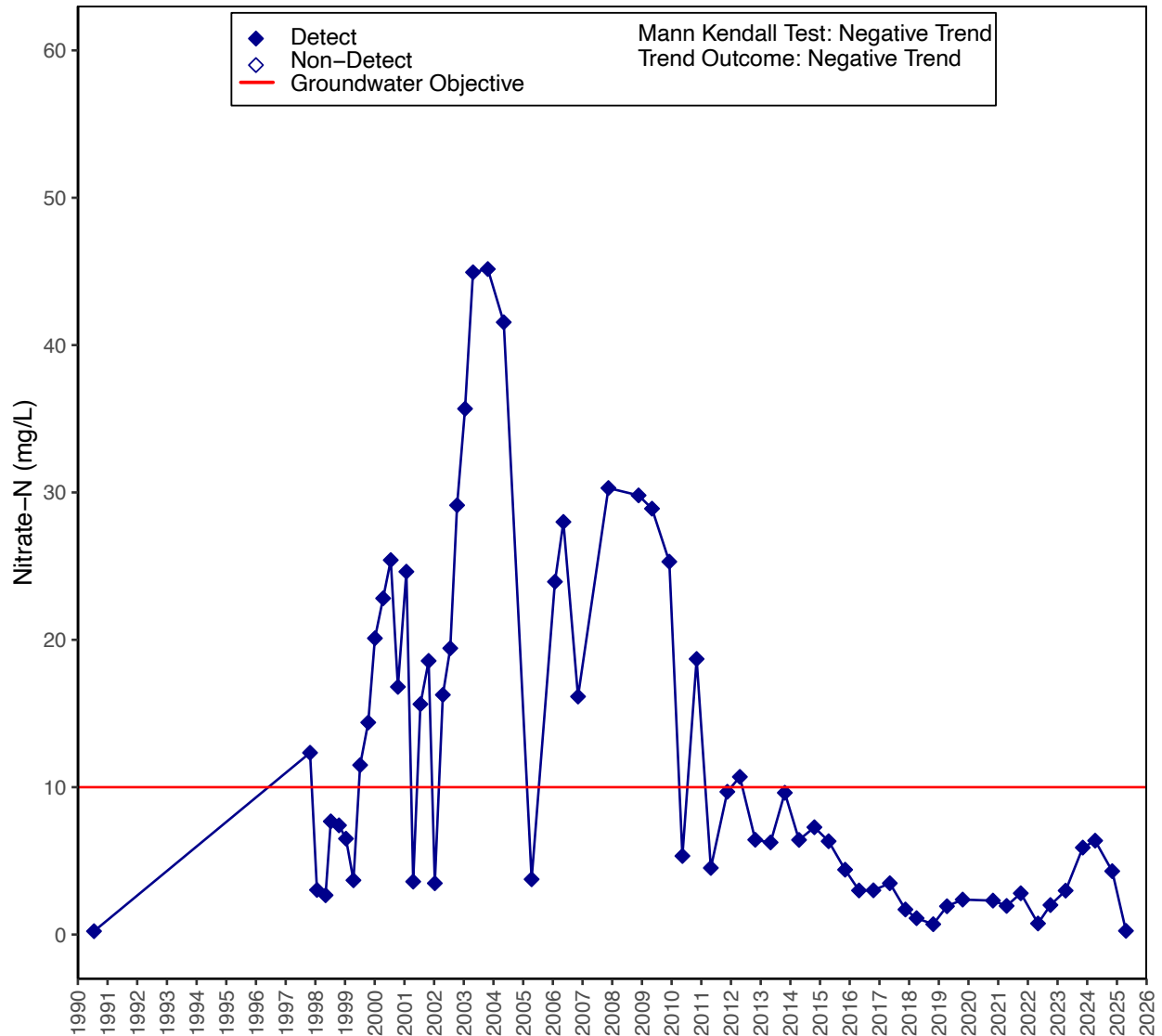
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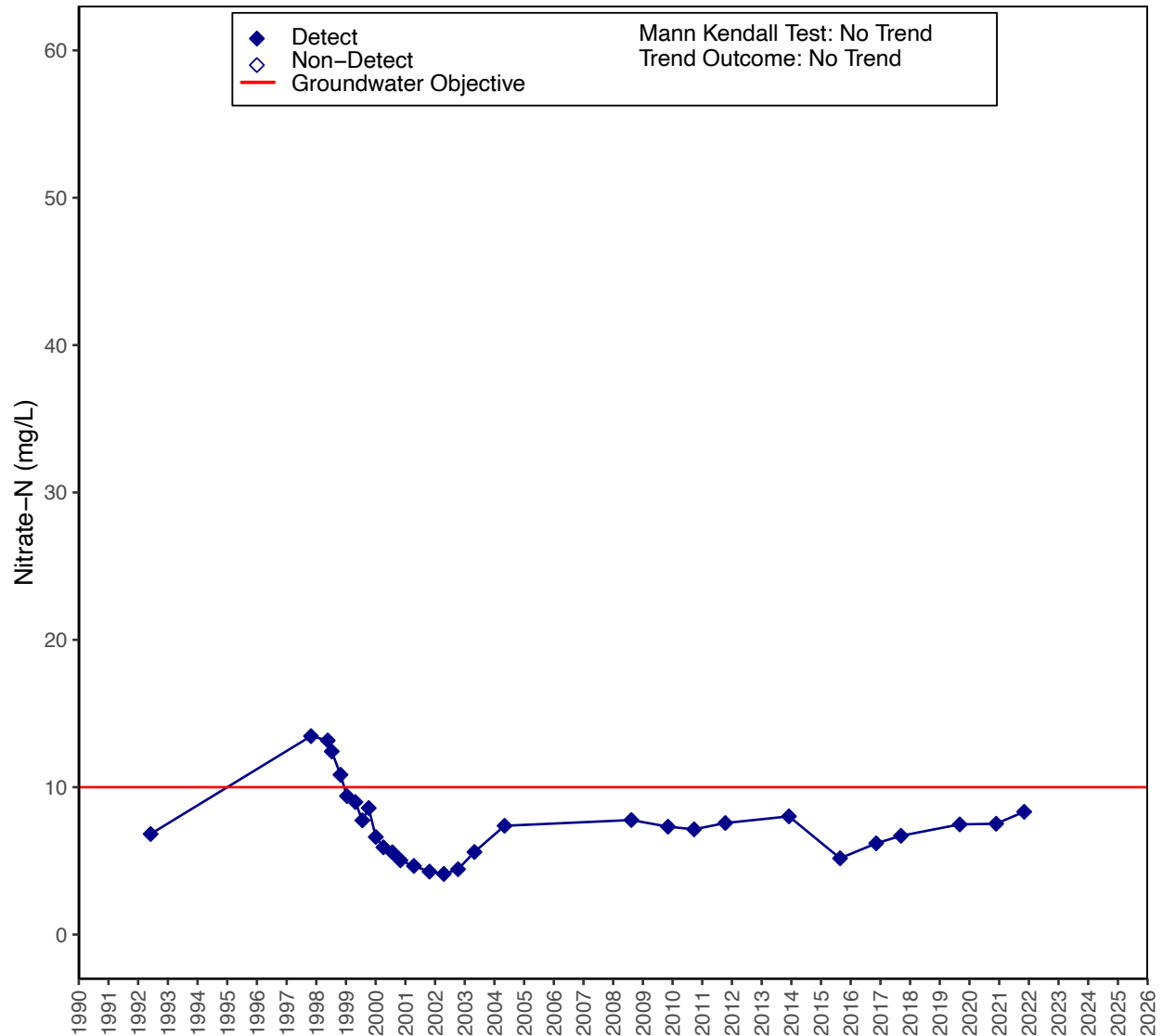
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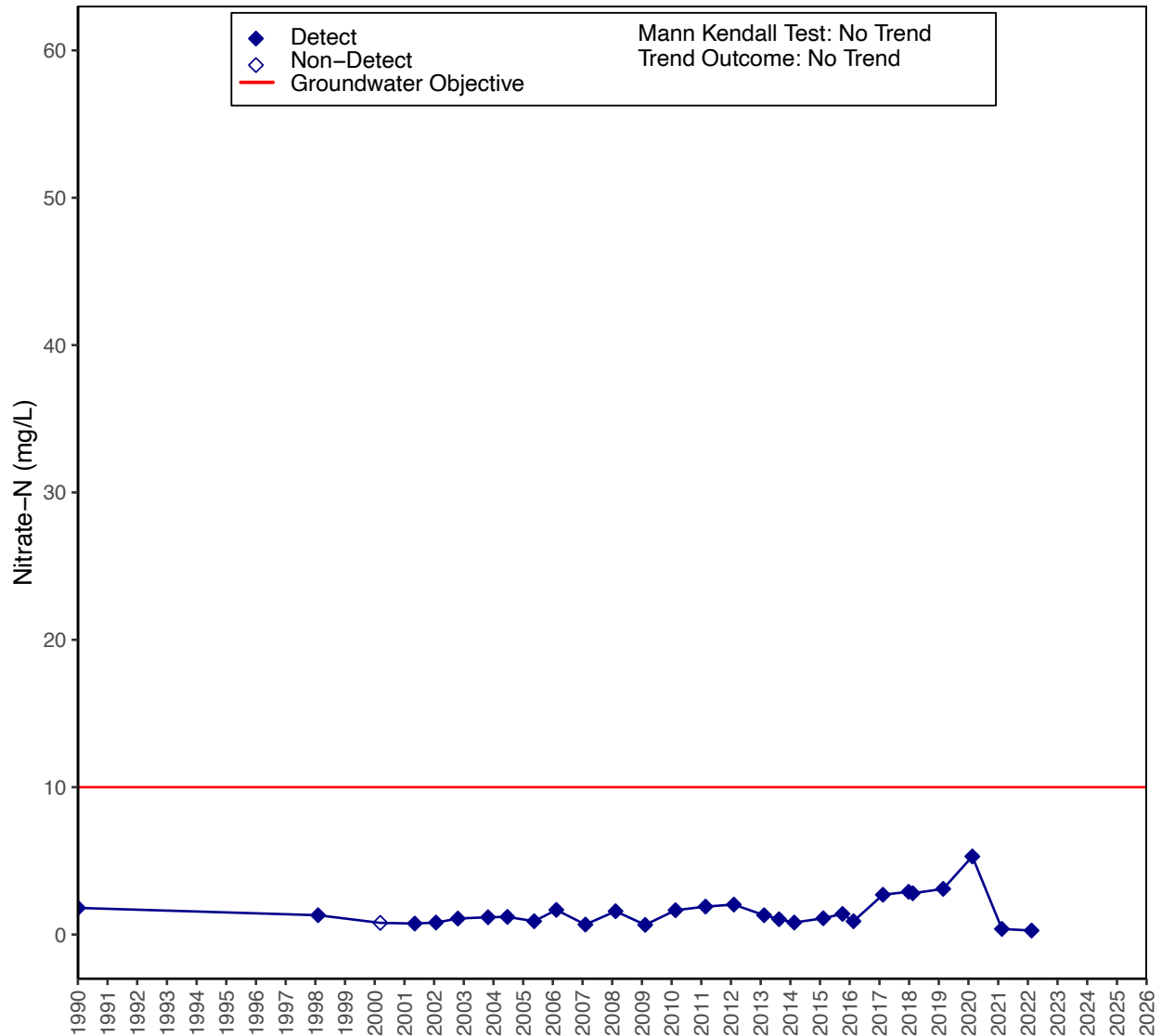
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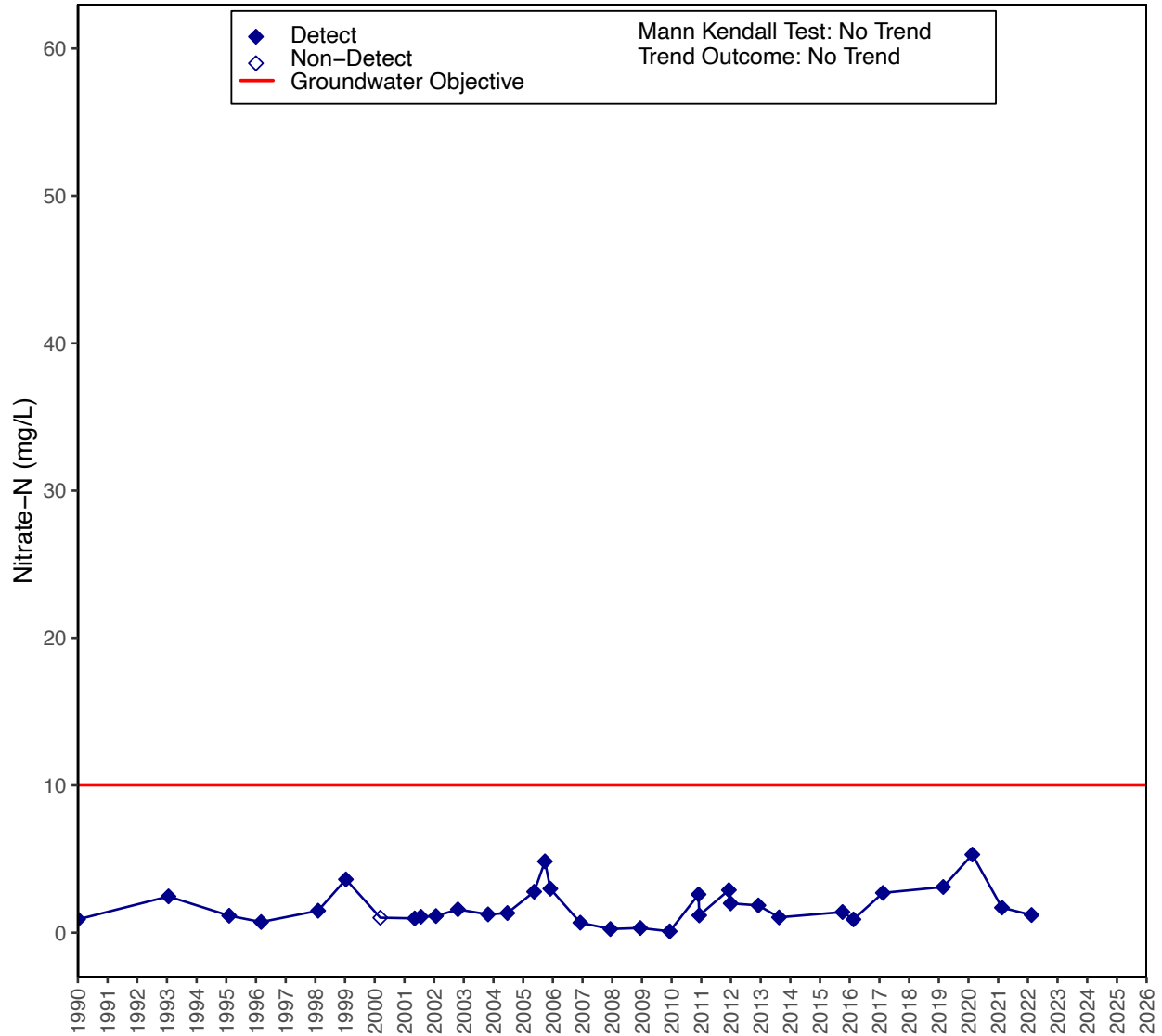
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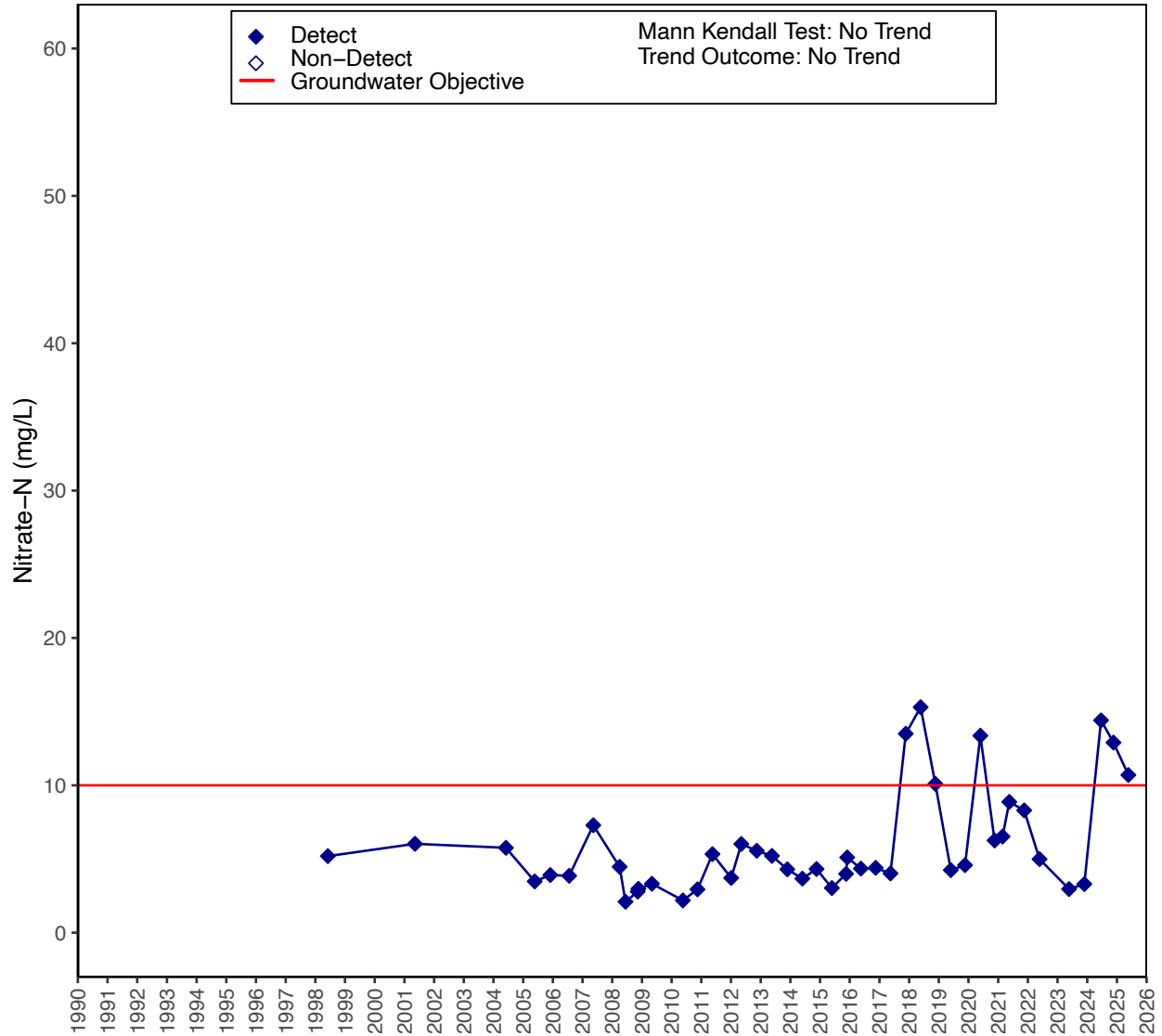
Piru Basin
04N18W20M01S_M01S



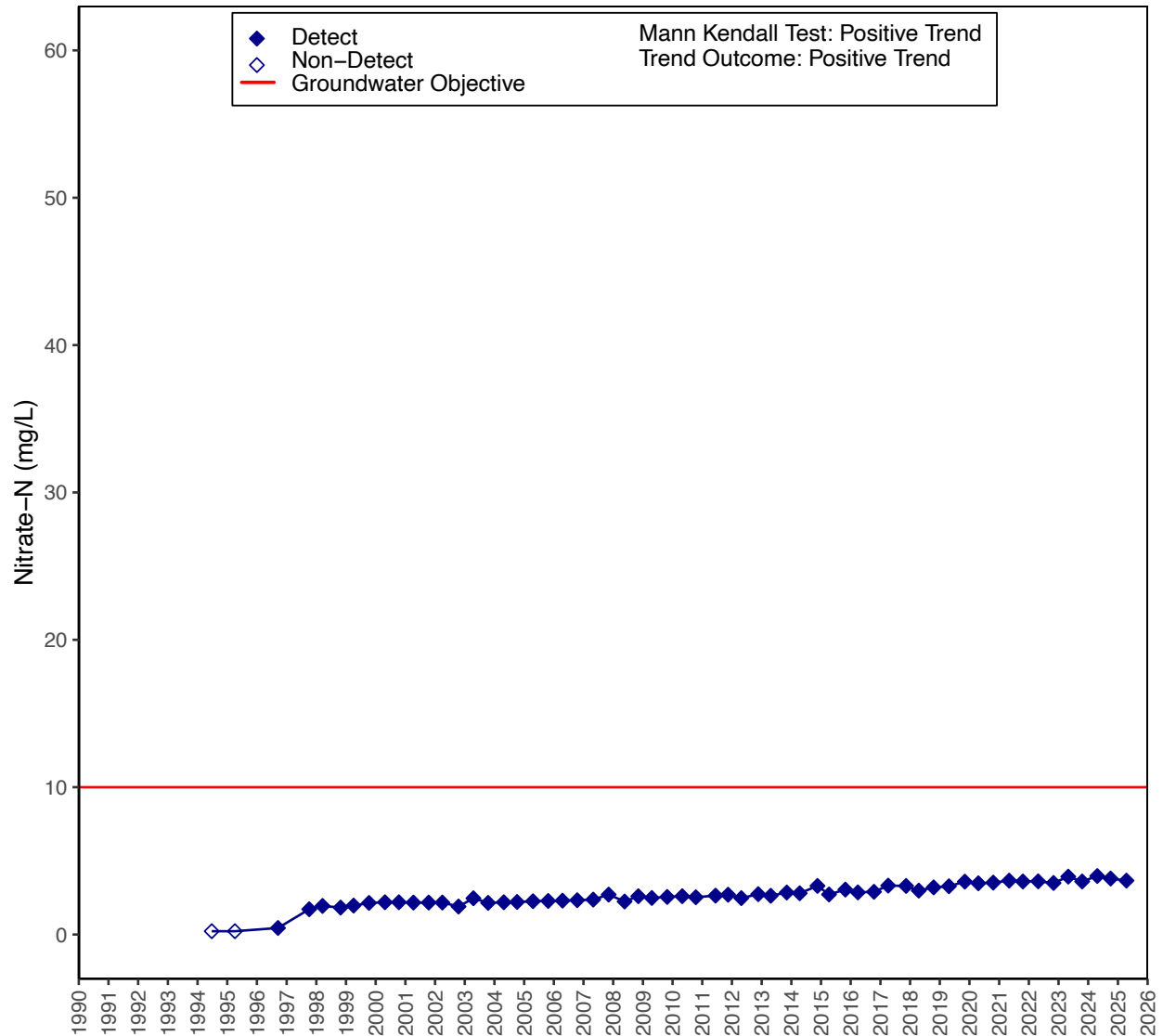
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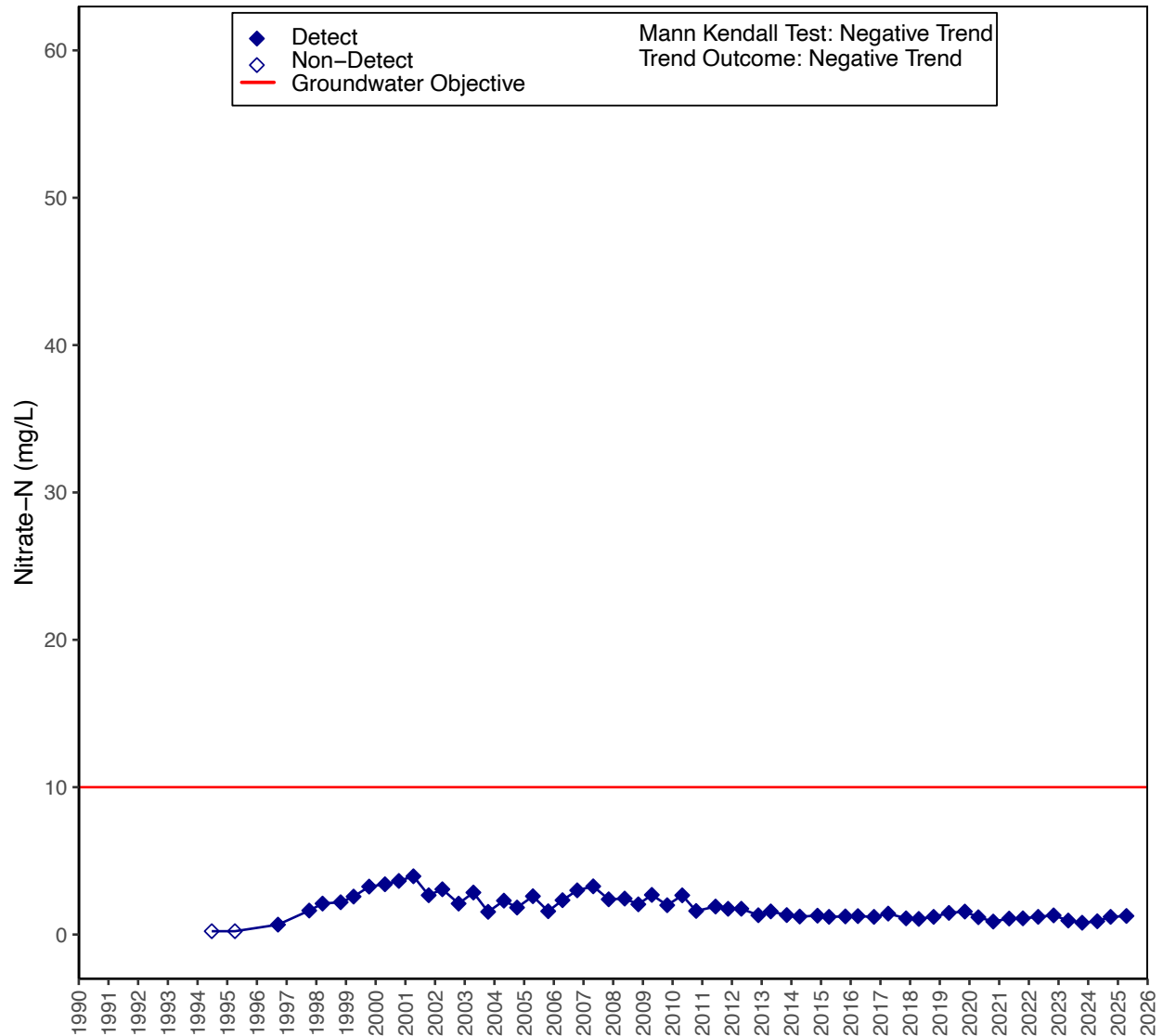
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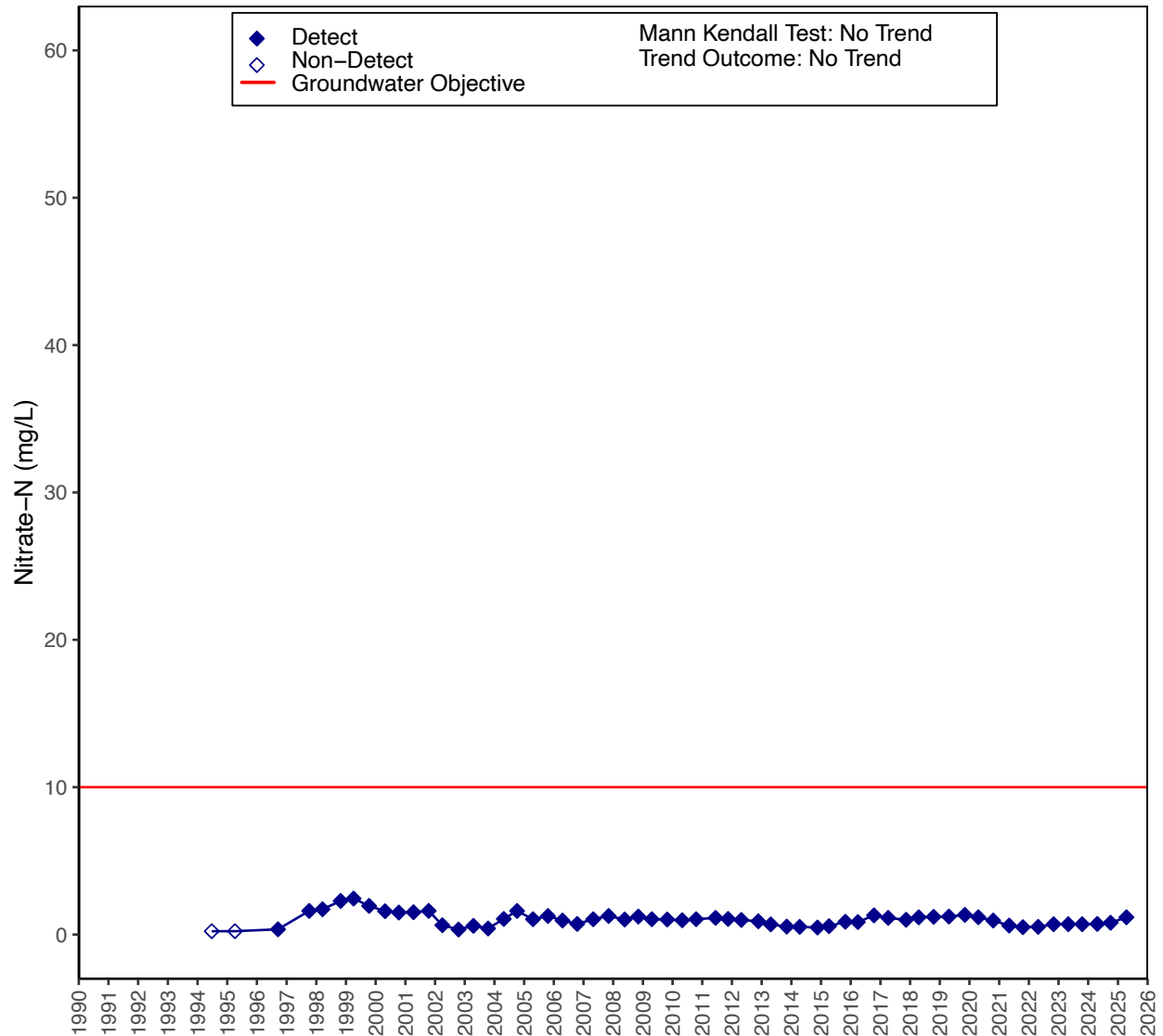
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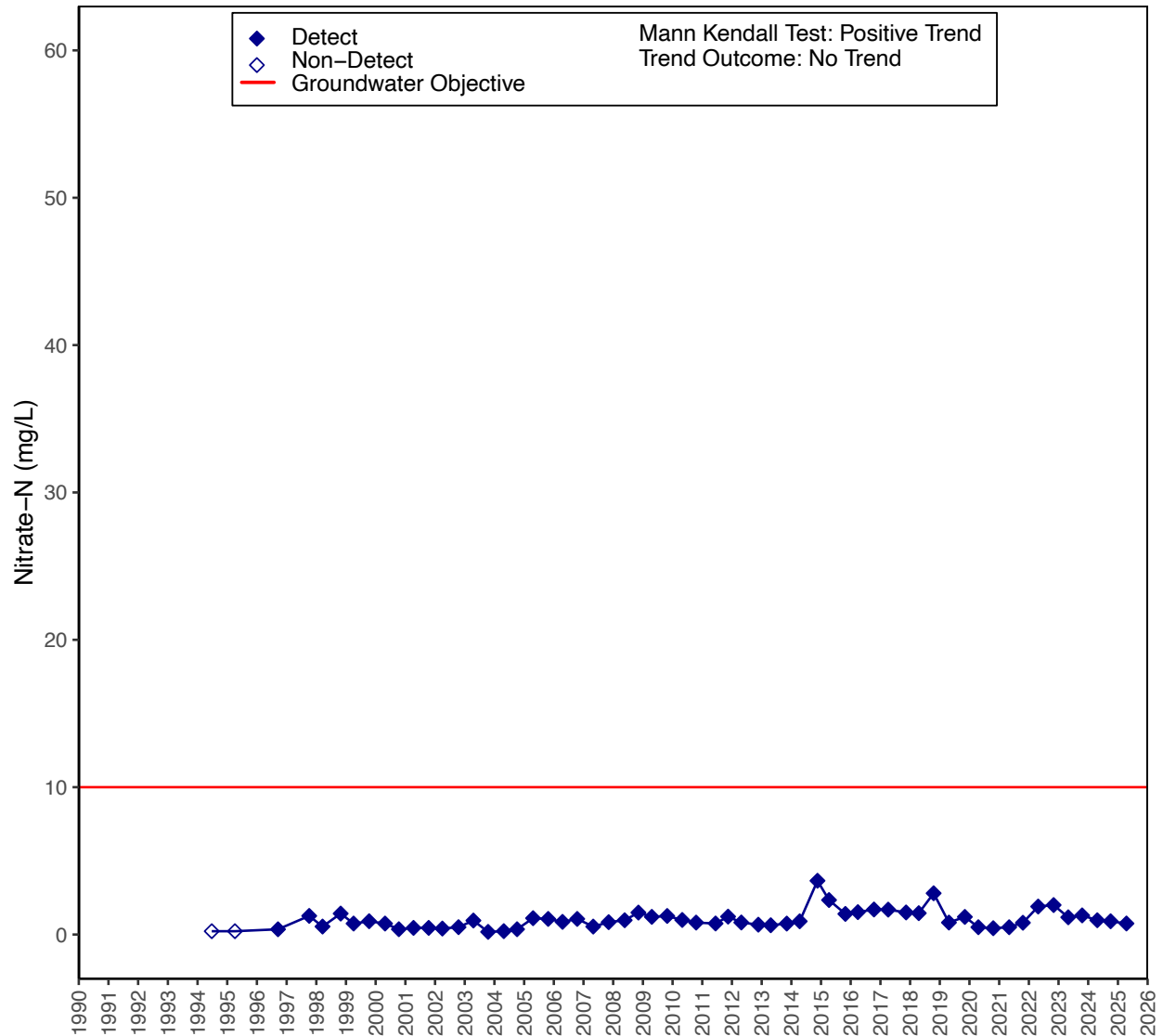
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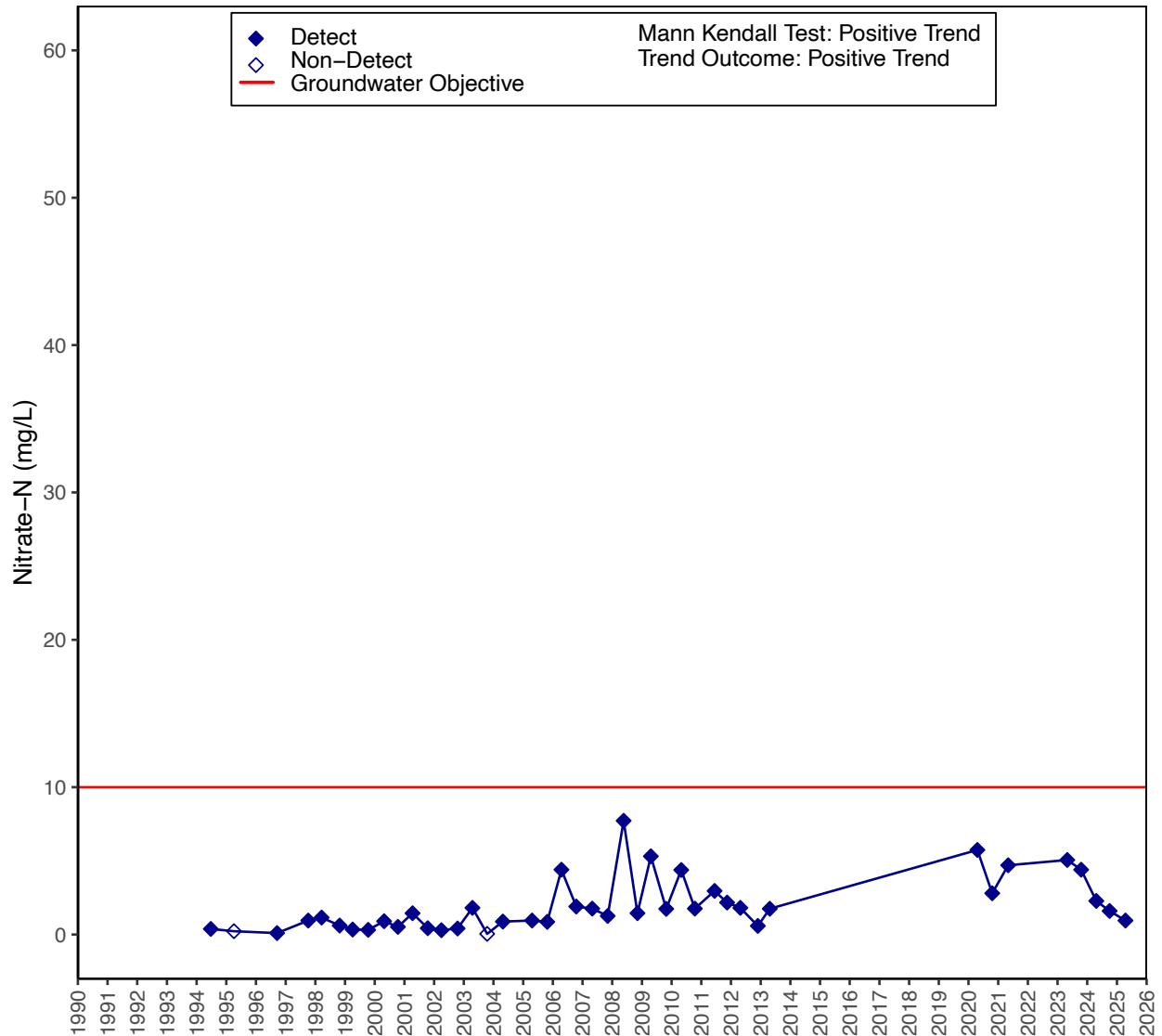
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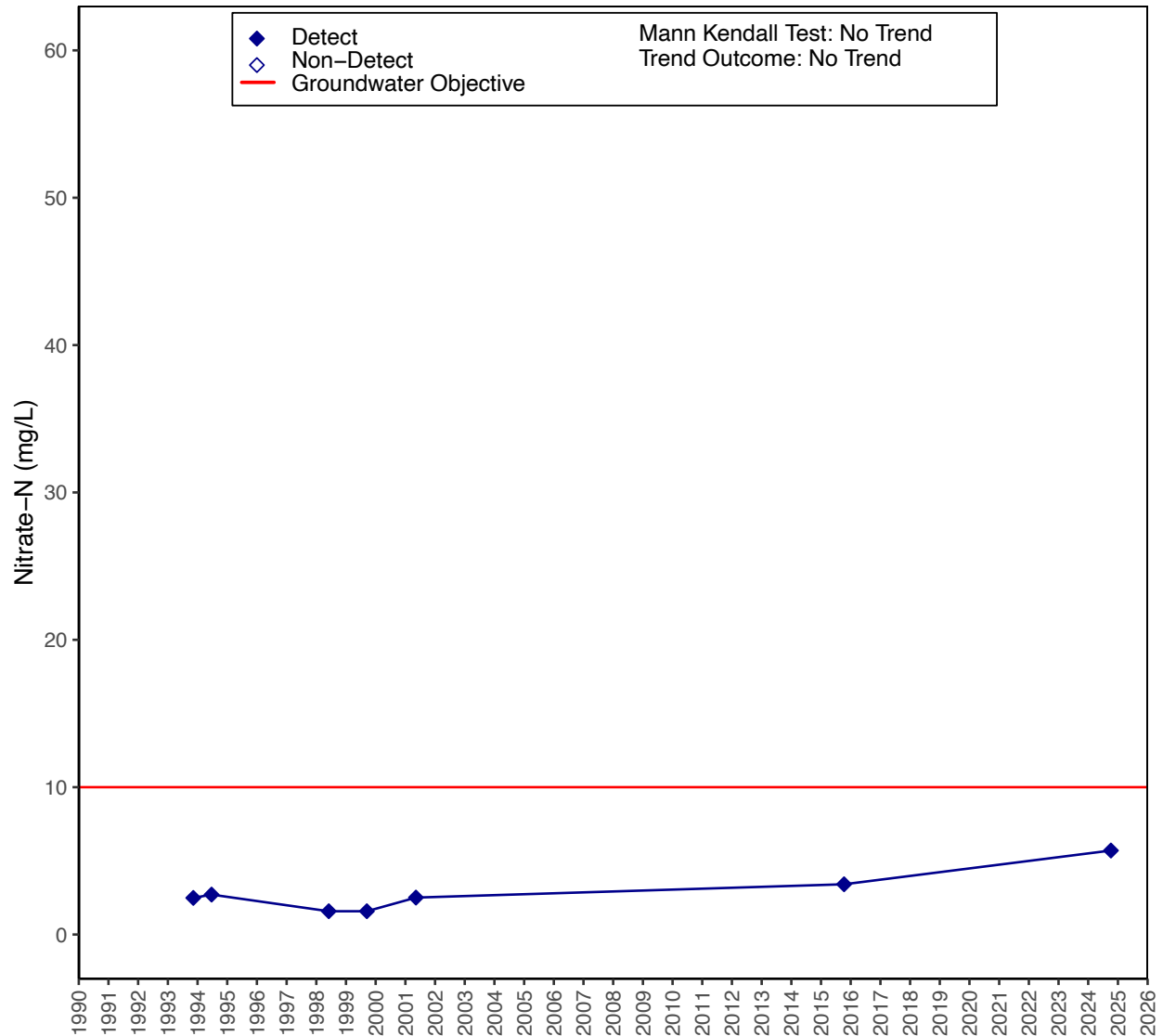
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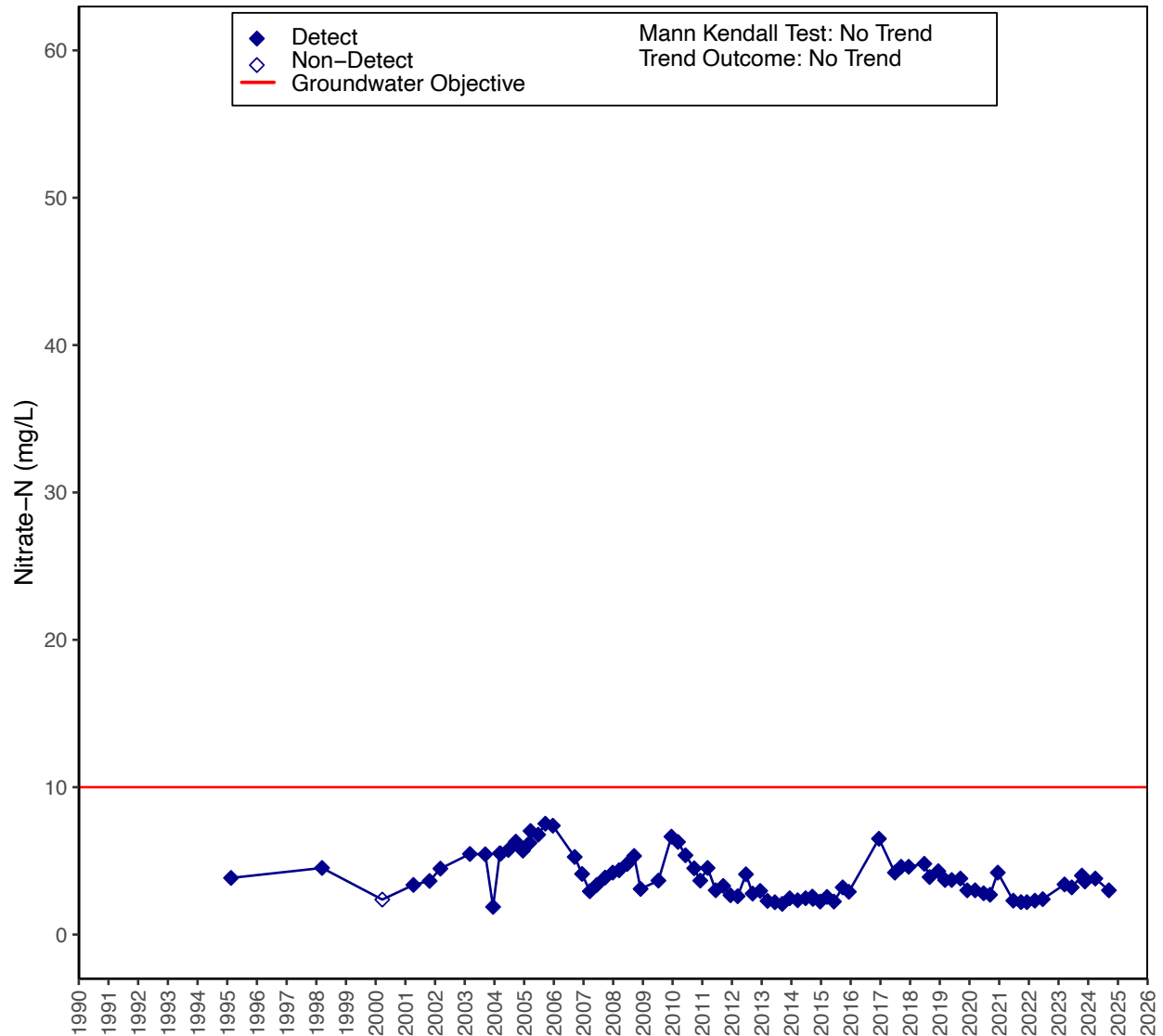
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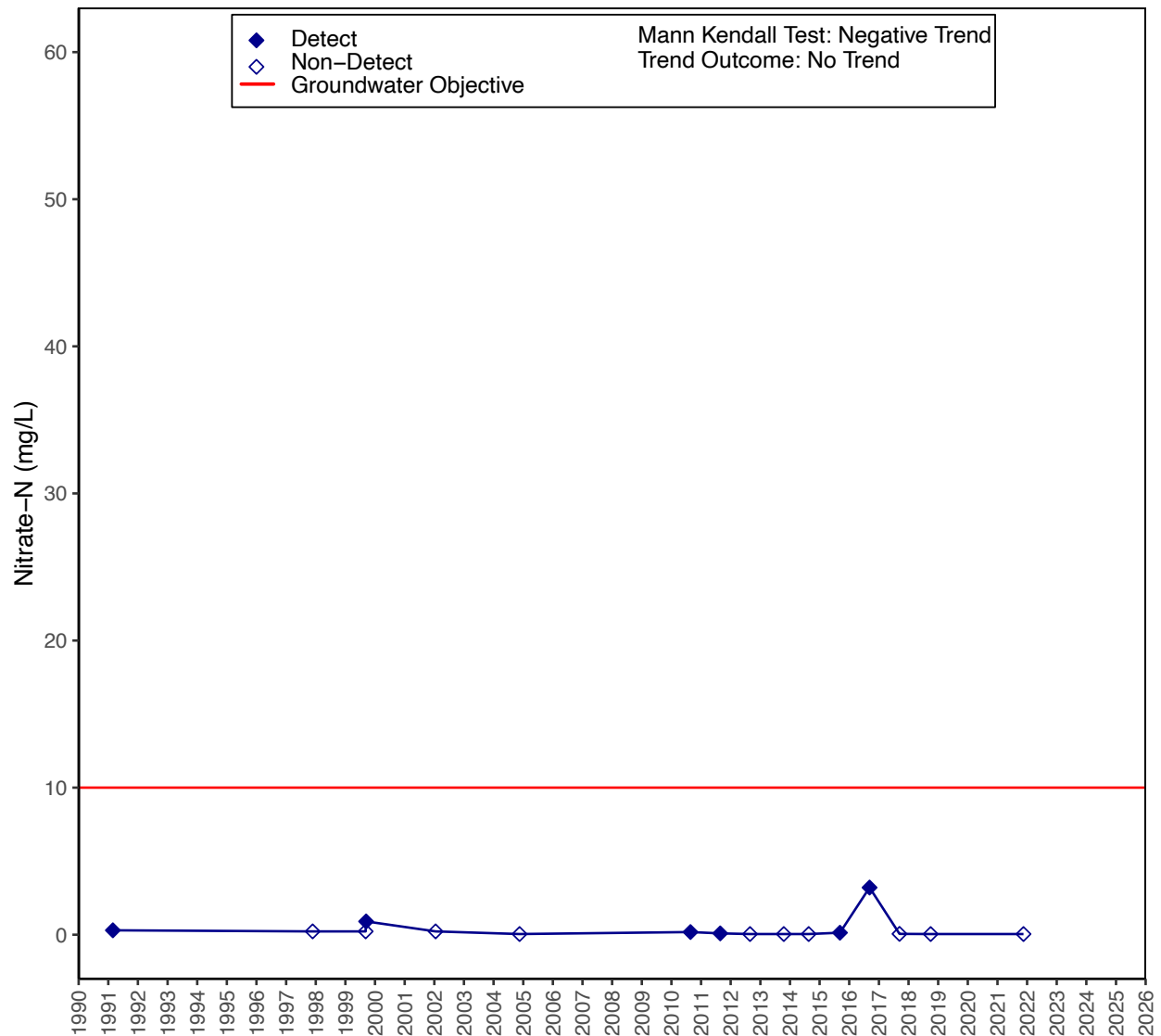
Piru Basin
04N19W25C02S_C02S



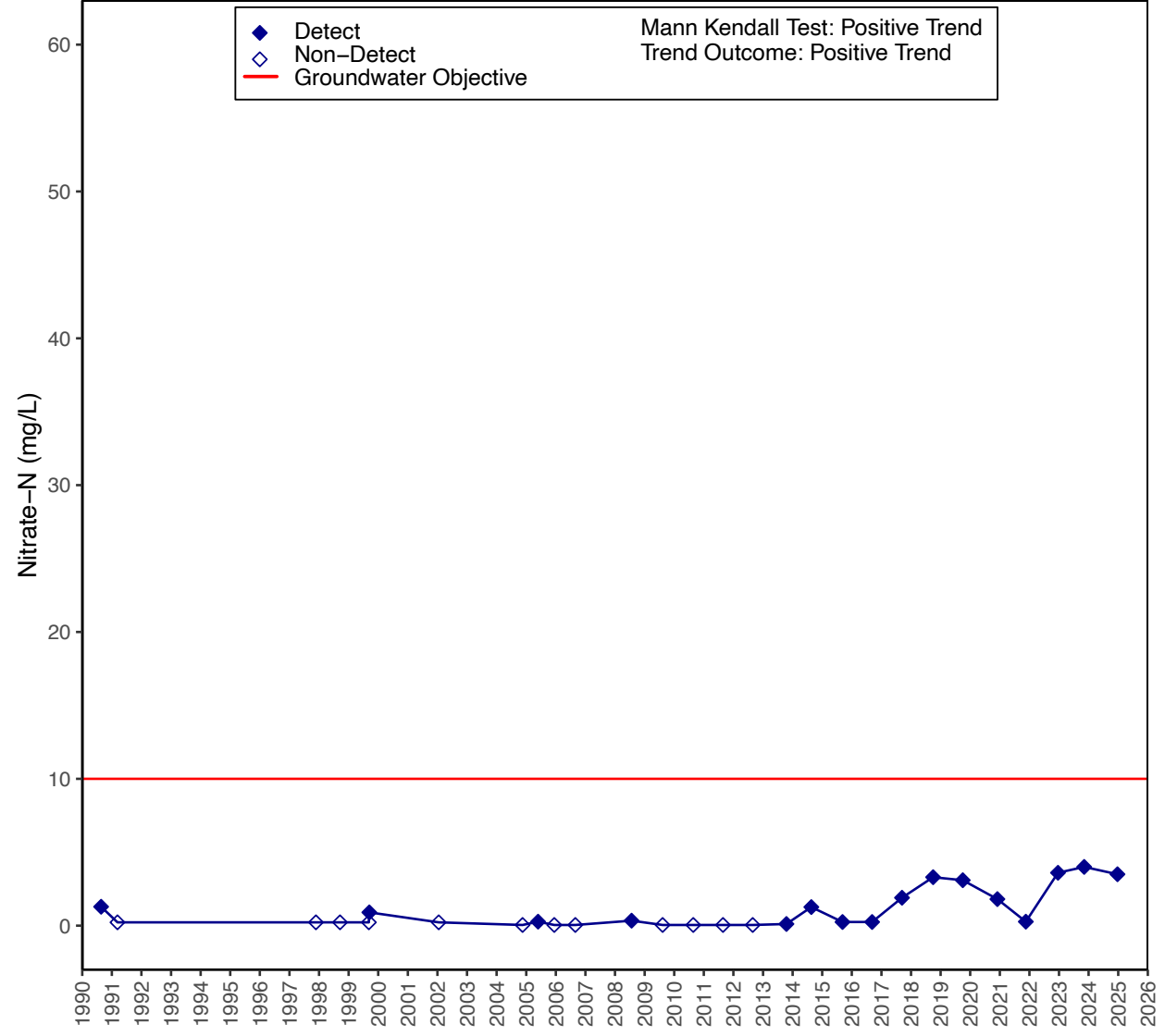
Piru Basin 04N19W25K03S_K03S



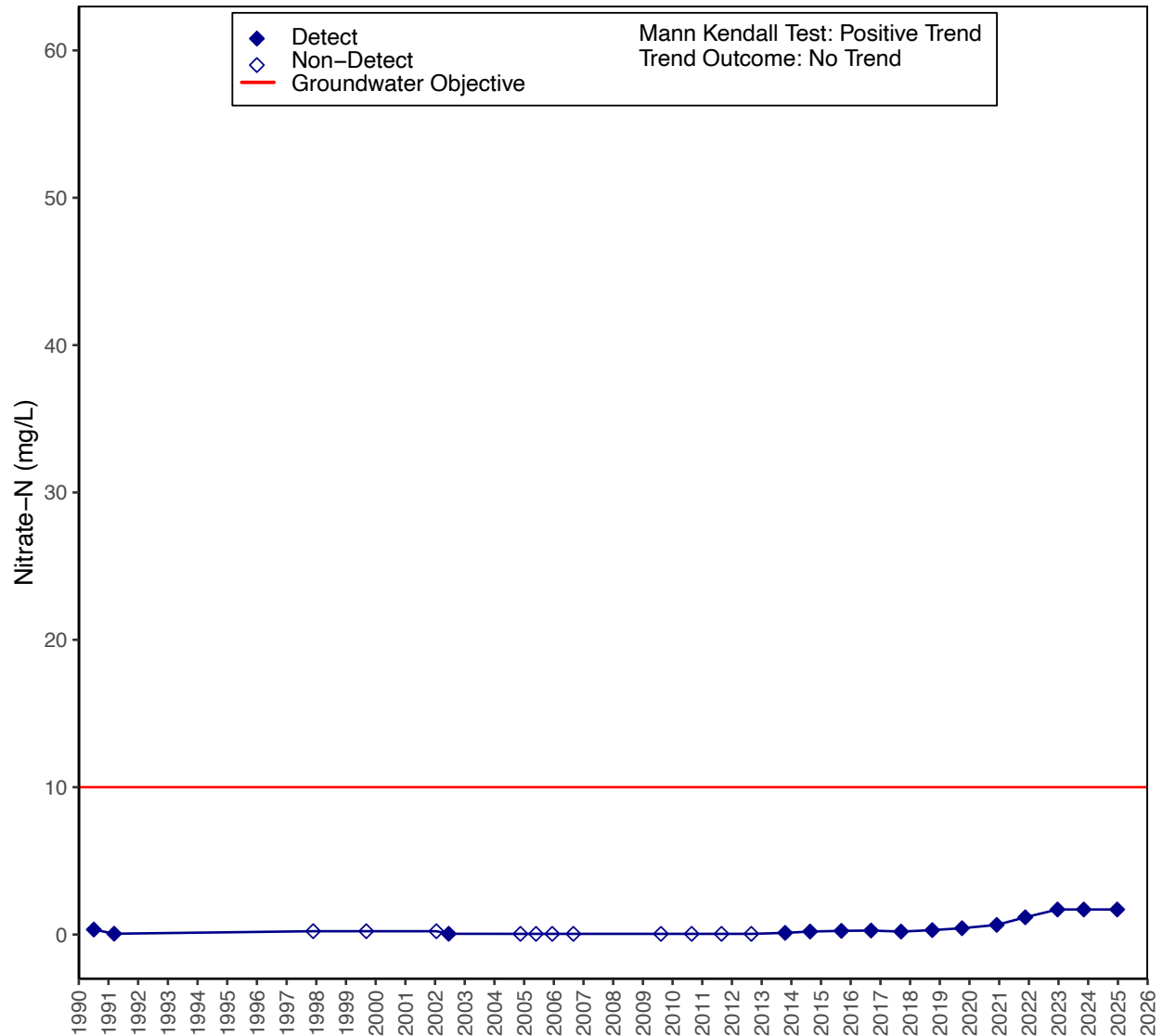
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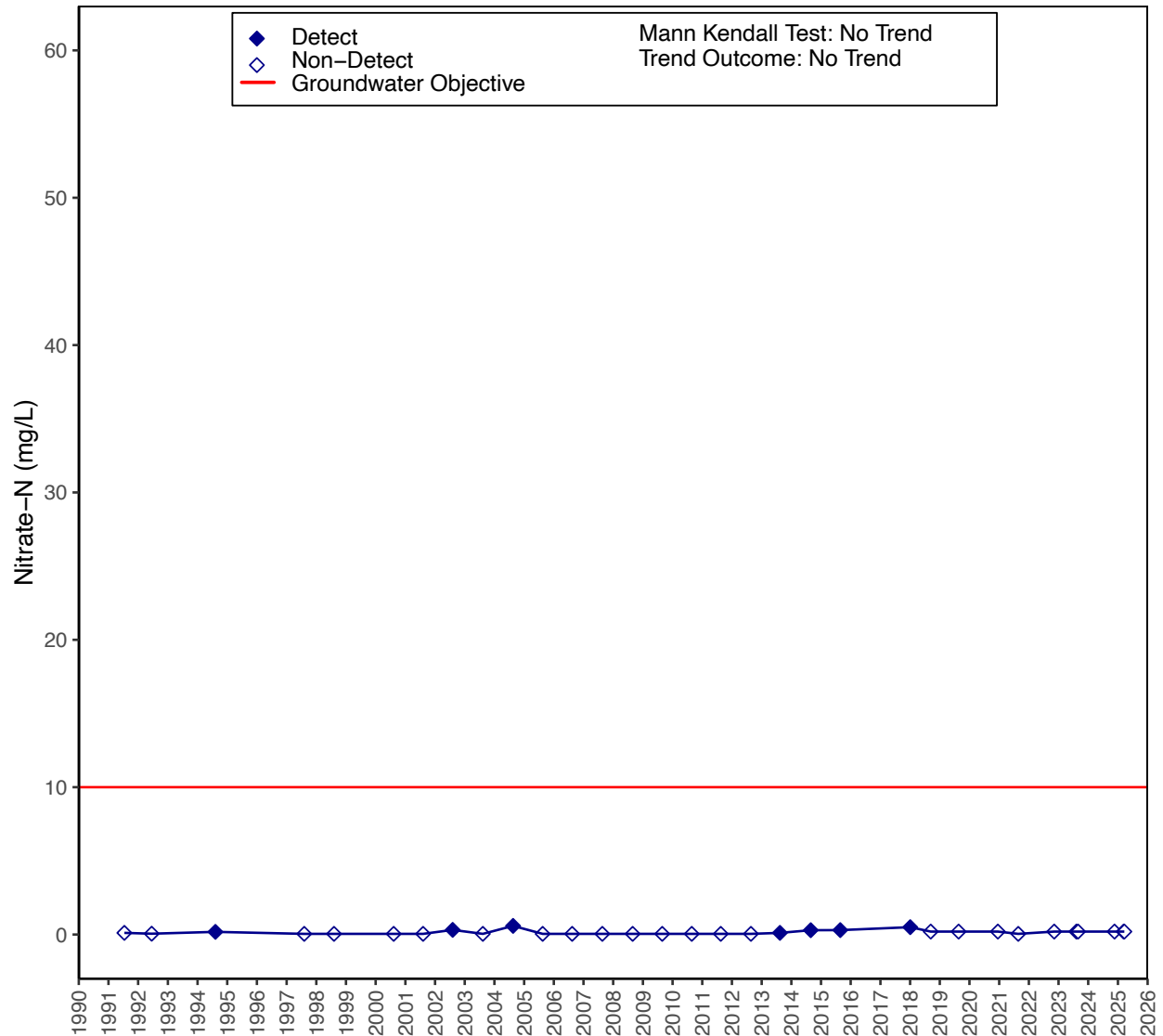
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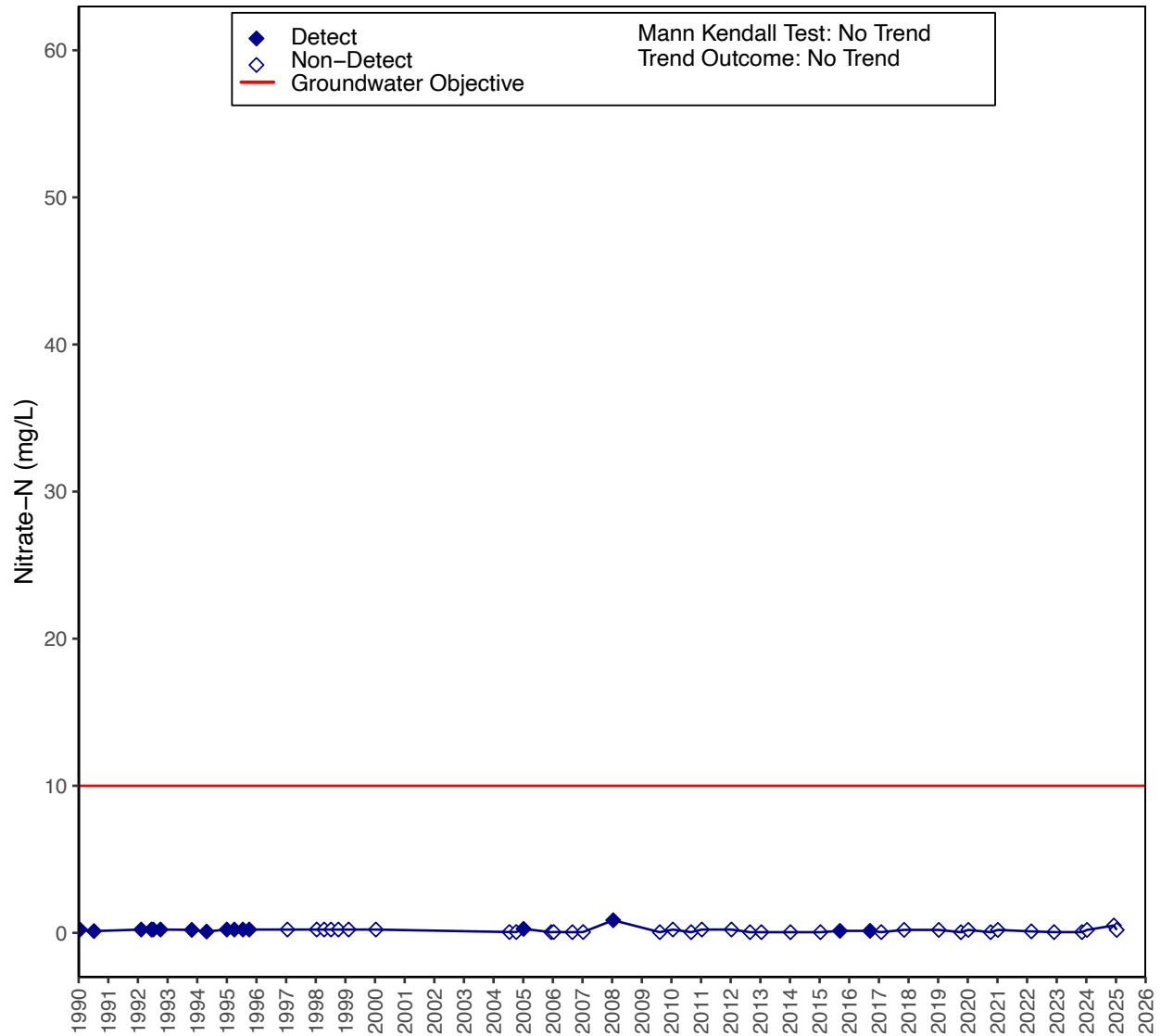
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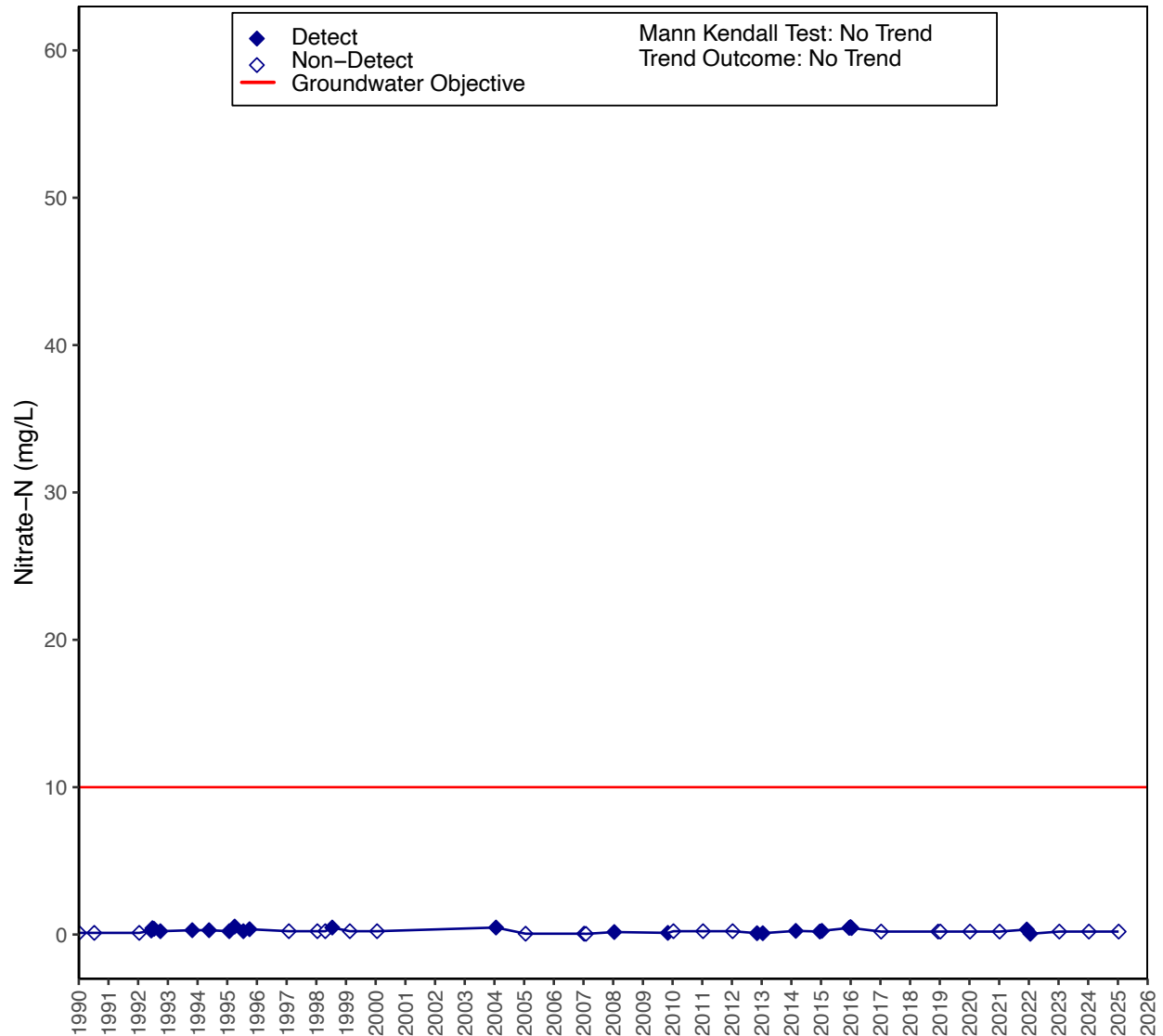
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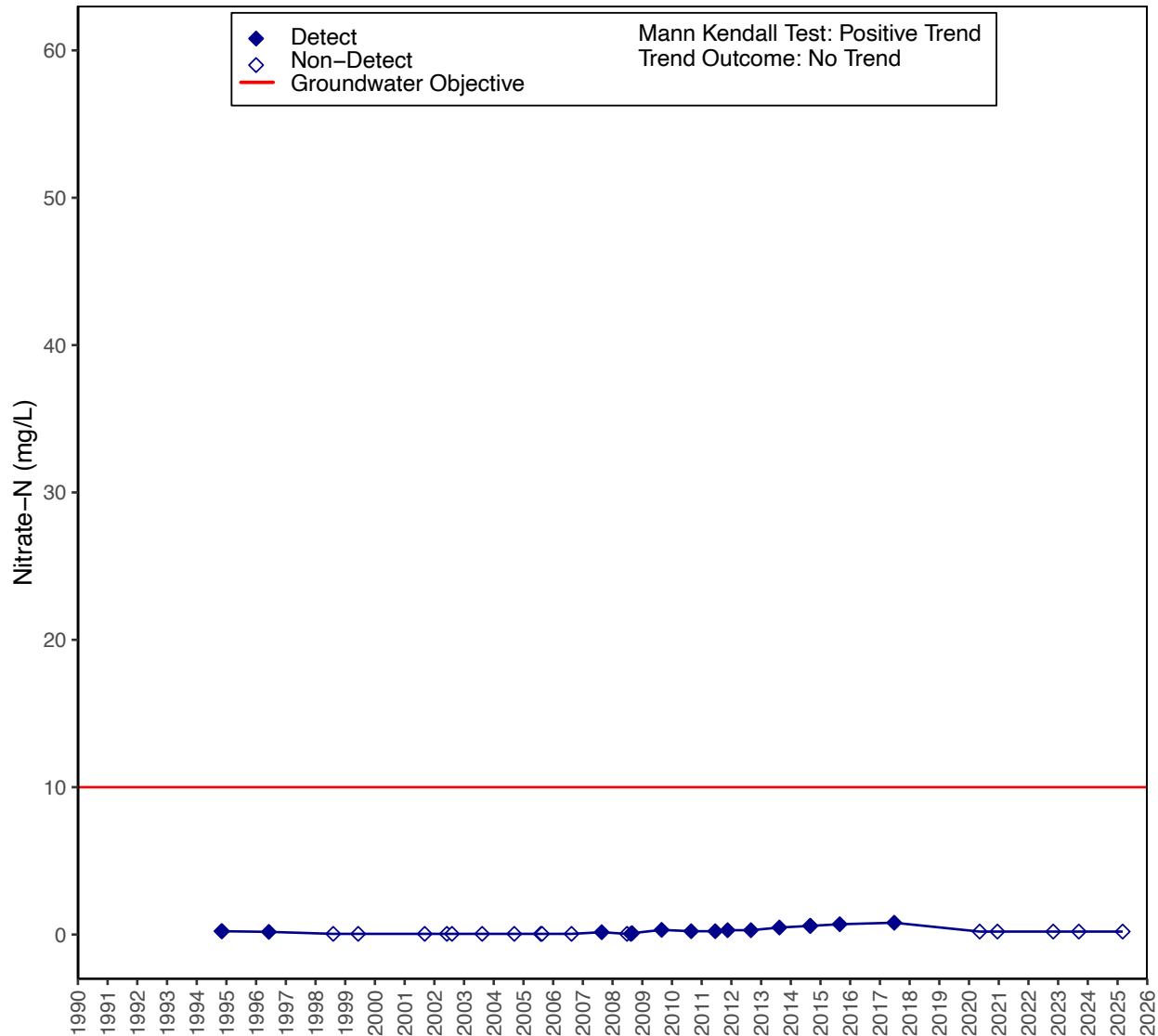
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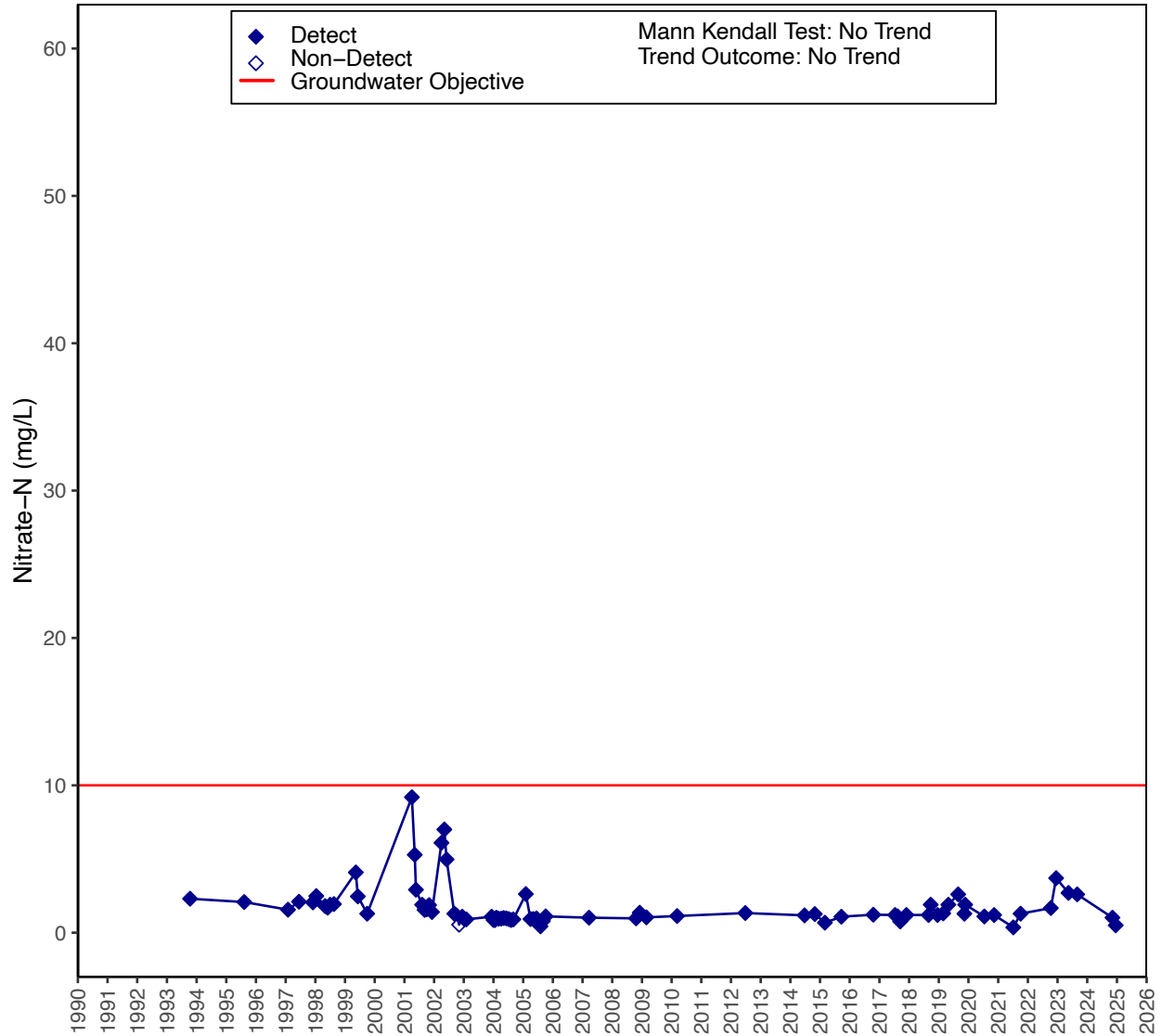
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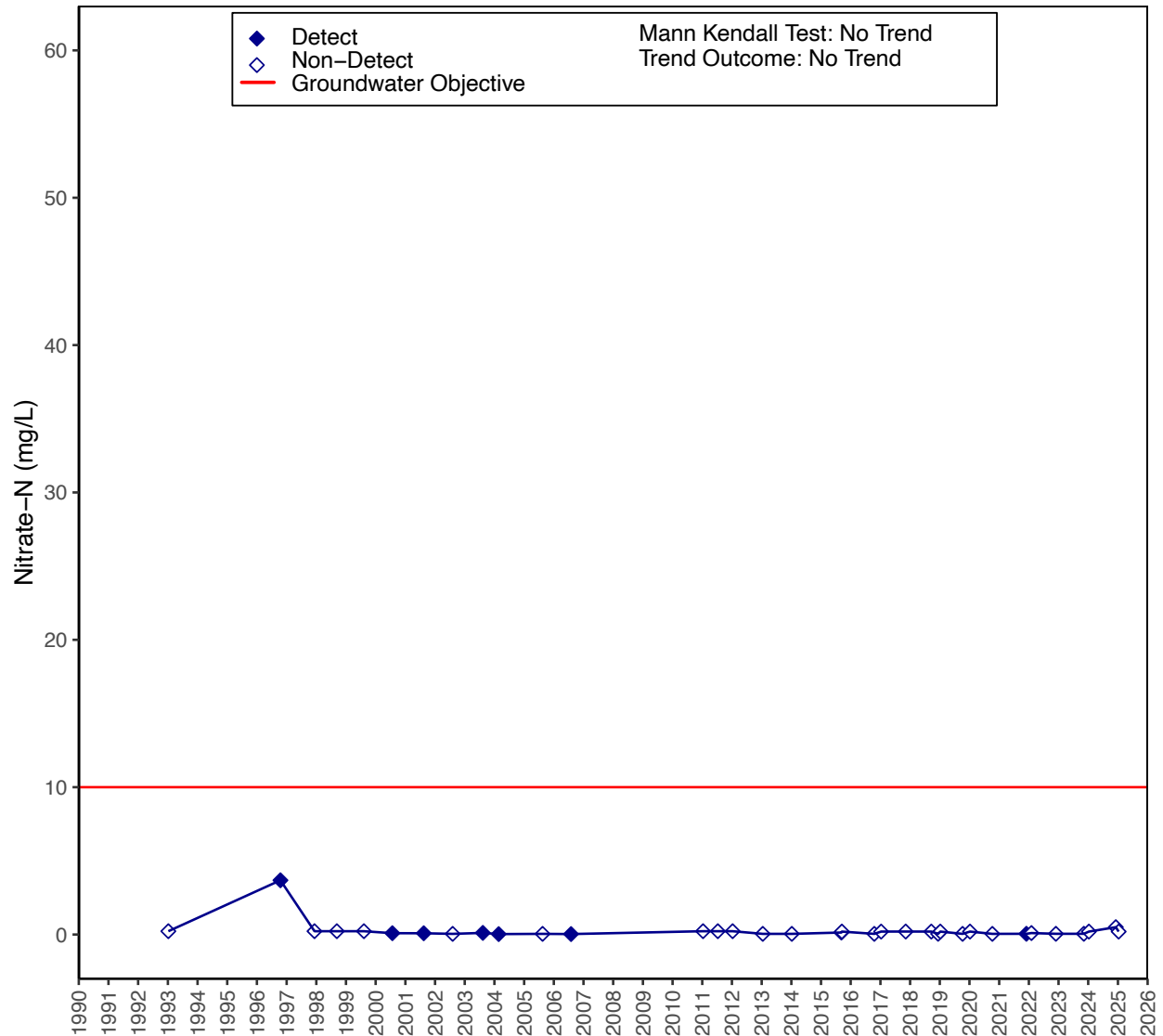
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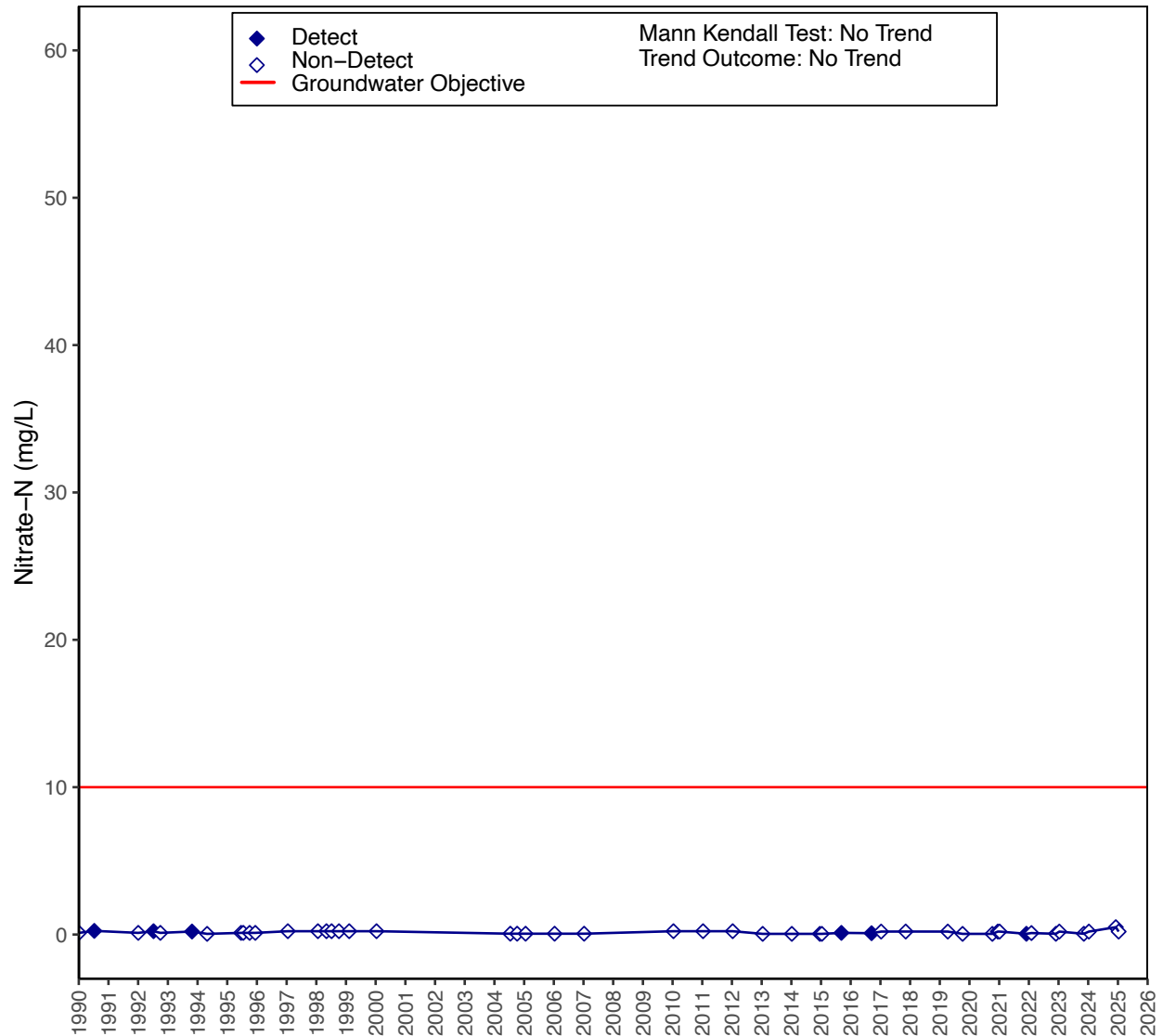
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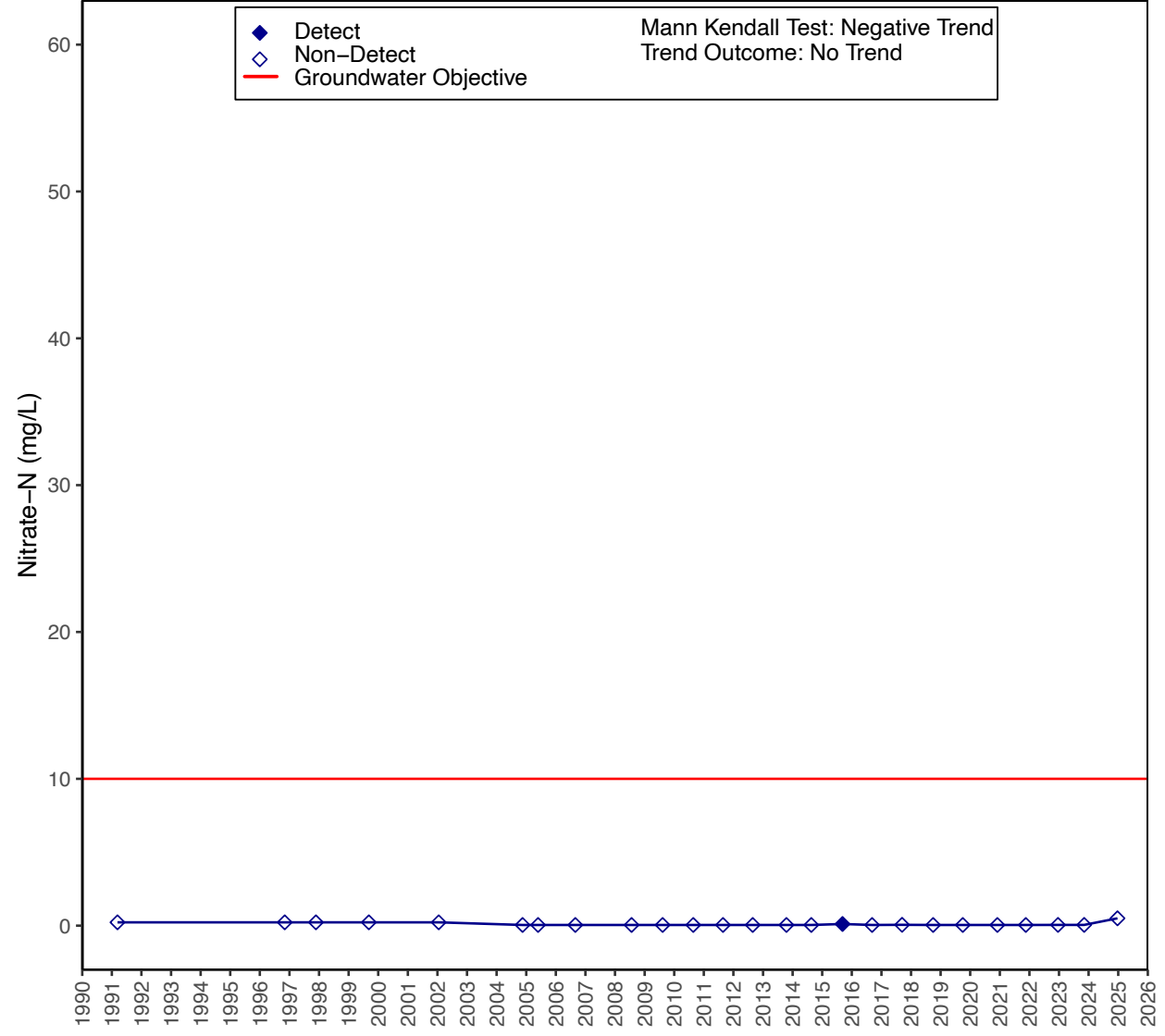
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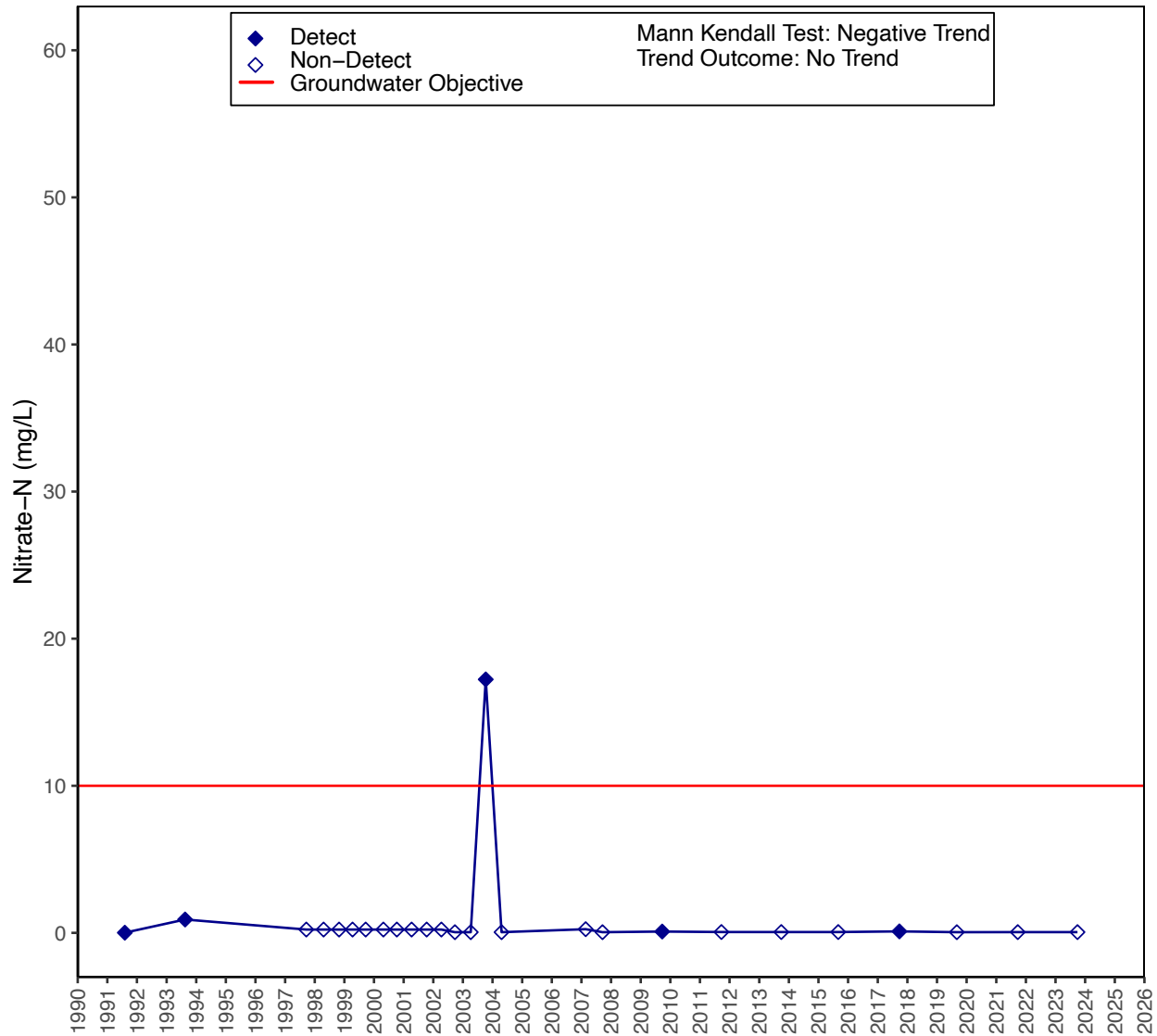
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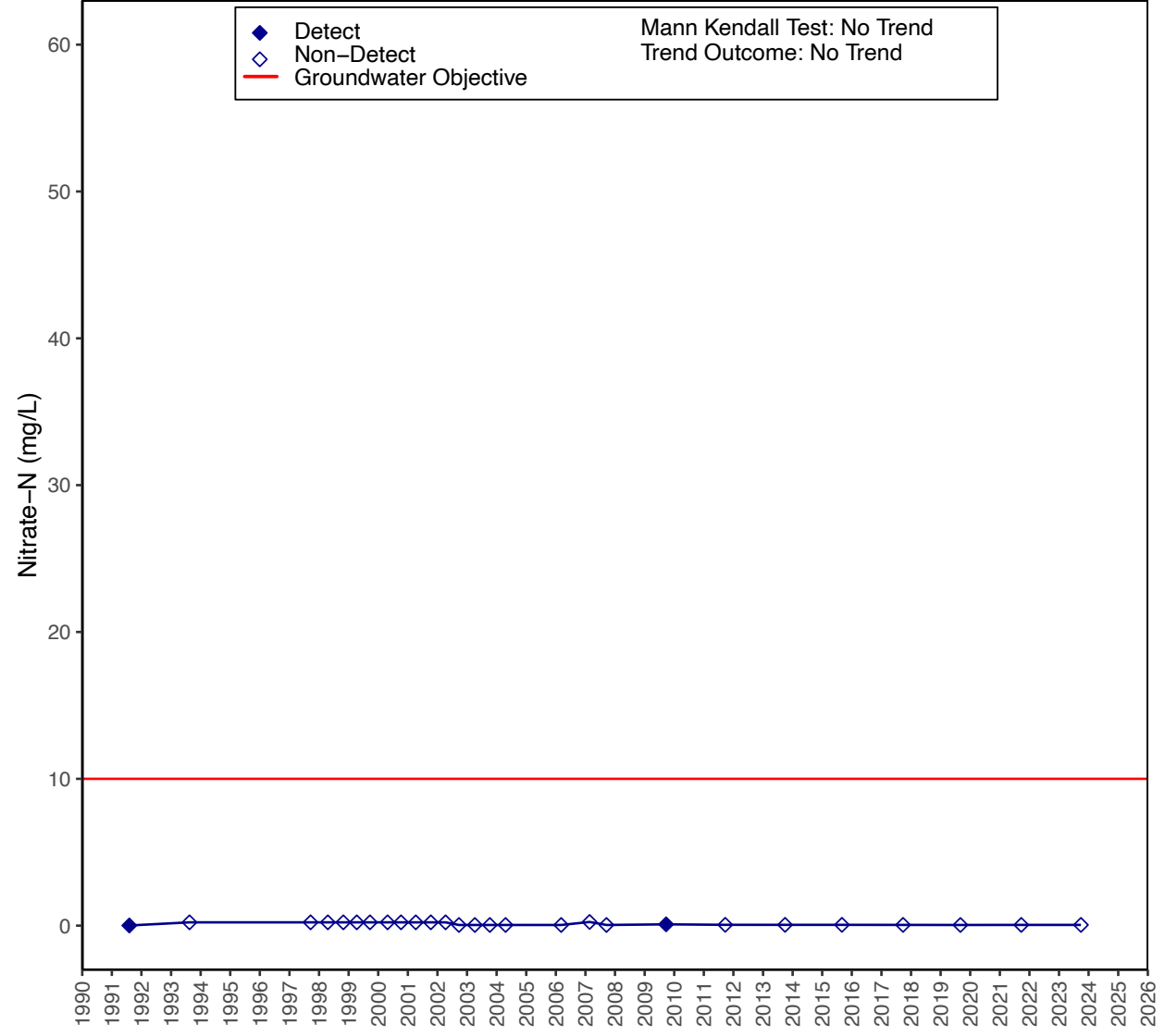
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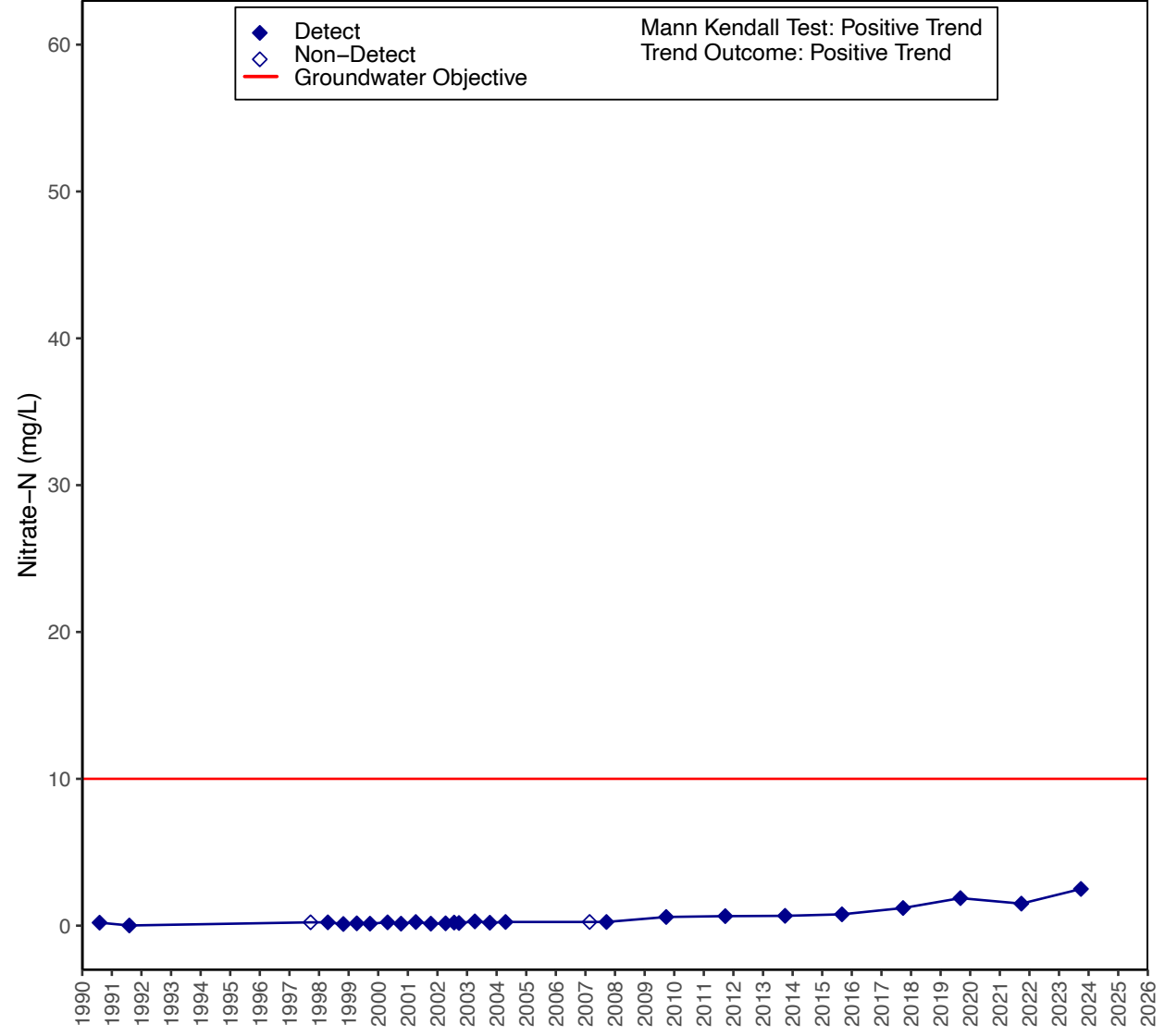
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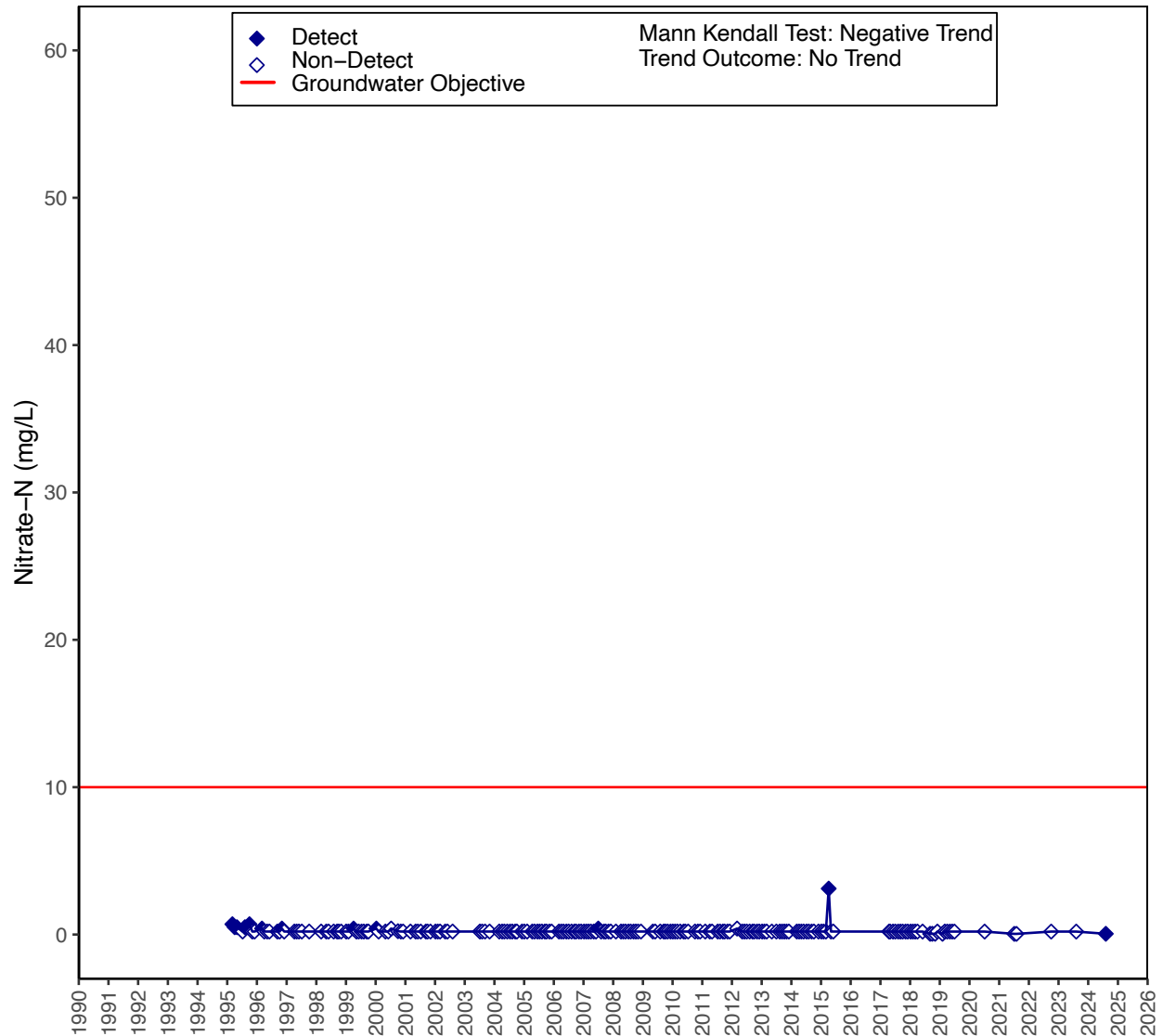
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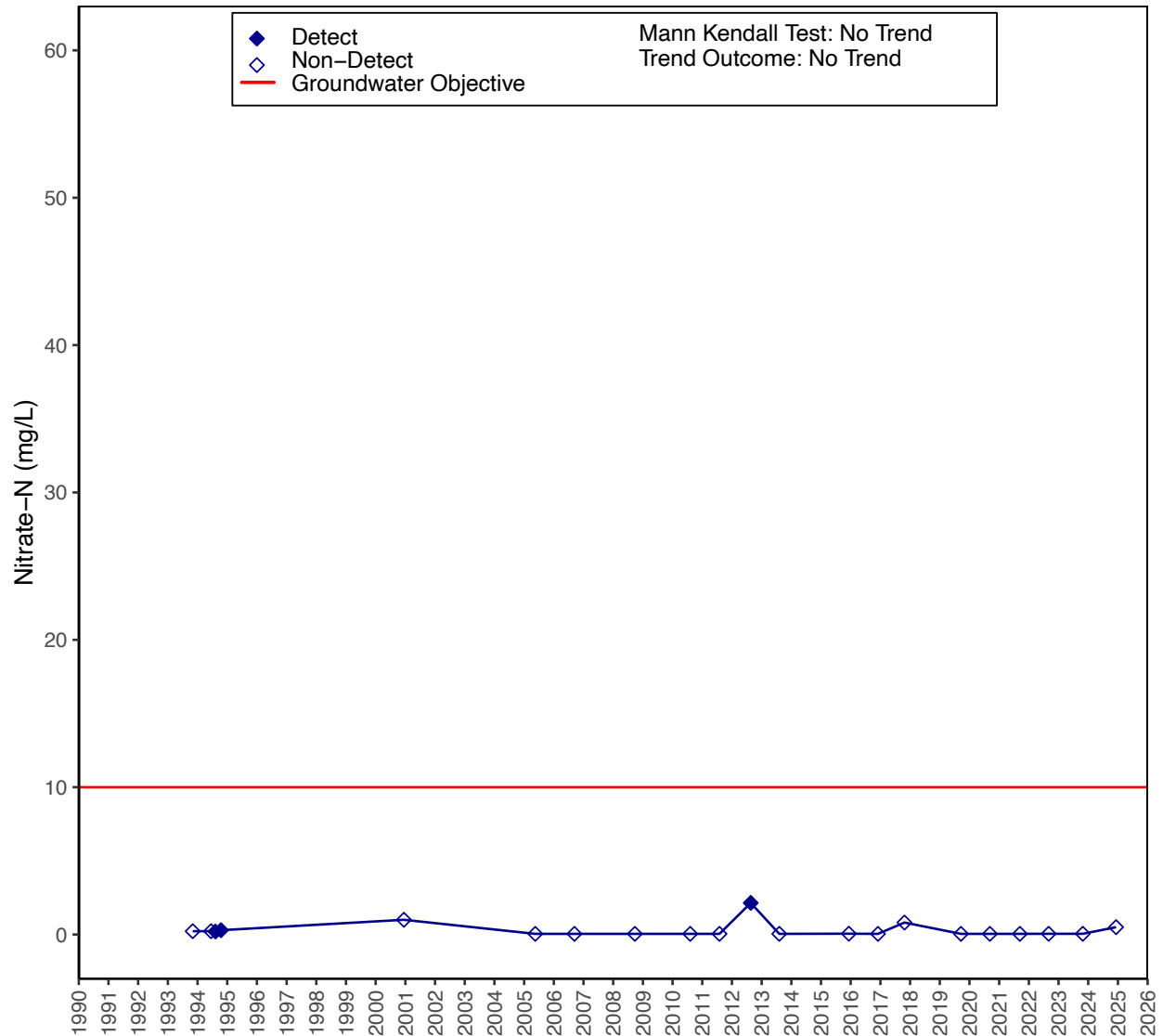
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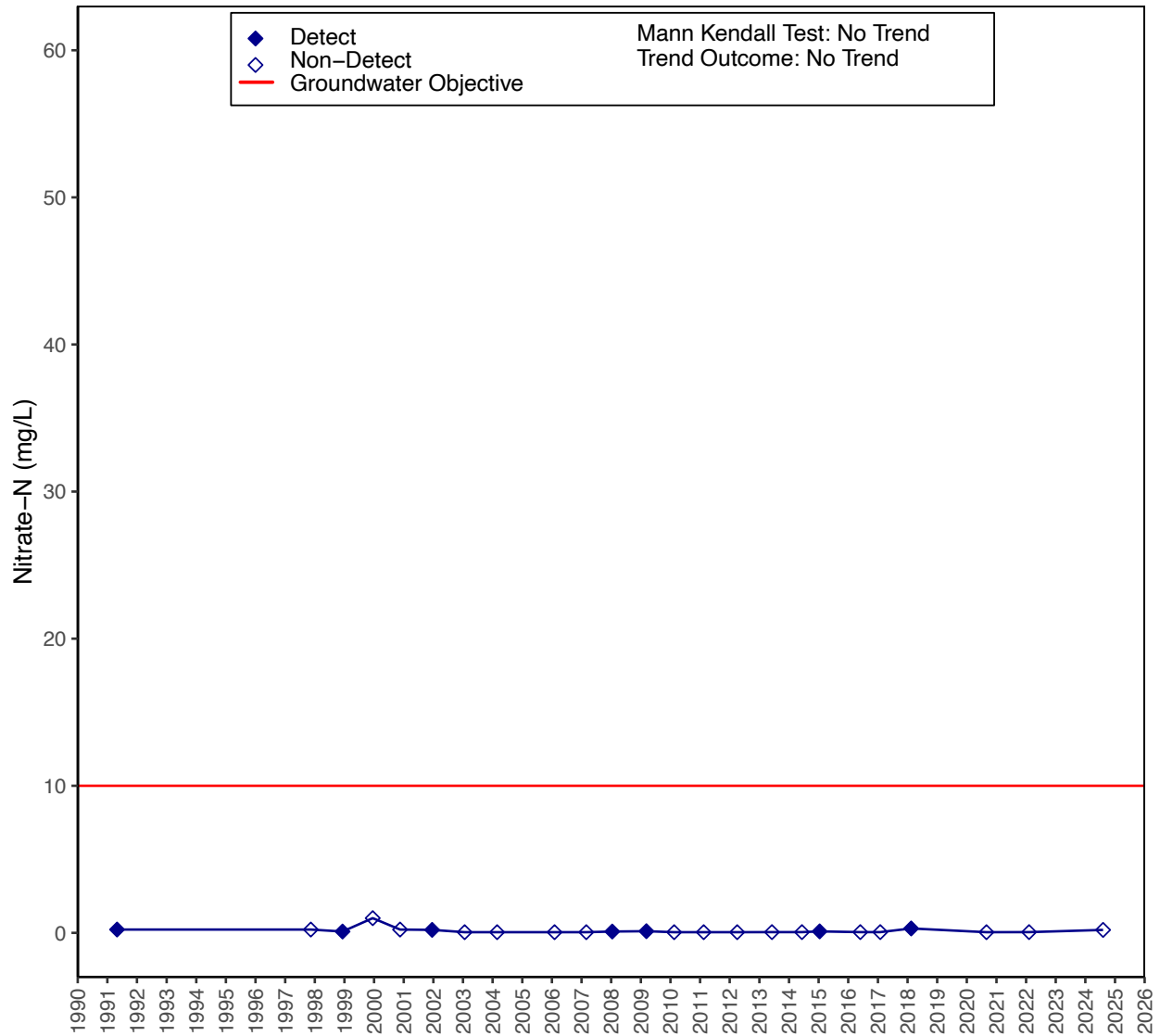
Santa Paula Basin 02N22W02K09S_K09S



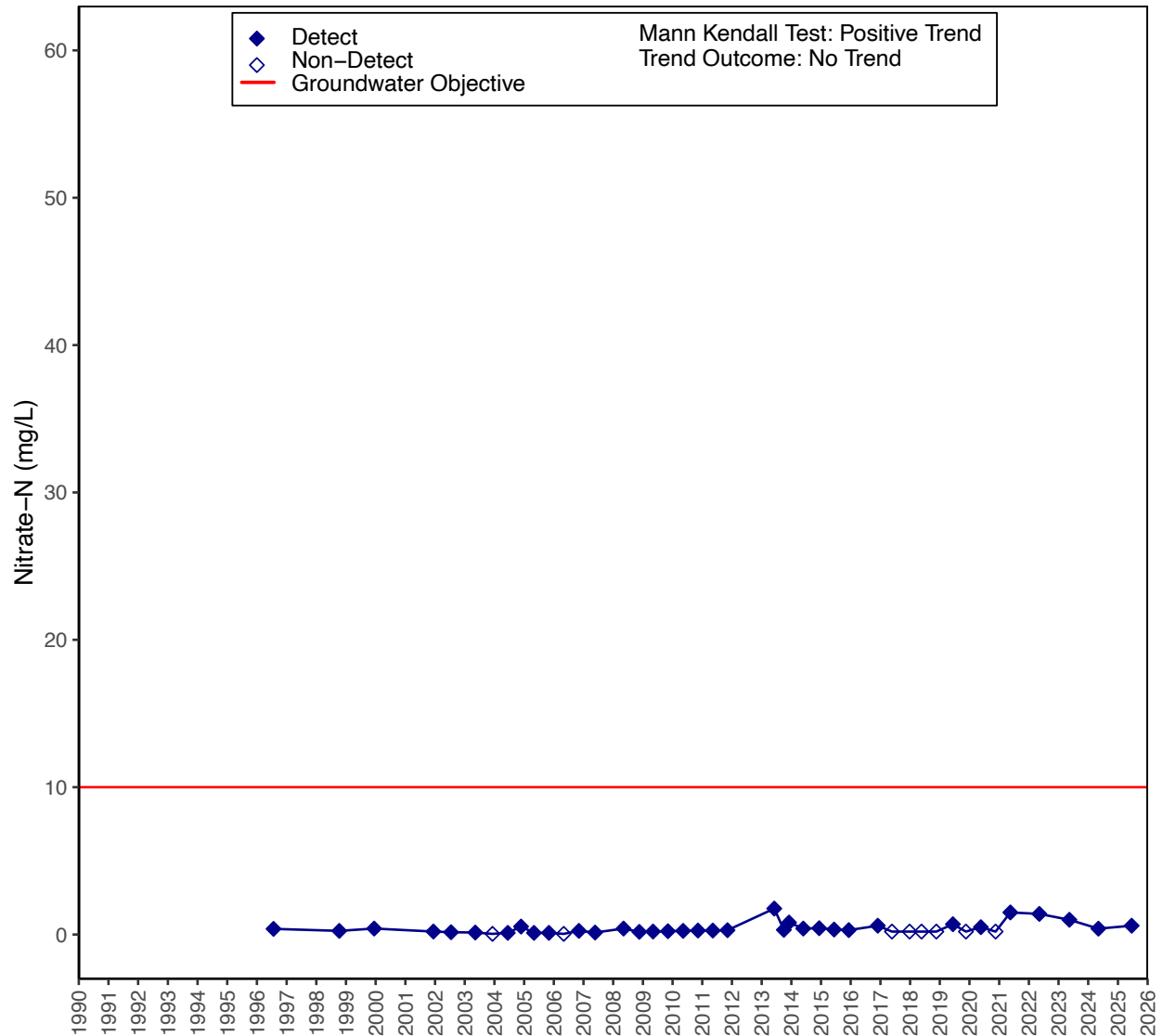
Santa Paula Basin 03N21W09K04S_K04S



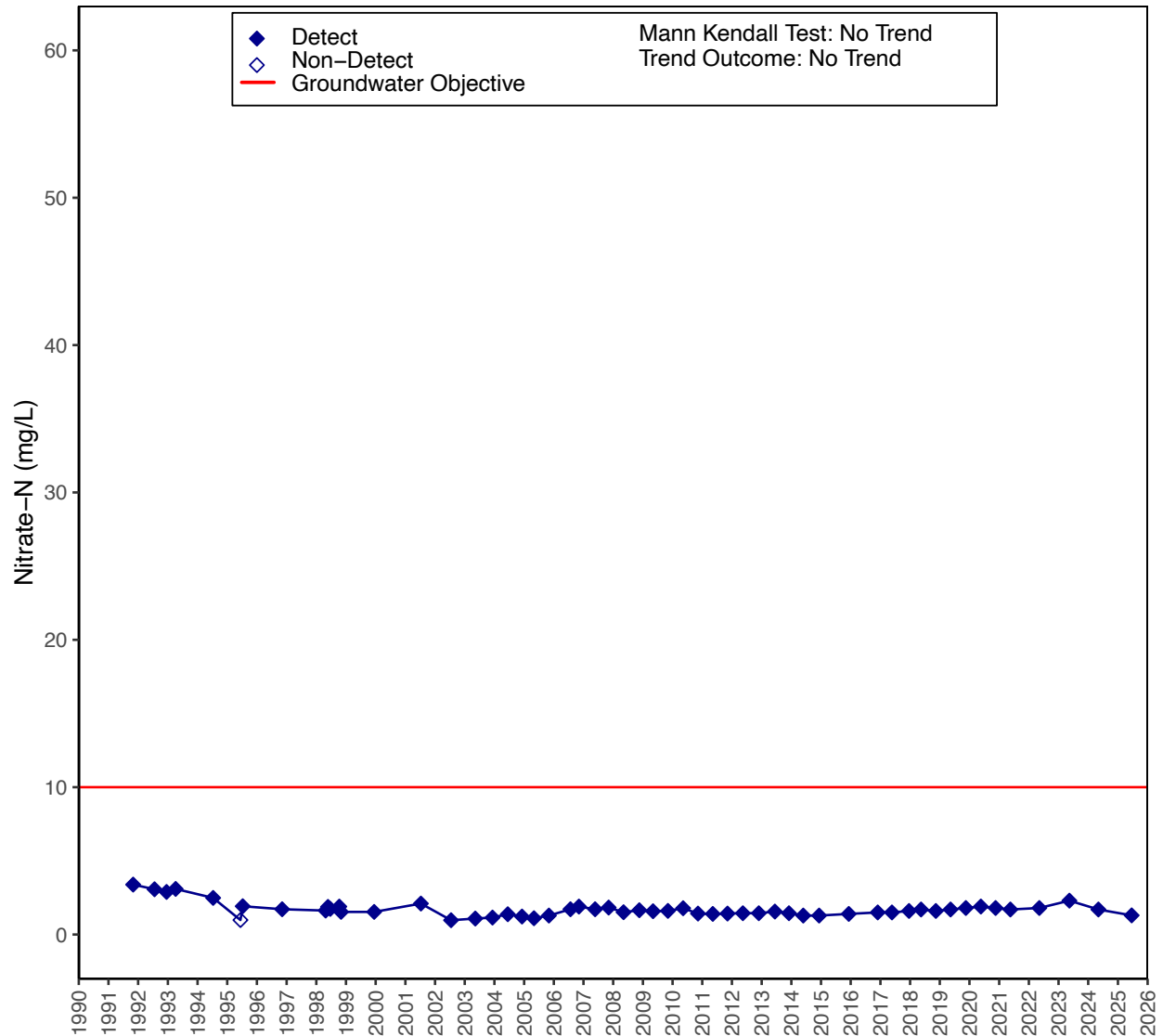
Santa Paula Basin **03N21W09R04S_R04S**



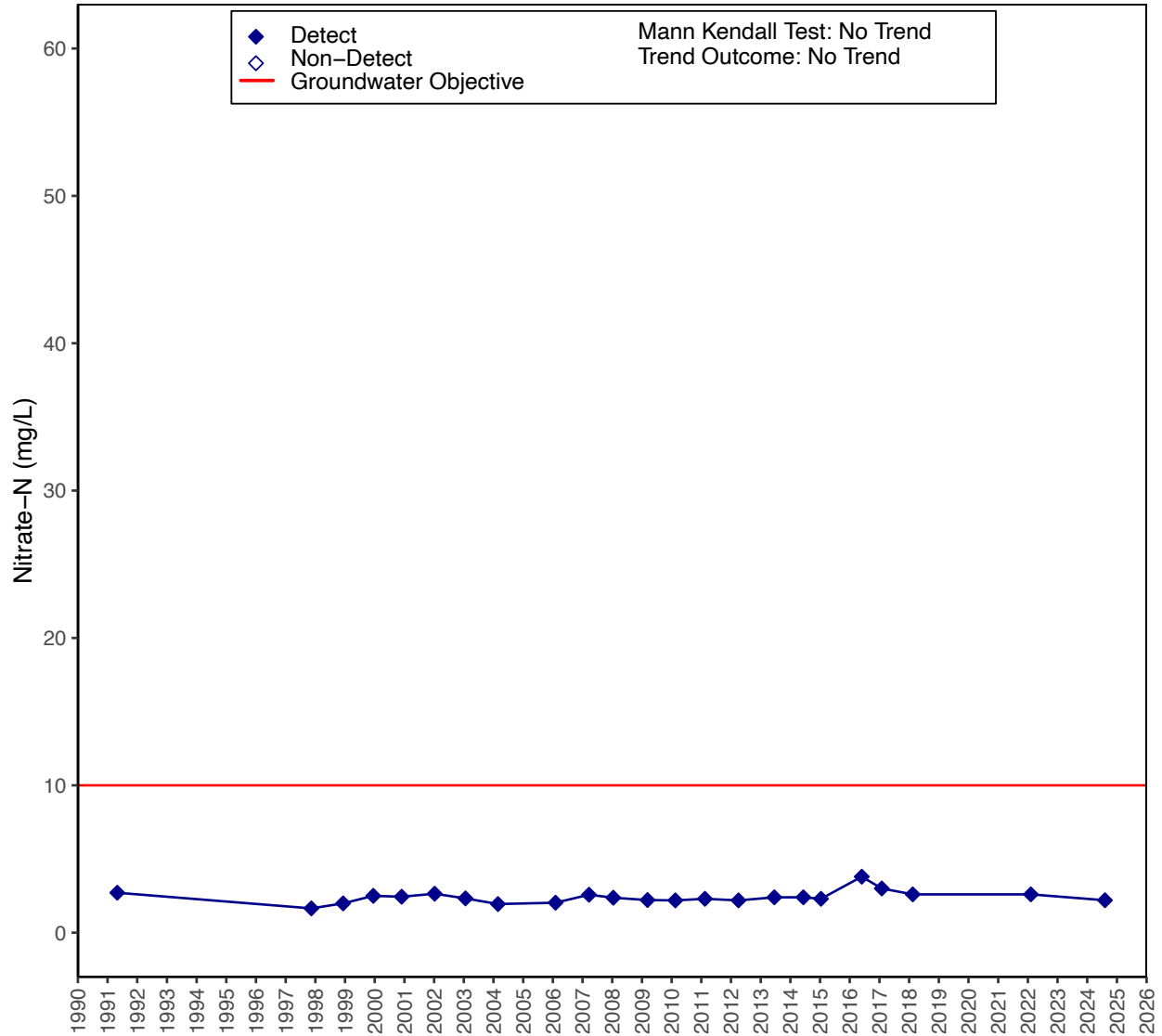
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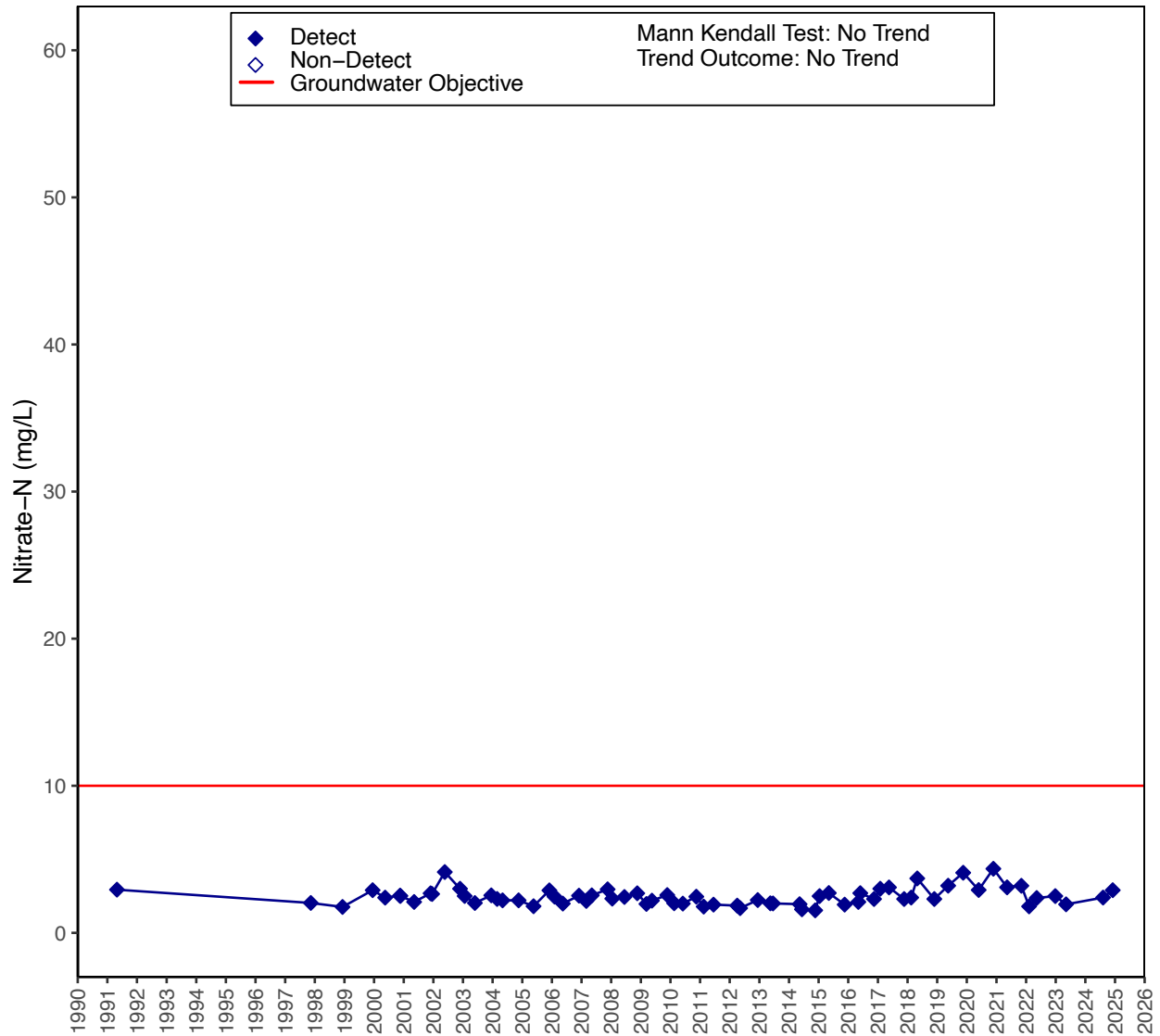
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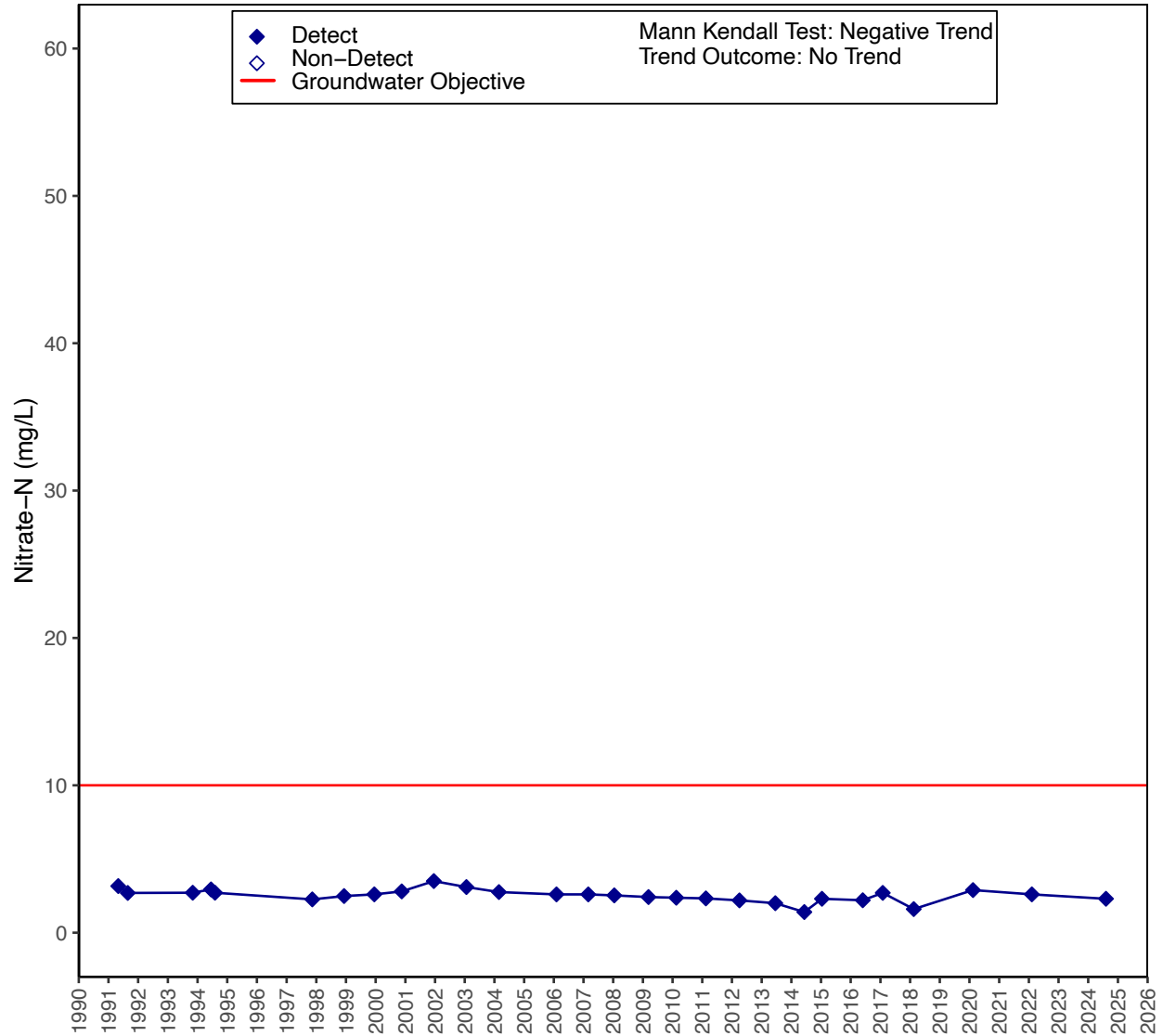
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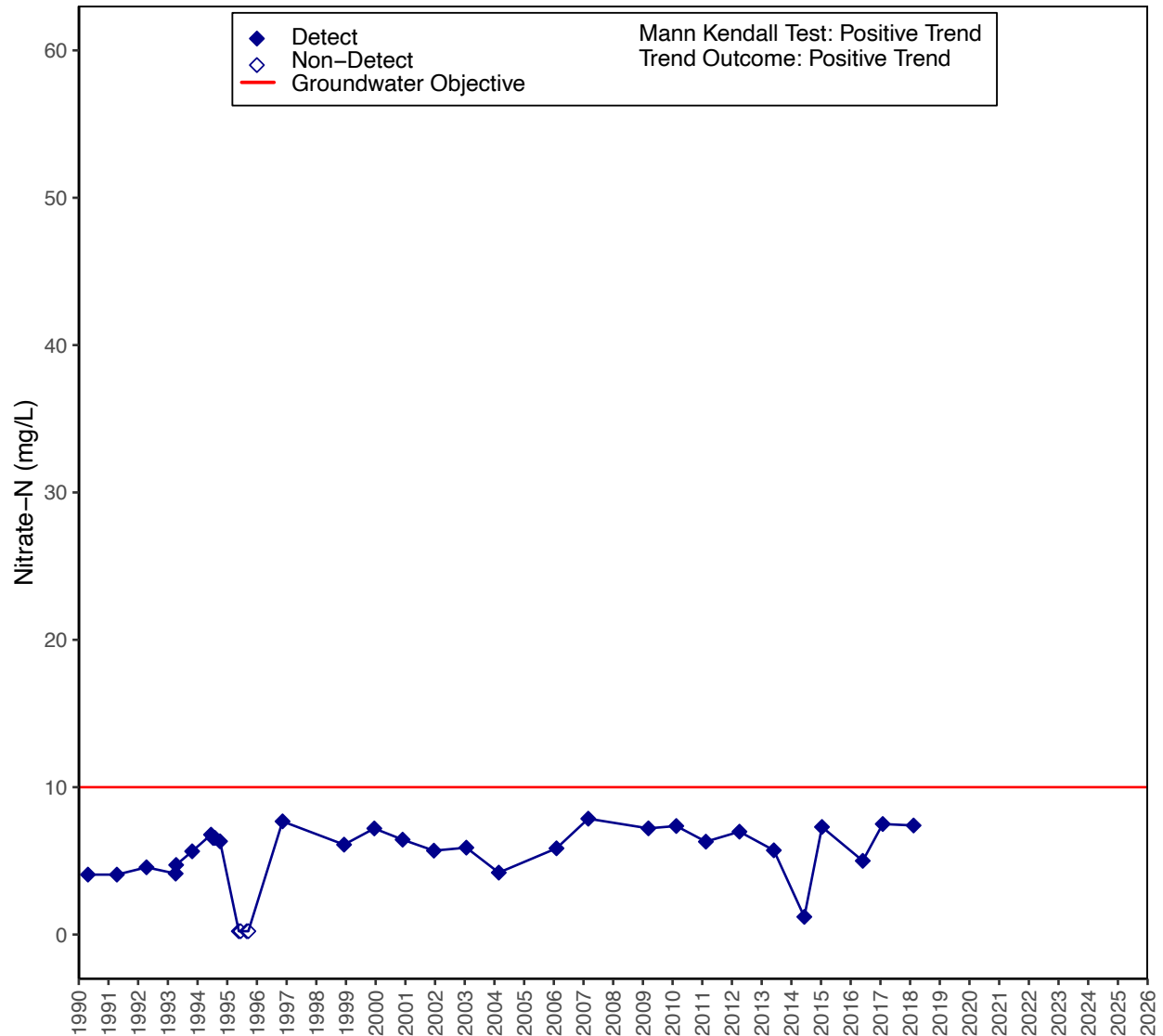
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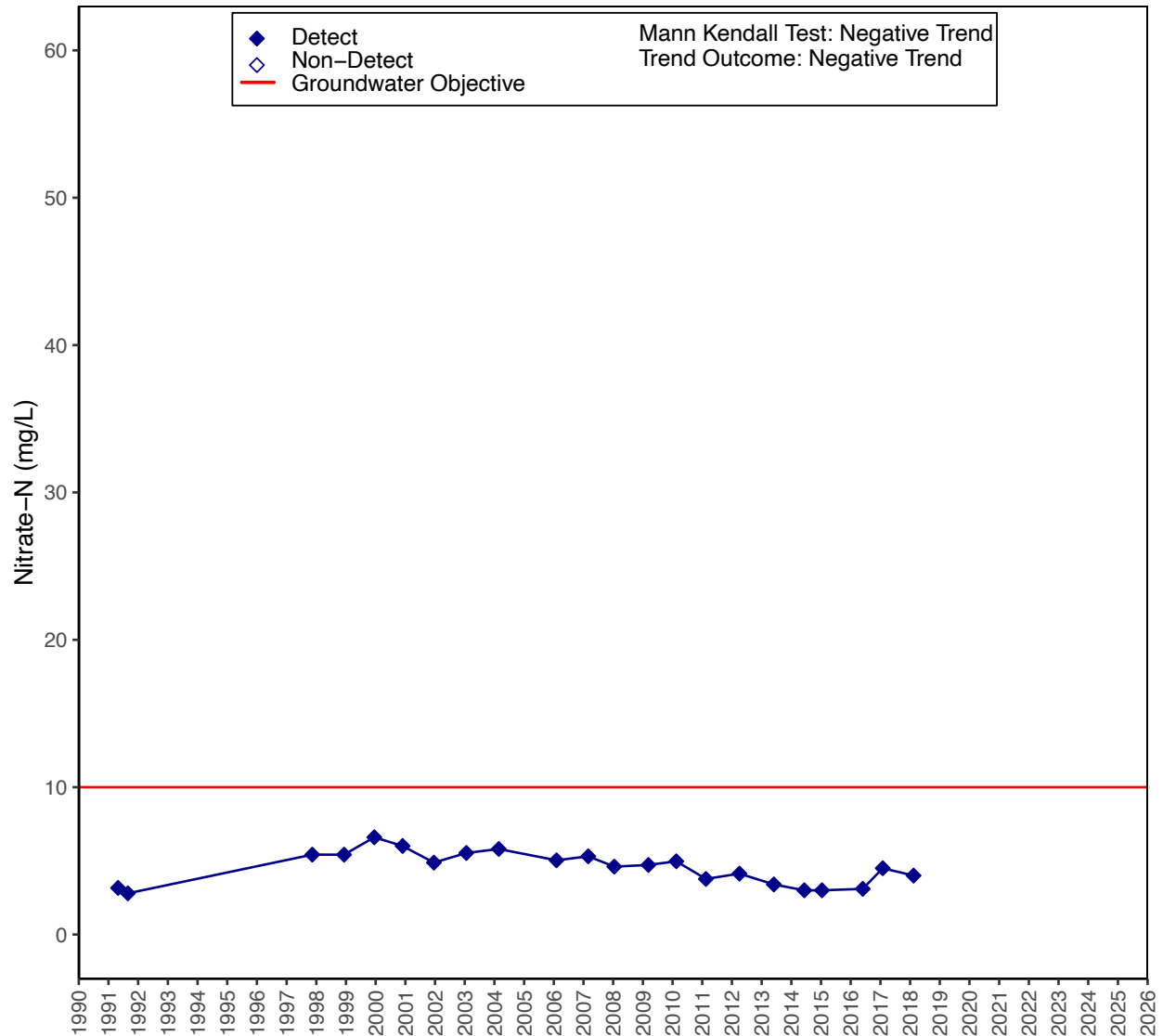
Santa Paula Basin
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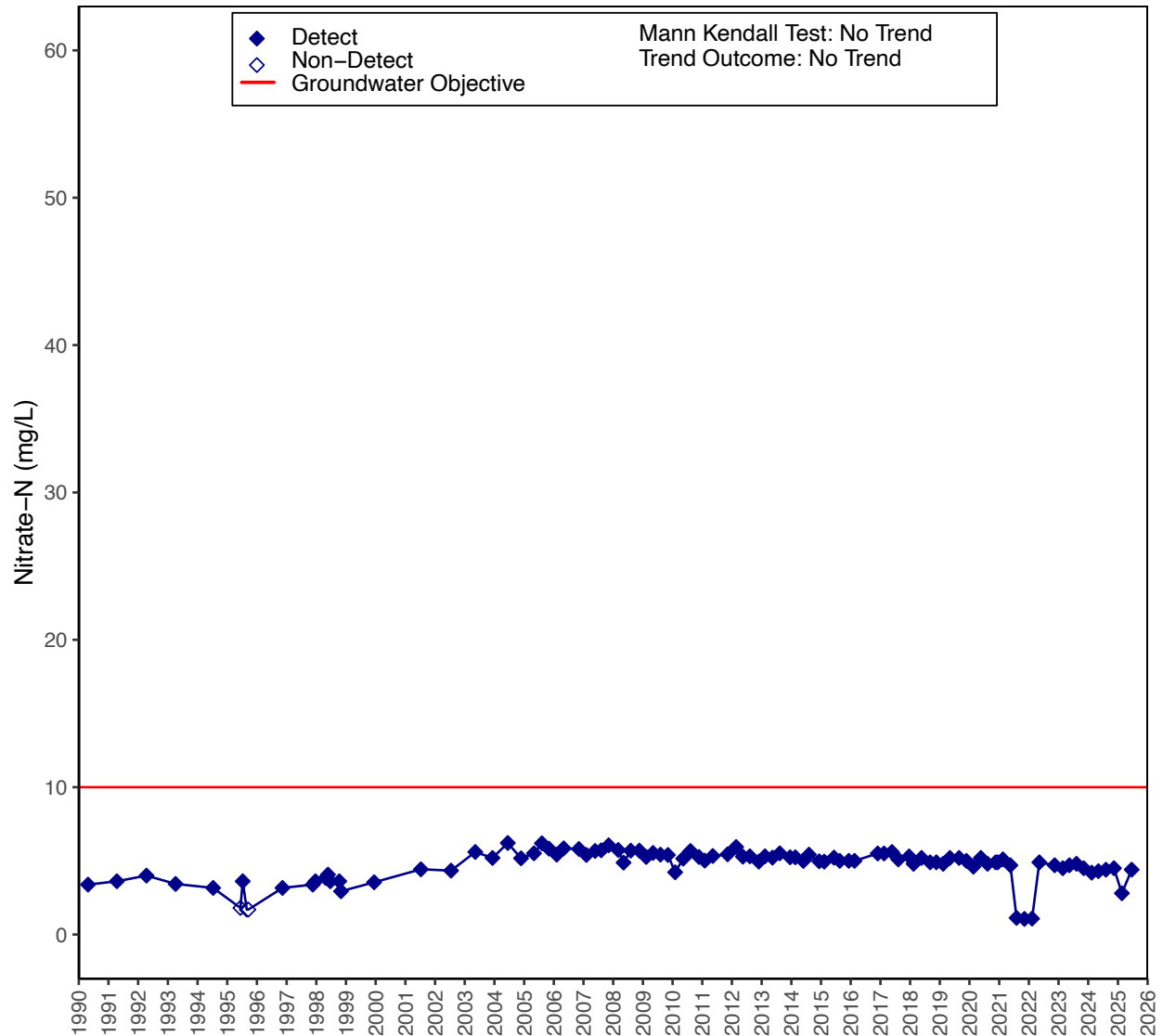
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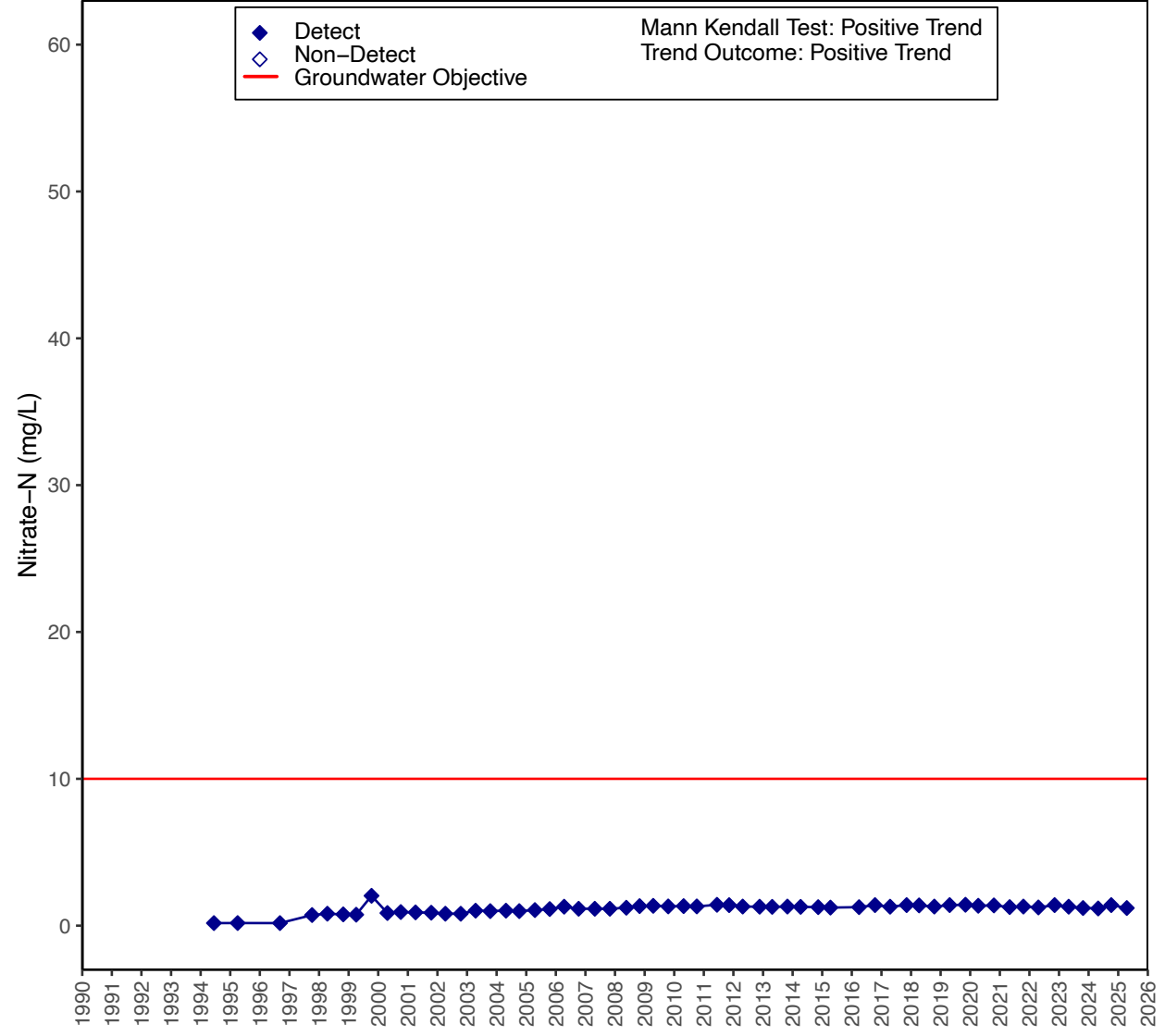
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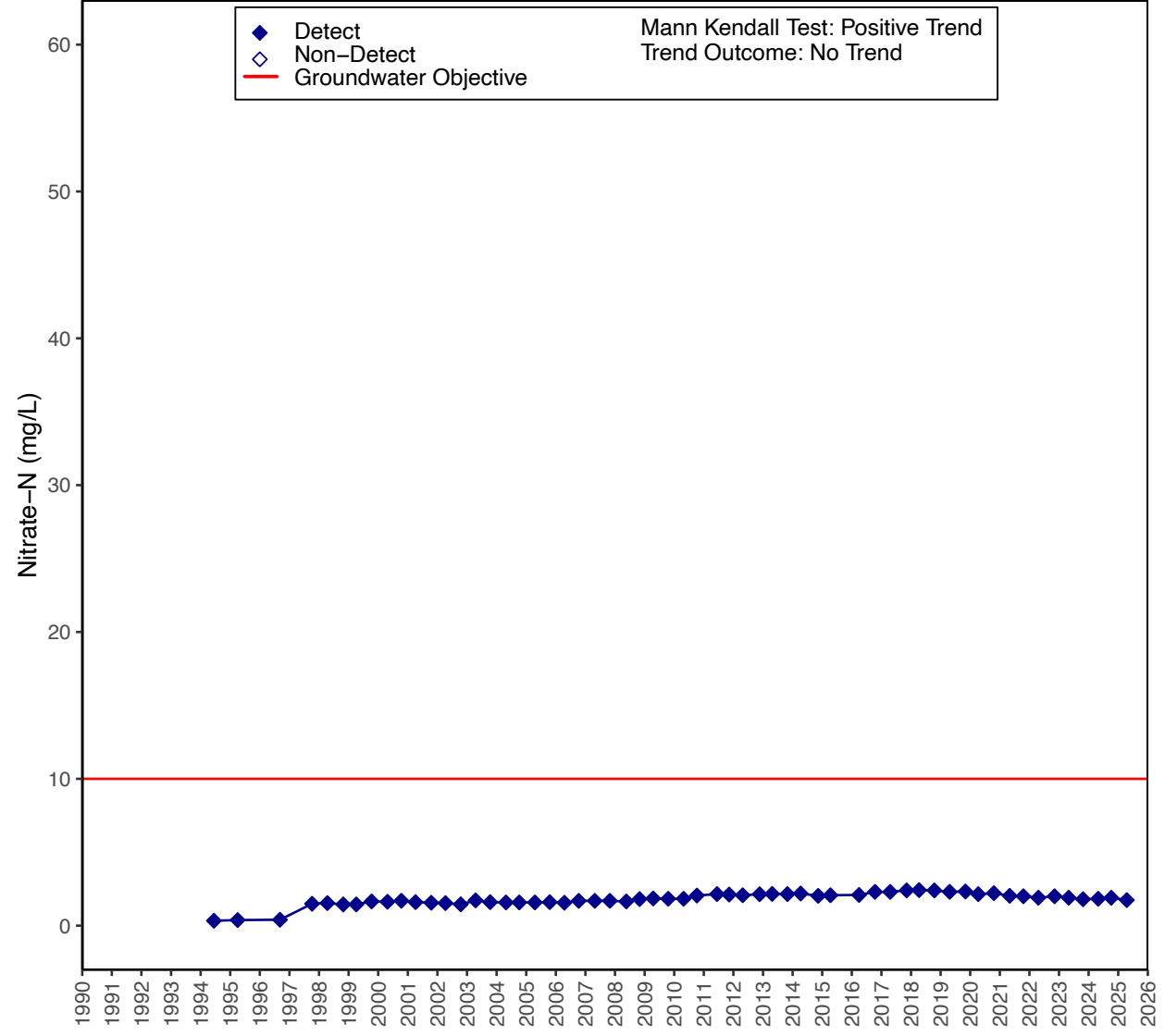
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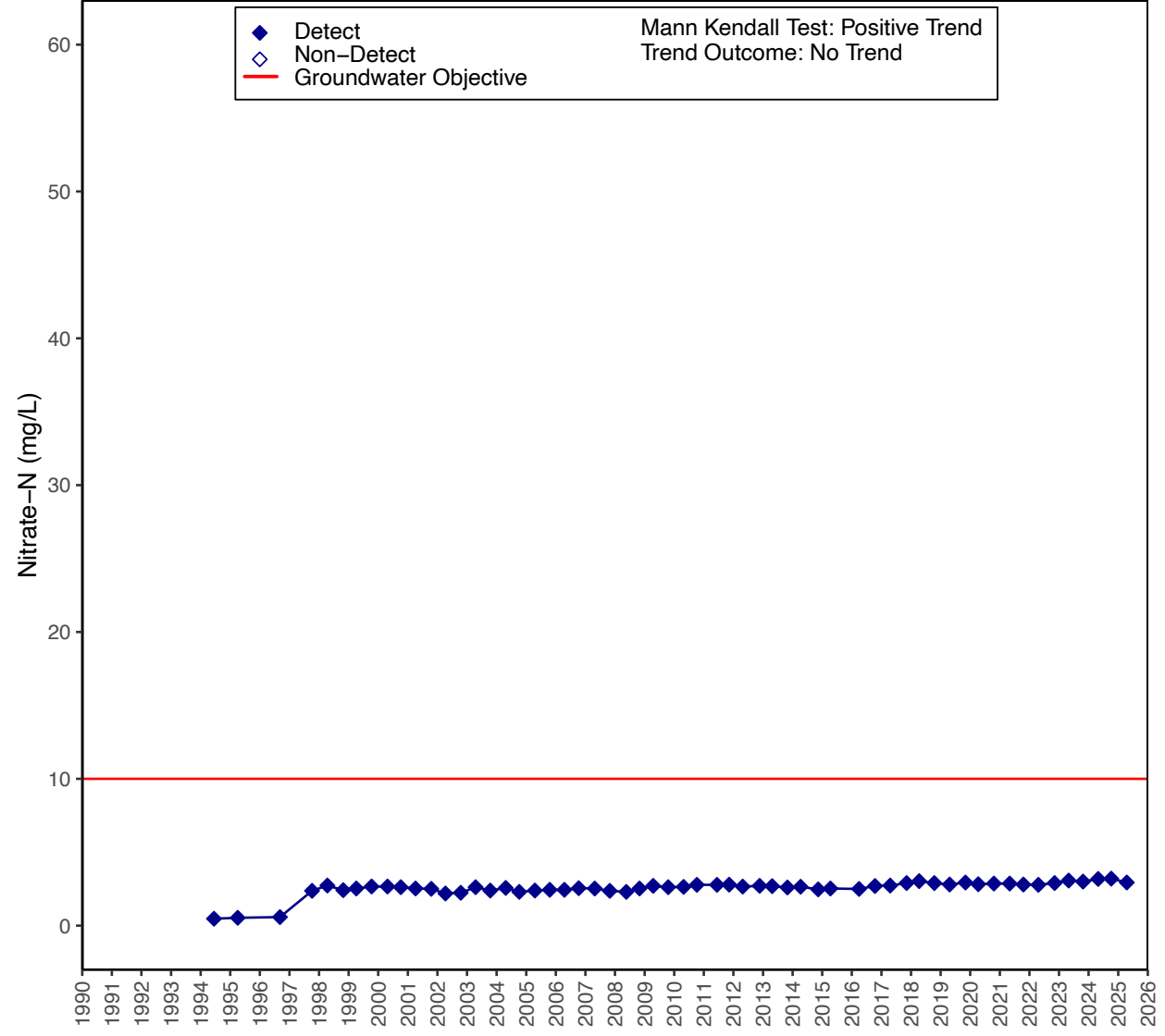
Santa Paula Basin
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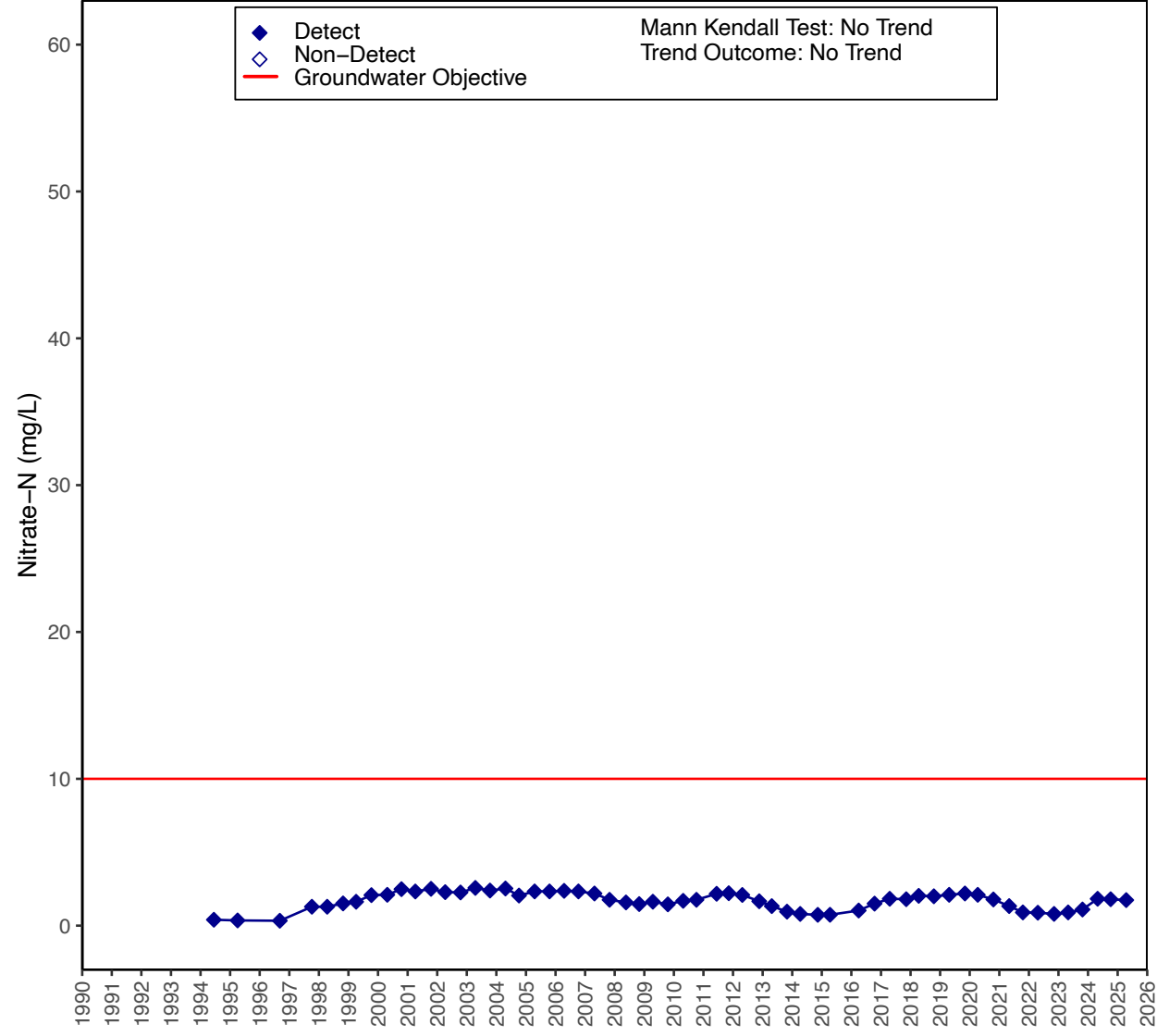
**Santa Paula Basin
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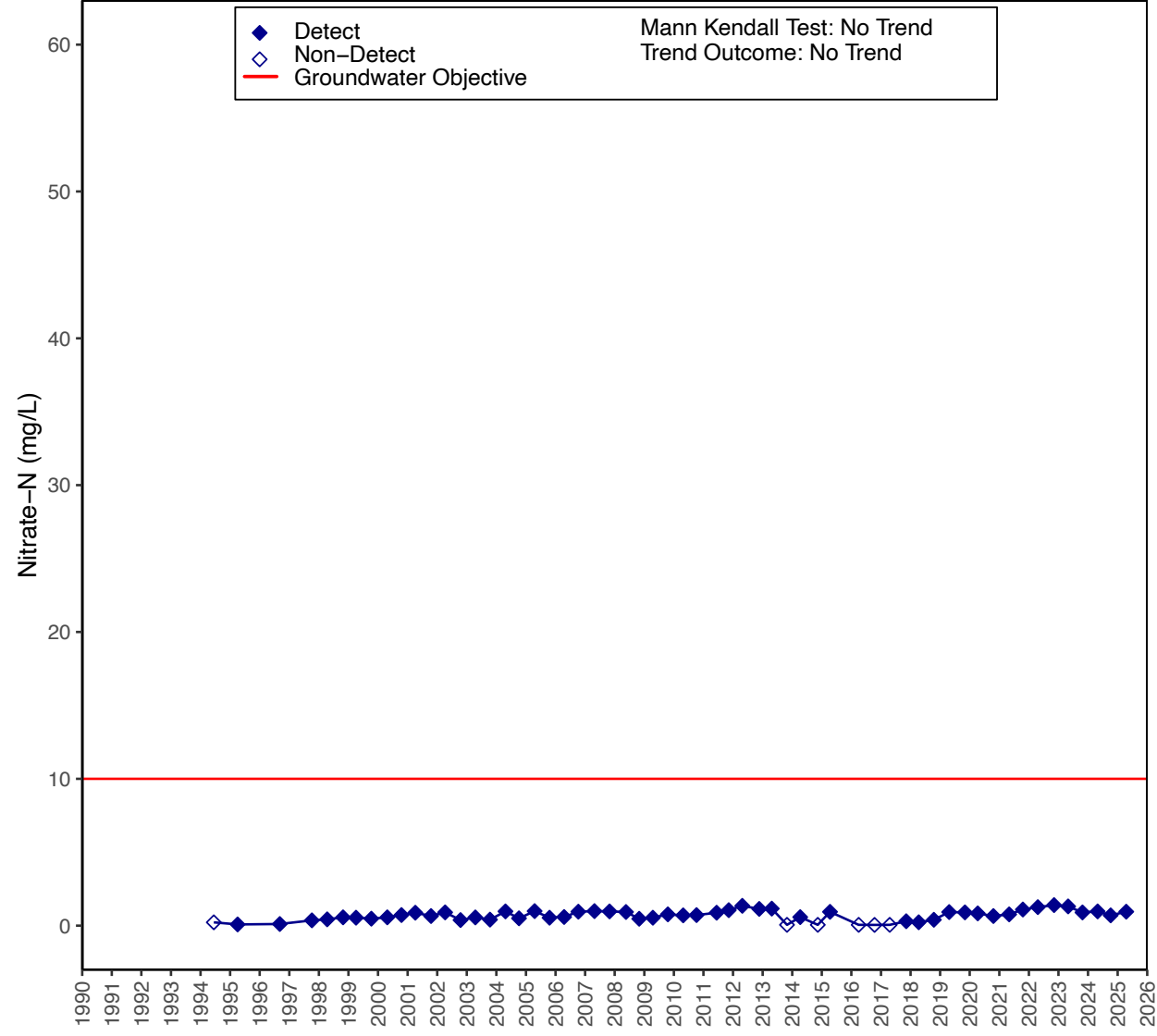
Santa Paula Basin
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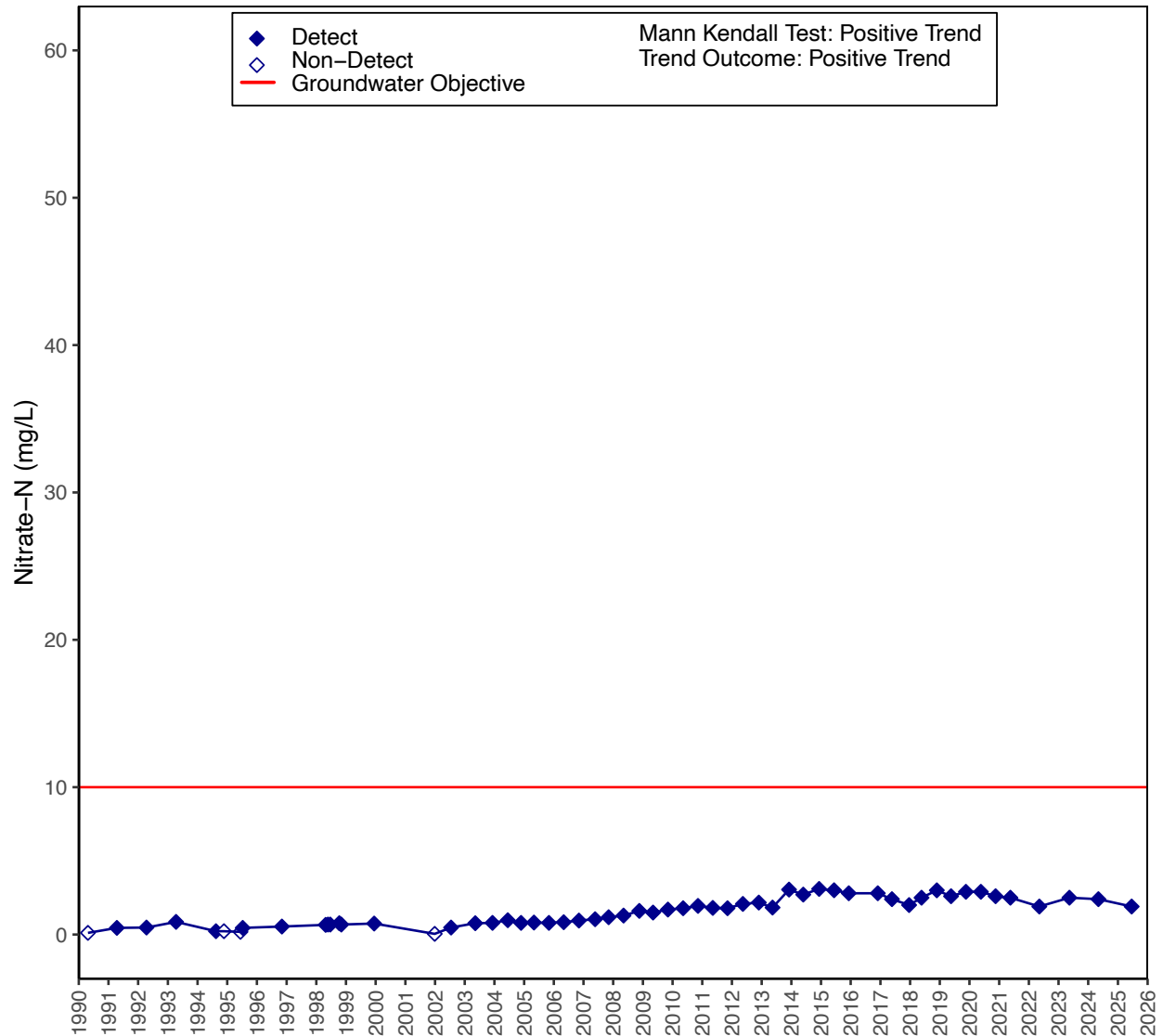
**Santa Paula Basin
03N21W15G04S_G04S**



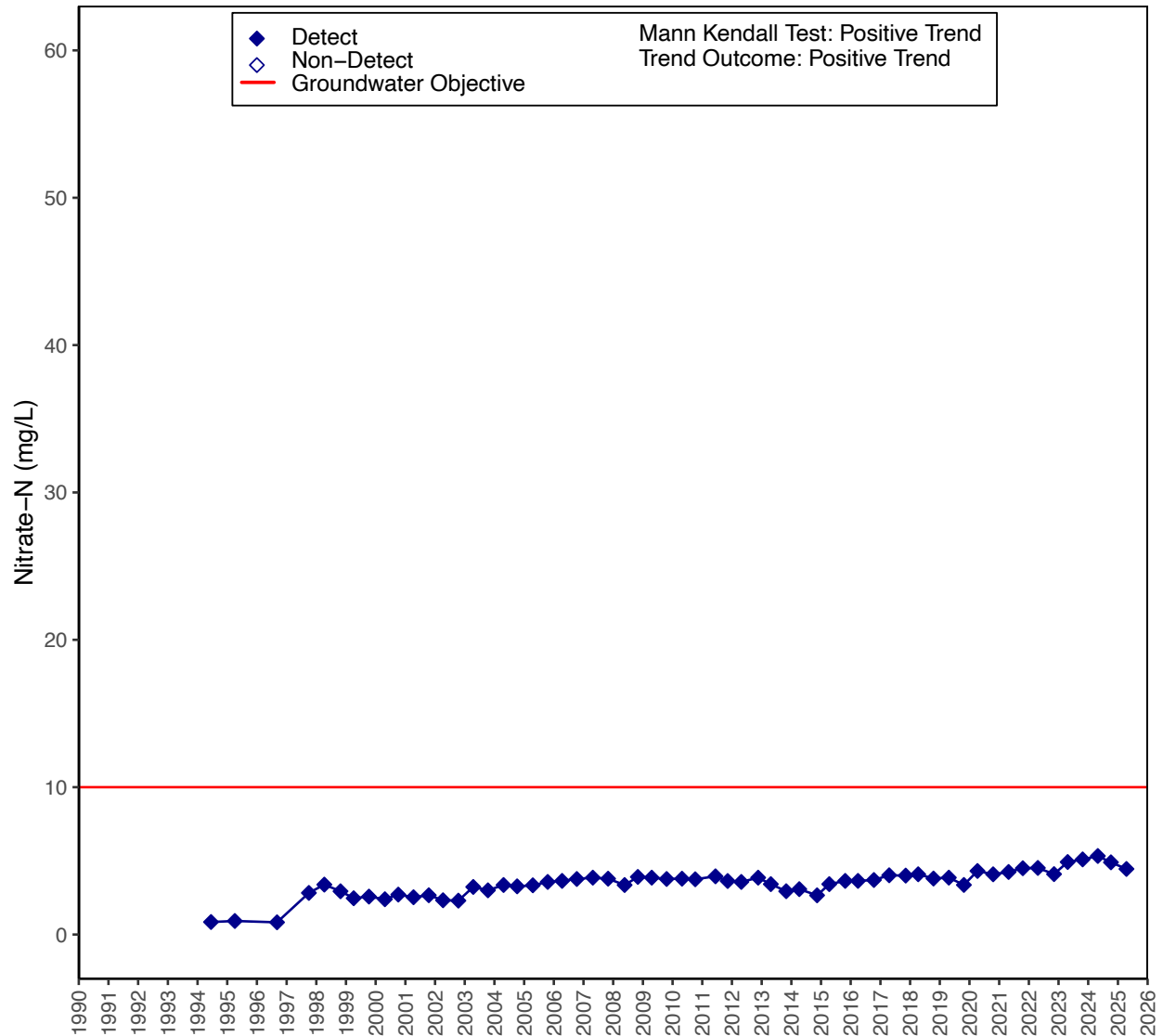
**Santa Paula Basin
03N21W15G05S_G05S**



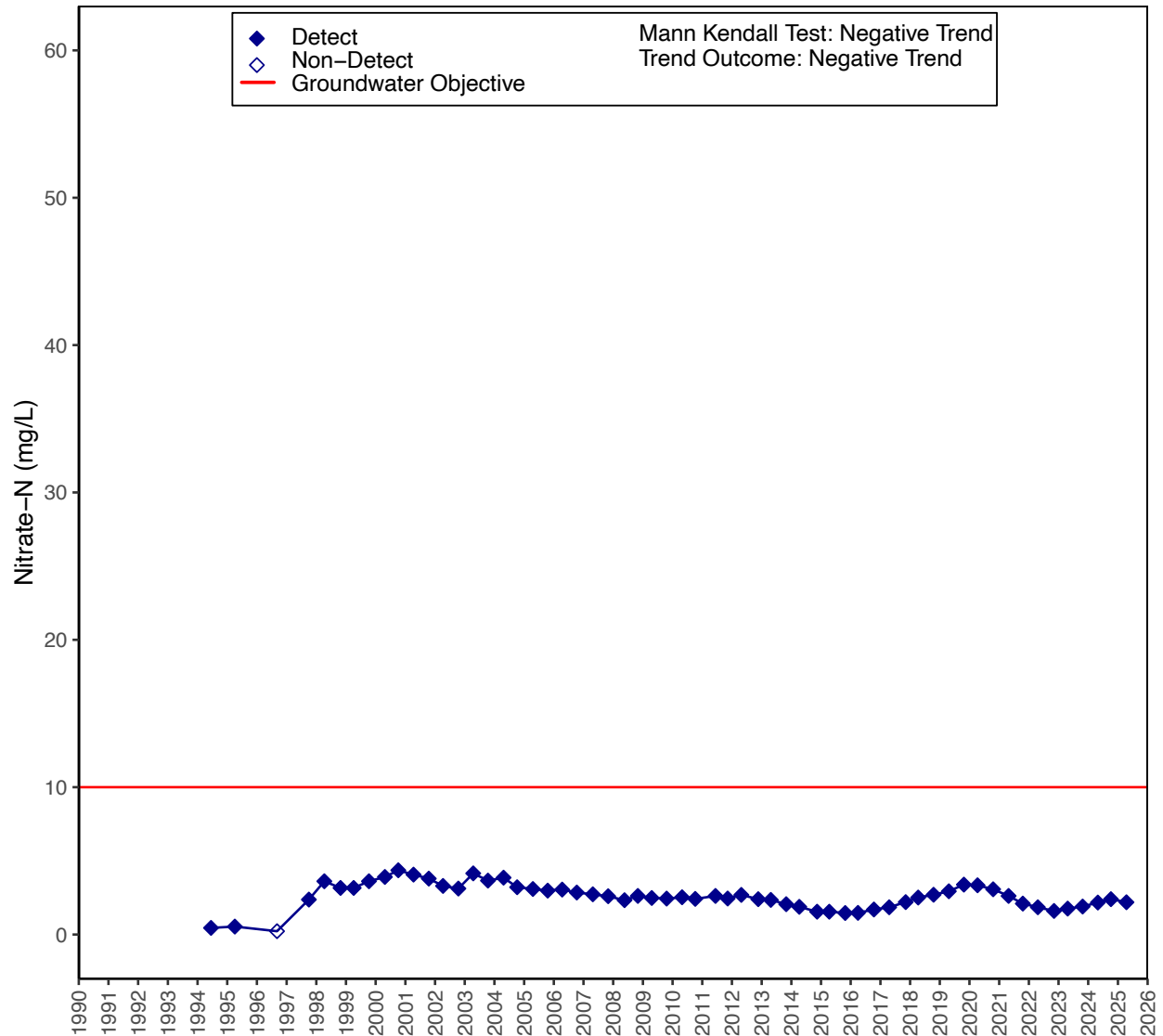
Santa Paula Basin **03N21W16A02S_A02S**



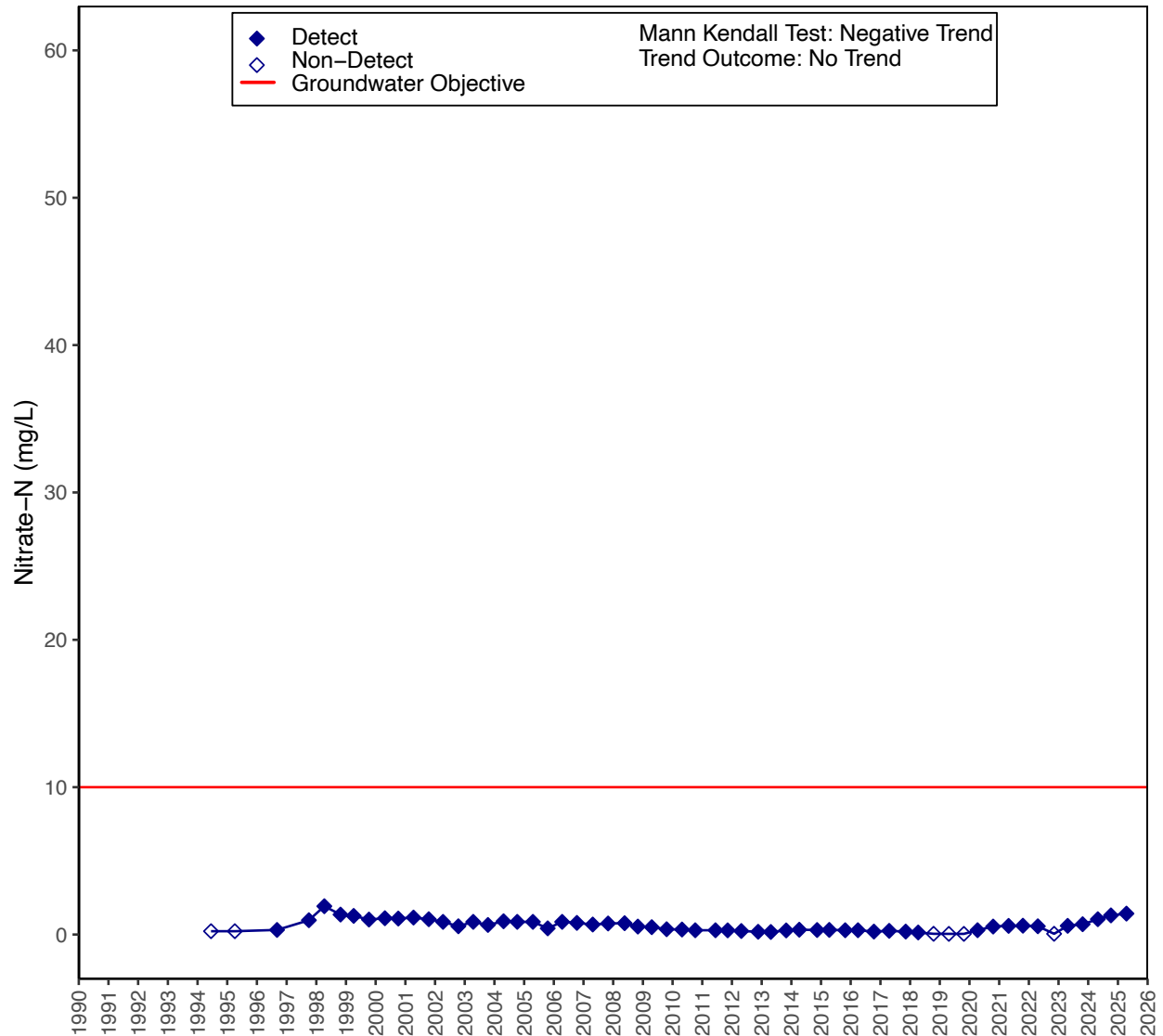
Santa Paula Basin **03N21W16H05S_H05S**



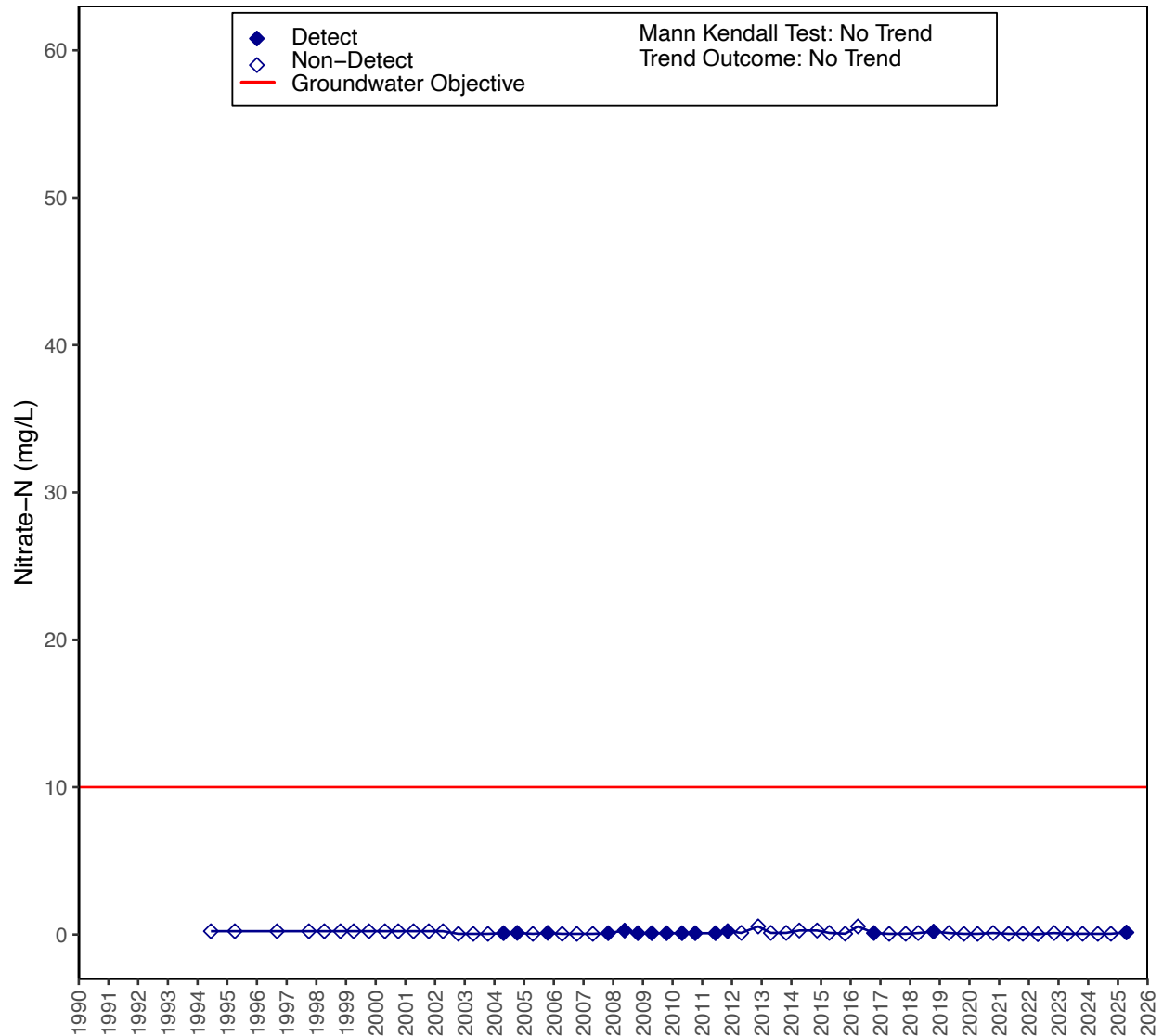
Santa Paula Basin **03N21W16H06S_H06S**



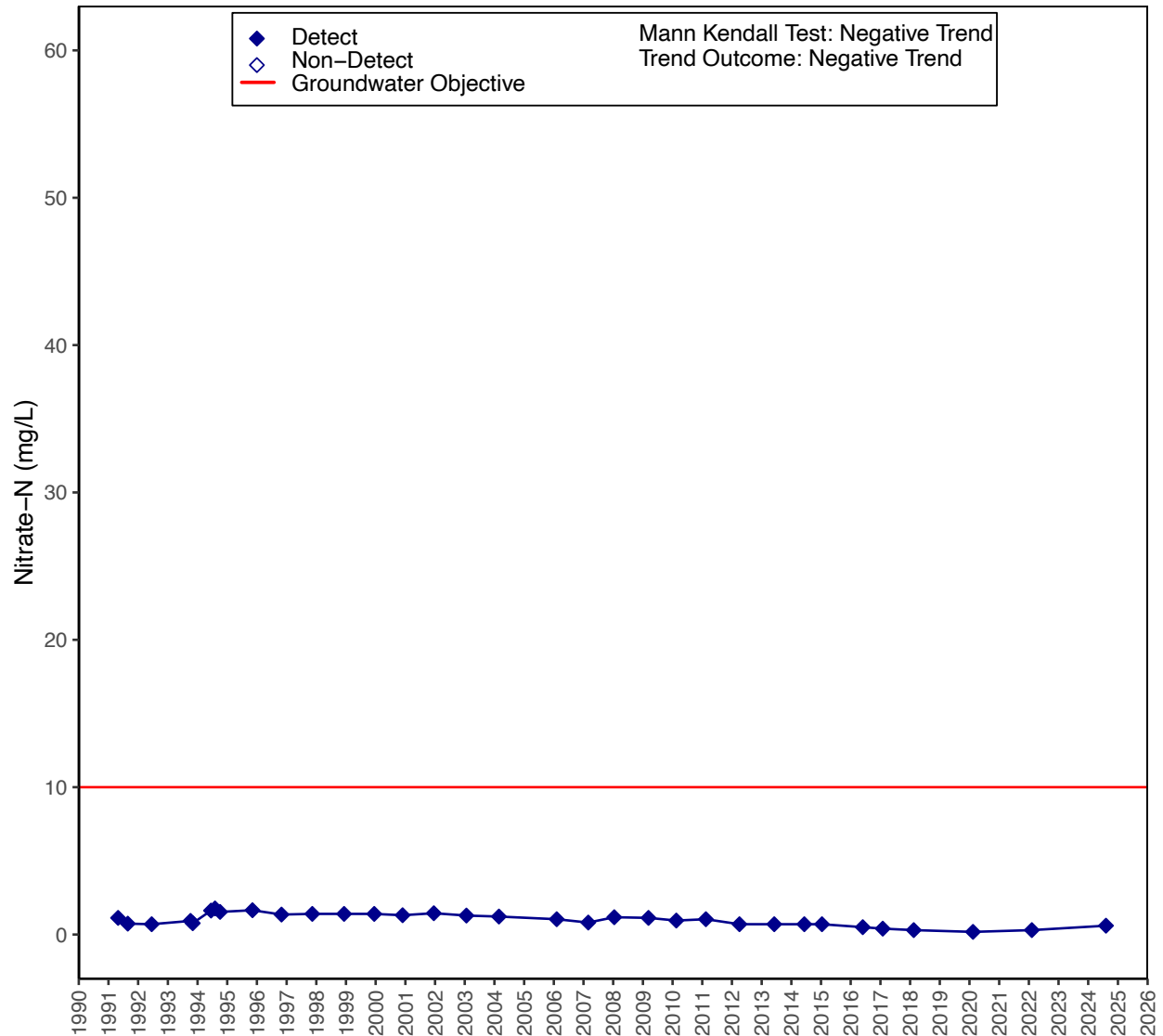
Santa Paula Basin **03N21W16H07S_H07S**



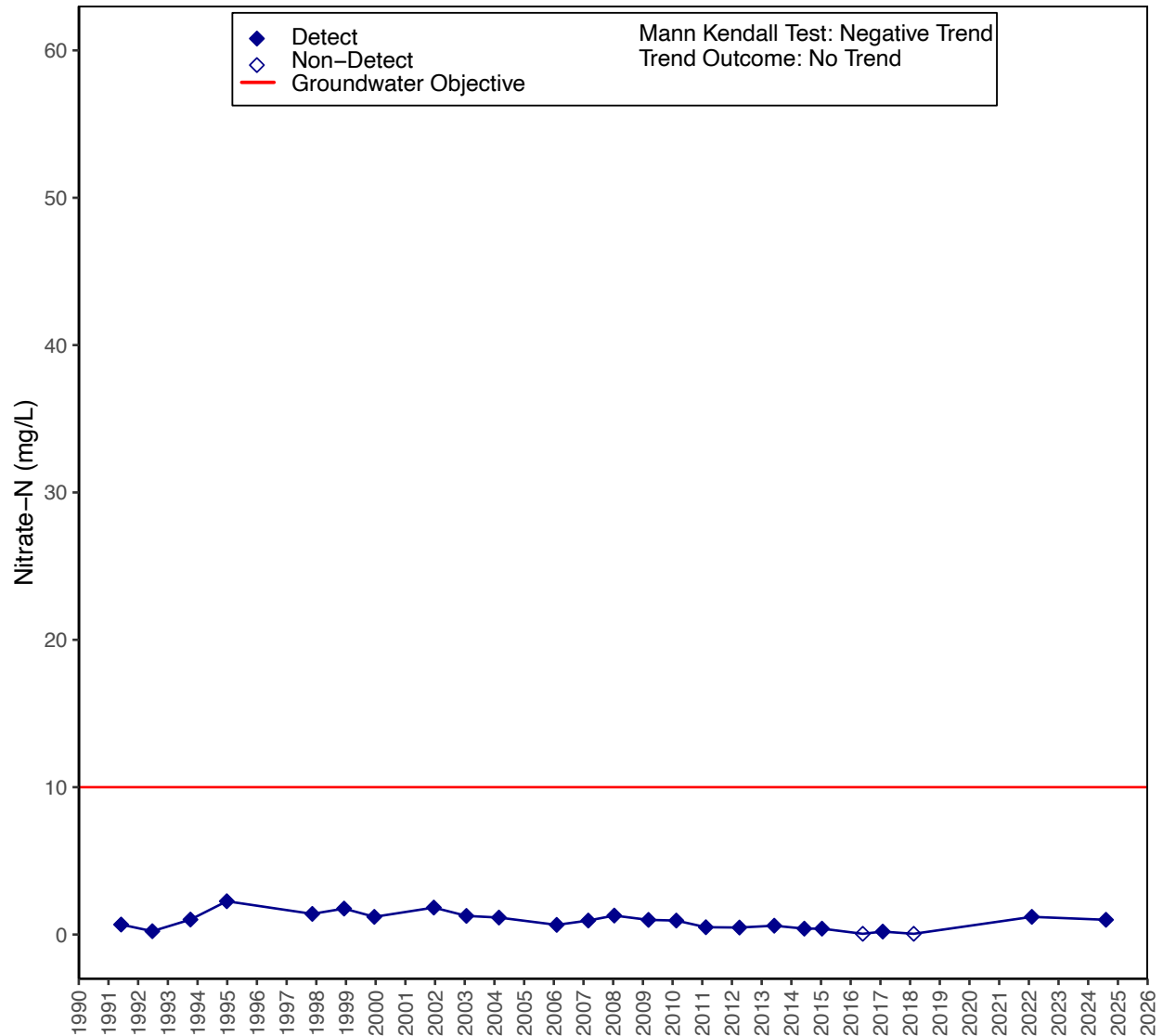
Santa Paula Basin 03N21W16H08S_H08S



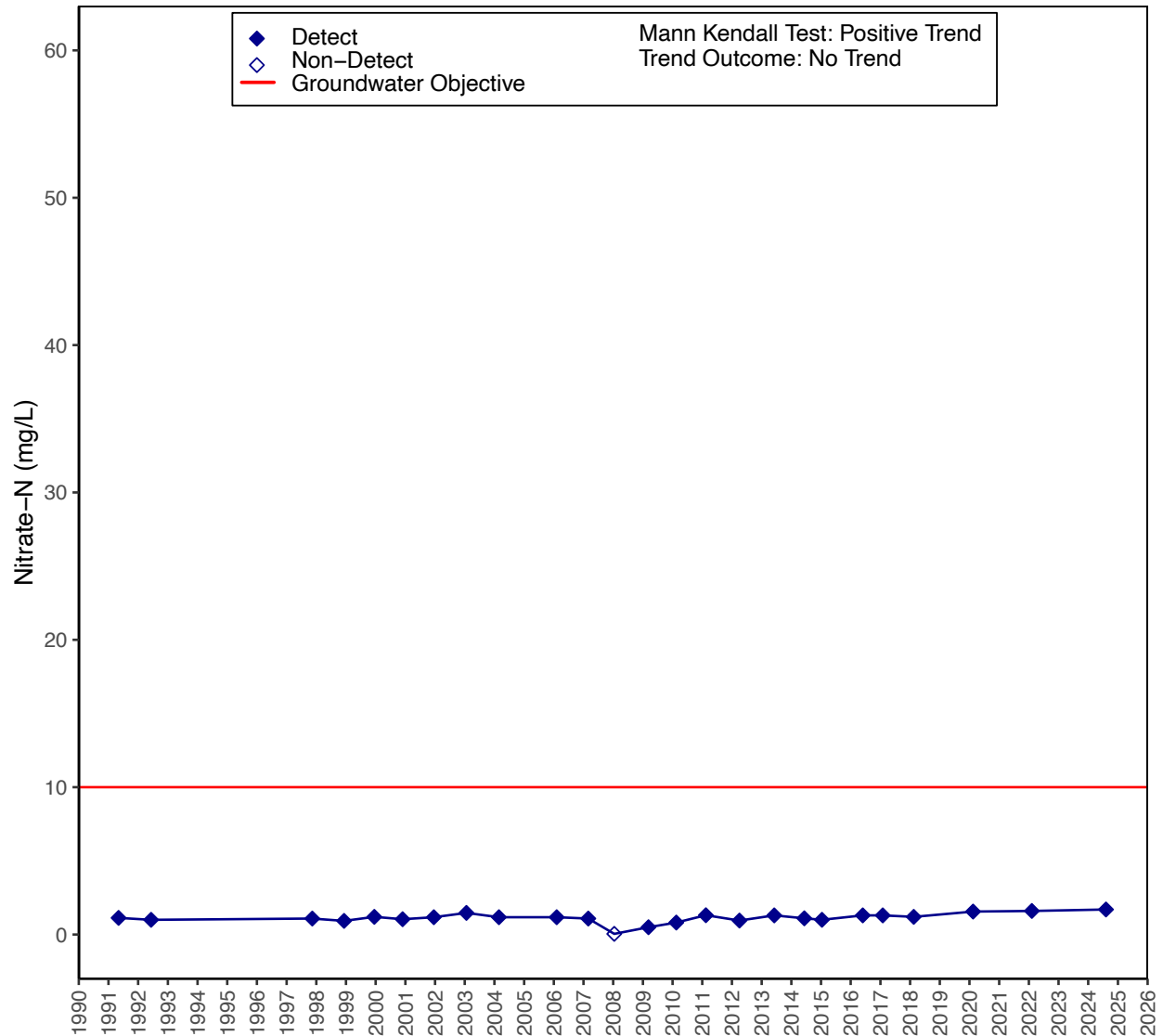
Santa Paula Basin **03N21W16K01S_K01S**



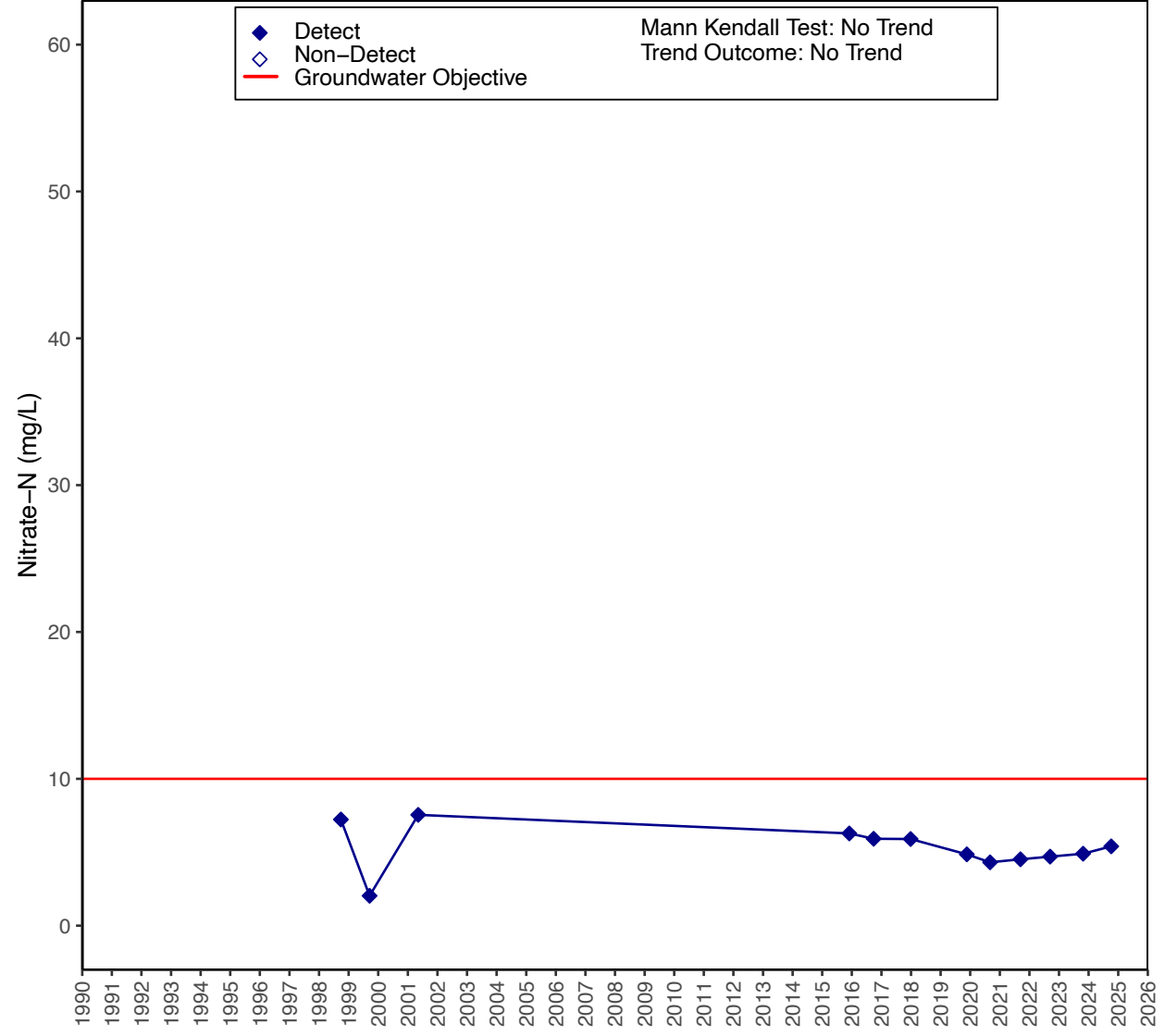
Santa Paula Basin **03N21W16K02S_K02S**



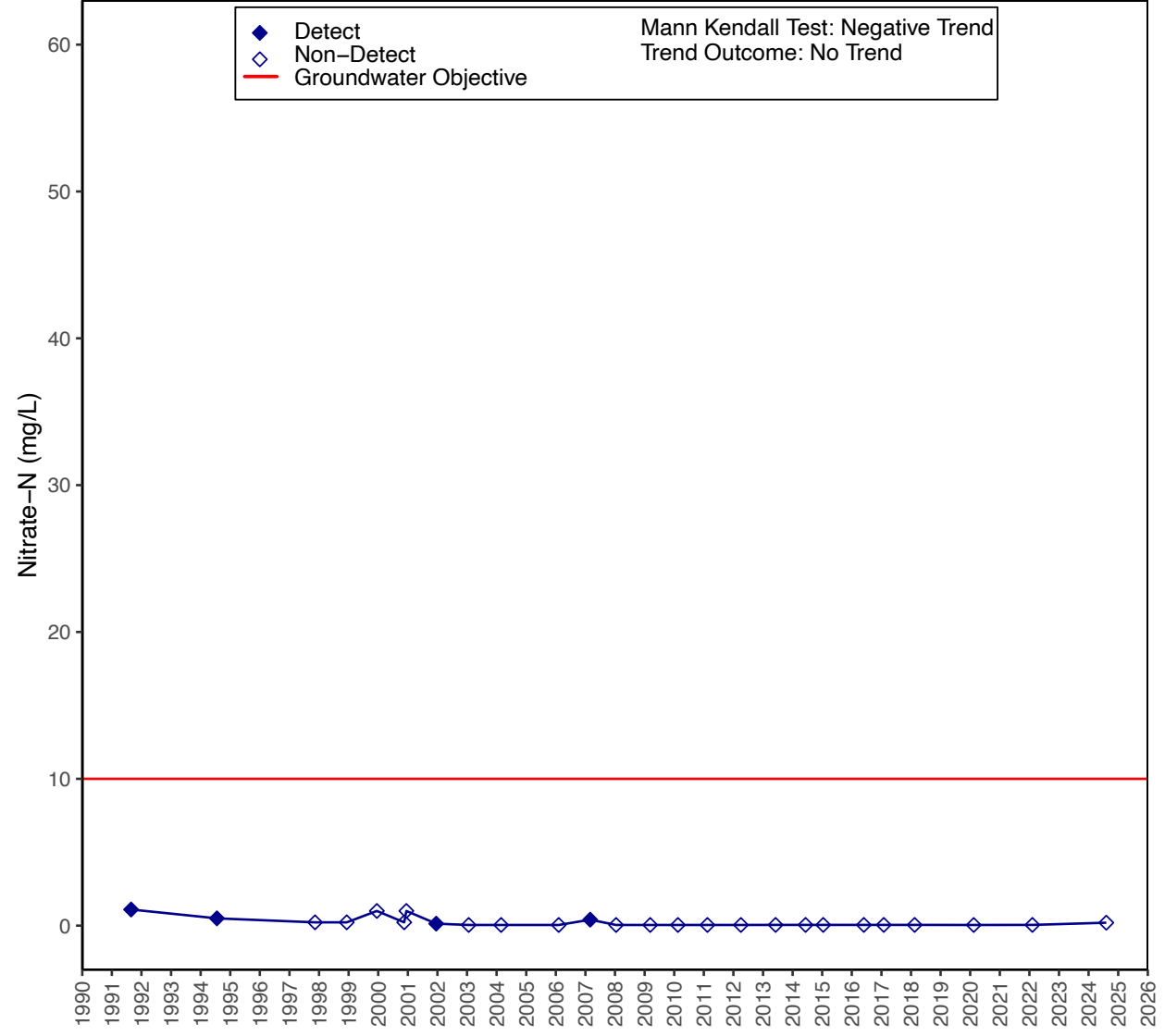
Santa Paula Basin **03N21W16K03S_K03S**



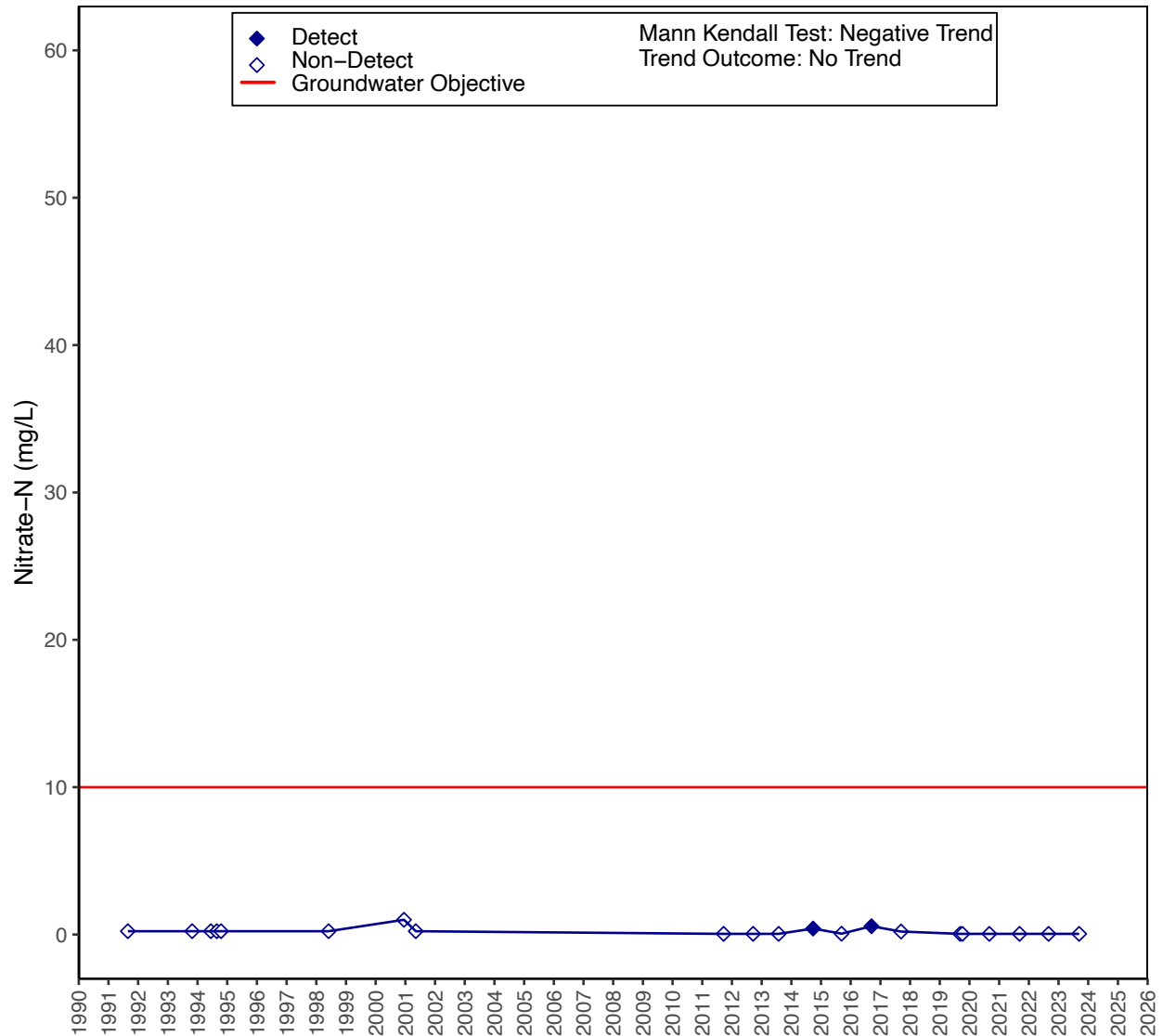
**Santa Paula Basin
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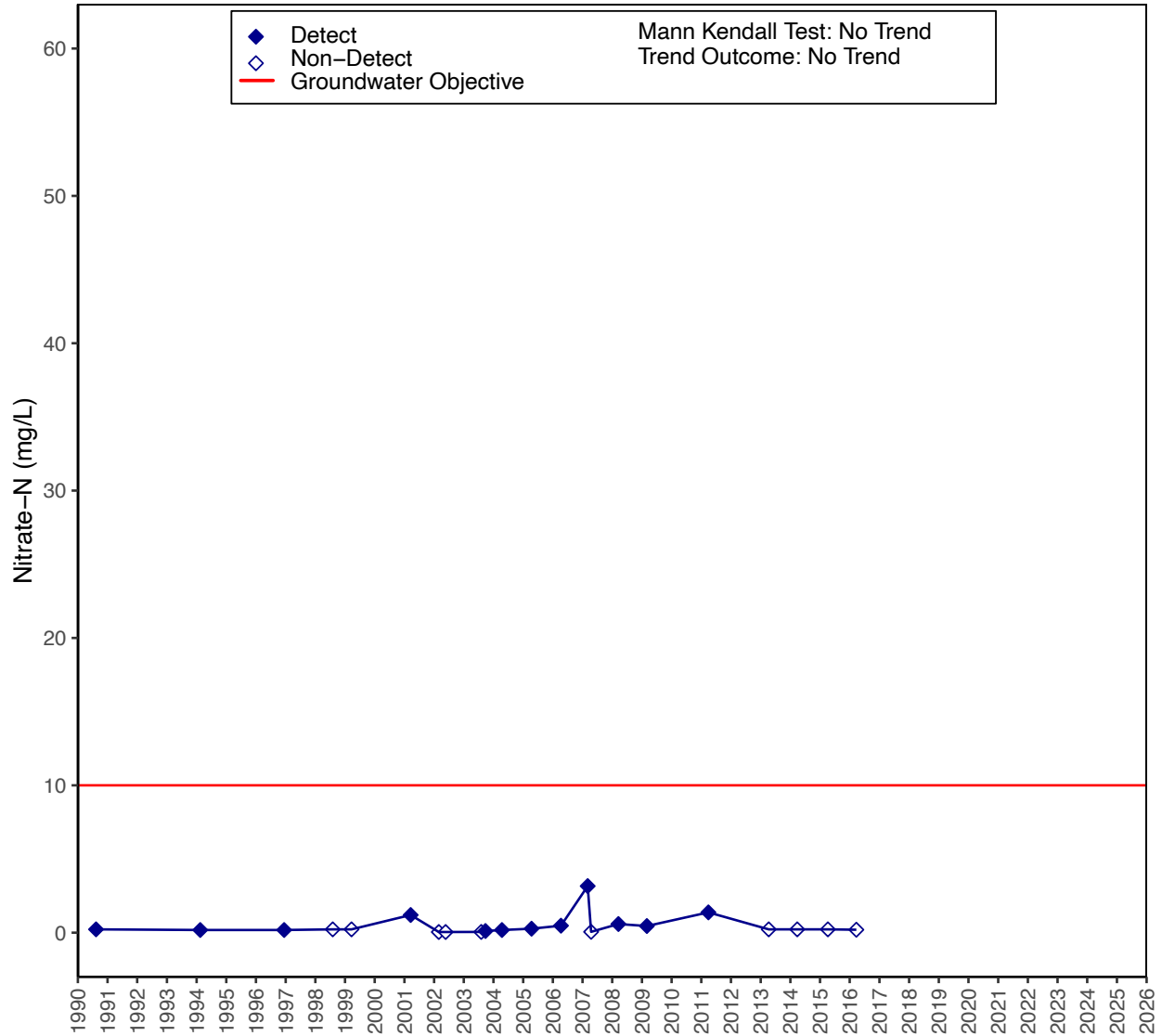
Santa Paula Basin
03N21W19G04S_G04S



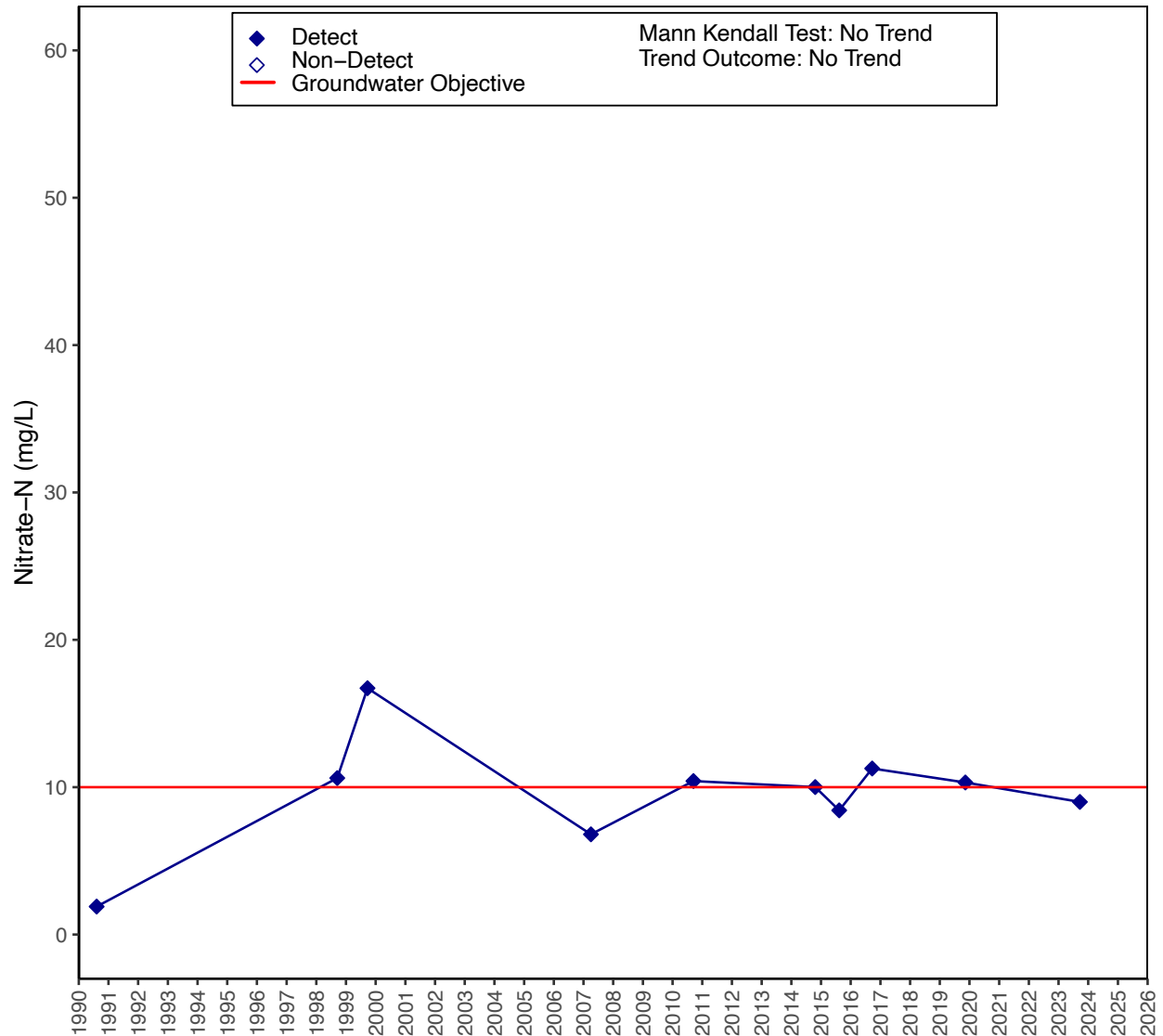
Santa Paula Basin **03N21W30H04S_H04S**



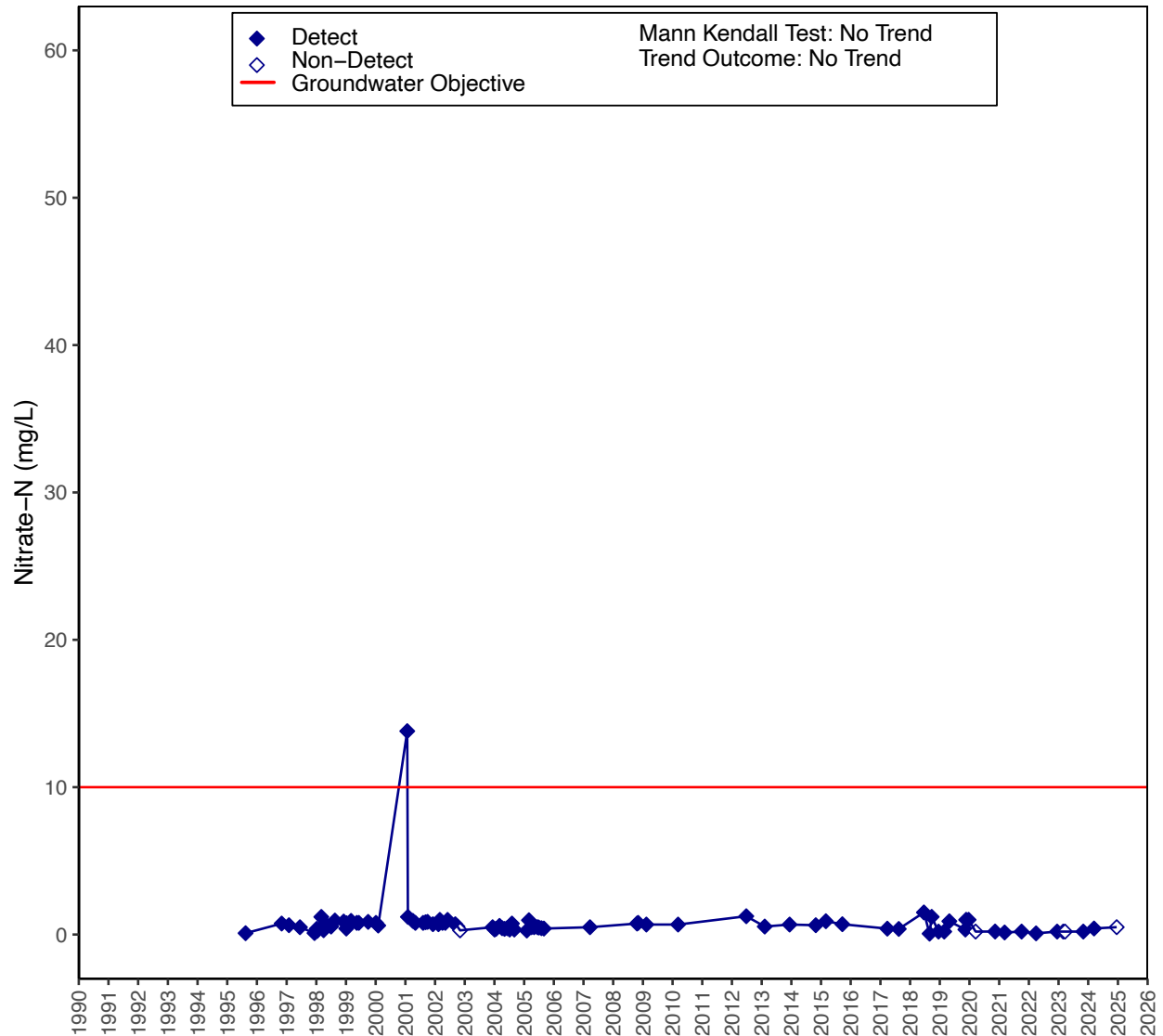
Santa Paula Basin 04N21W16F01S_F01S



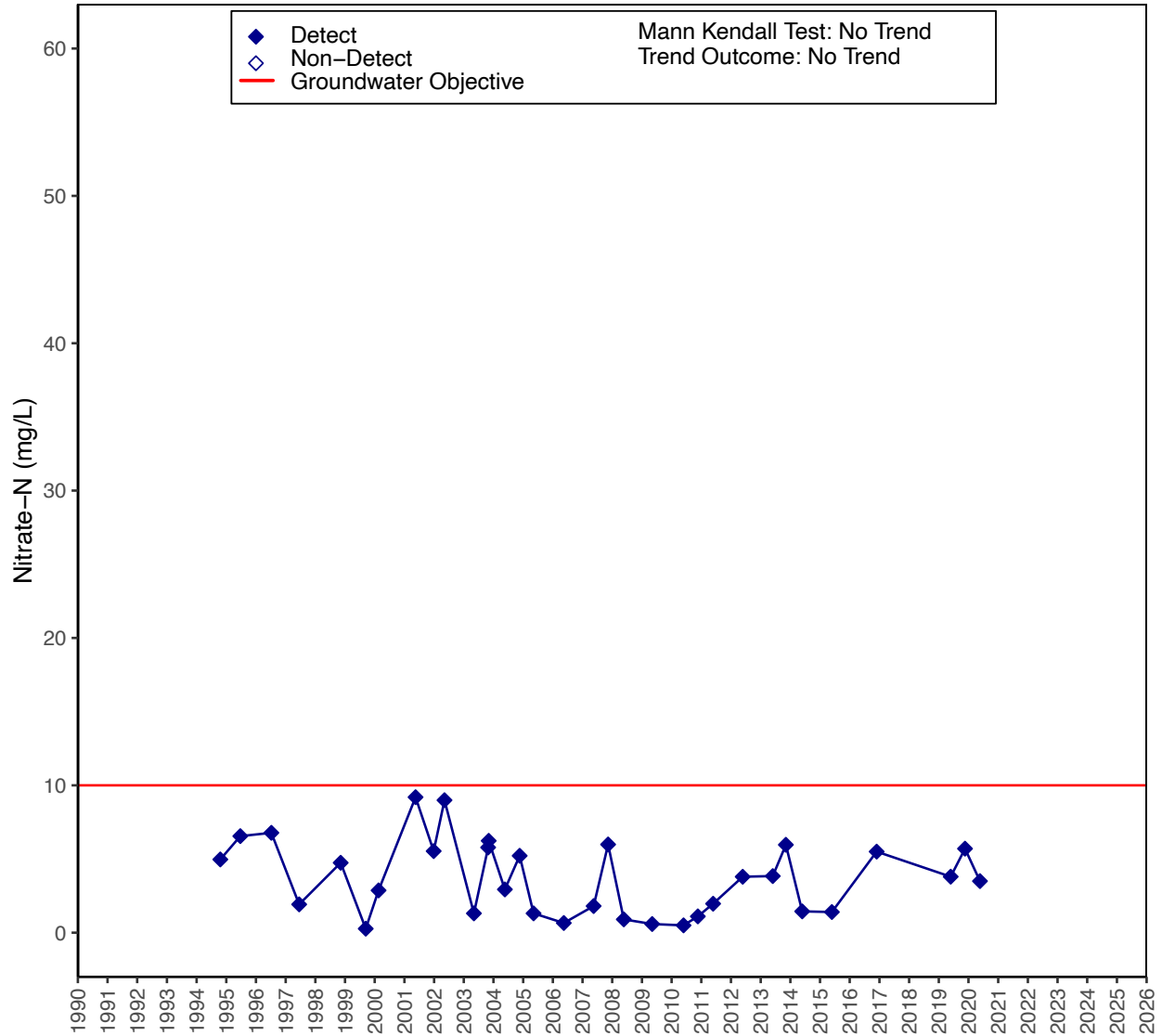
**Tierra Rejada
02N19W14P01S_P01S**



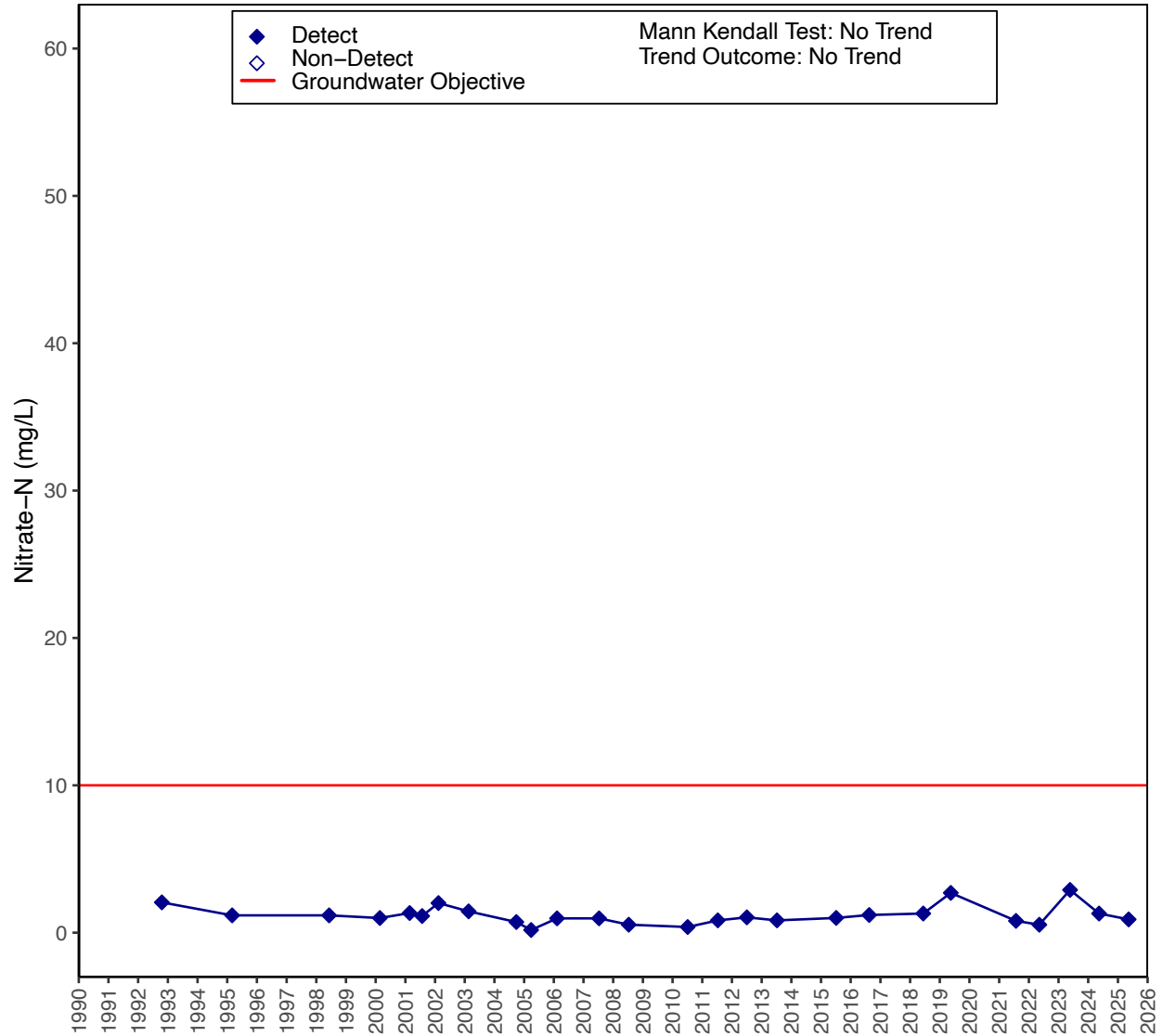
Tierra Rejada 02N19W15N03S_N03S



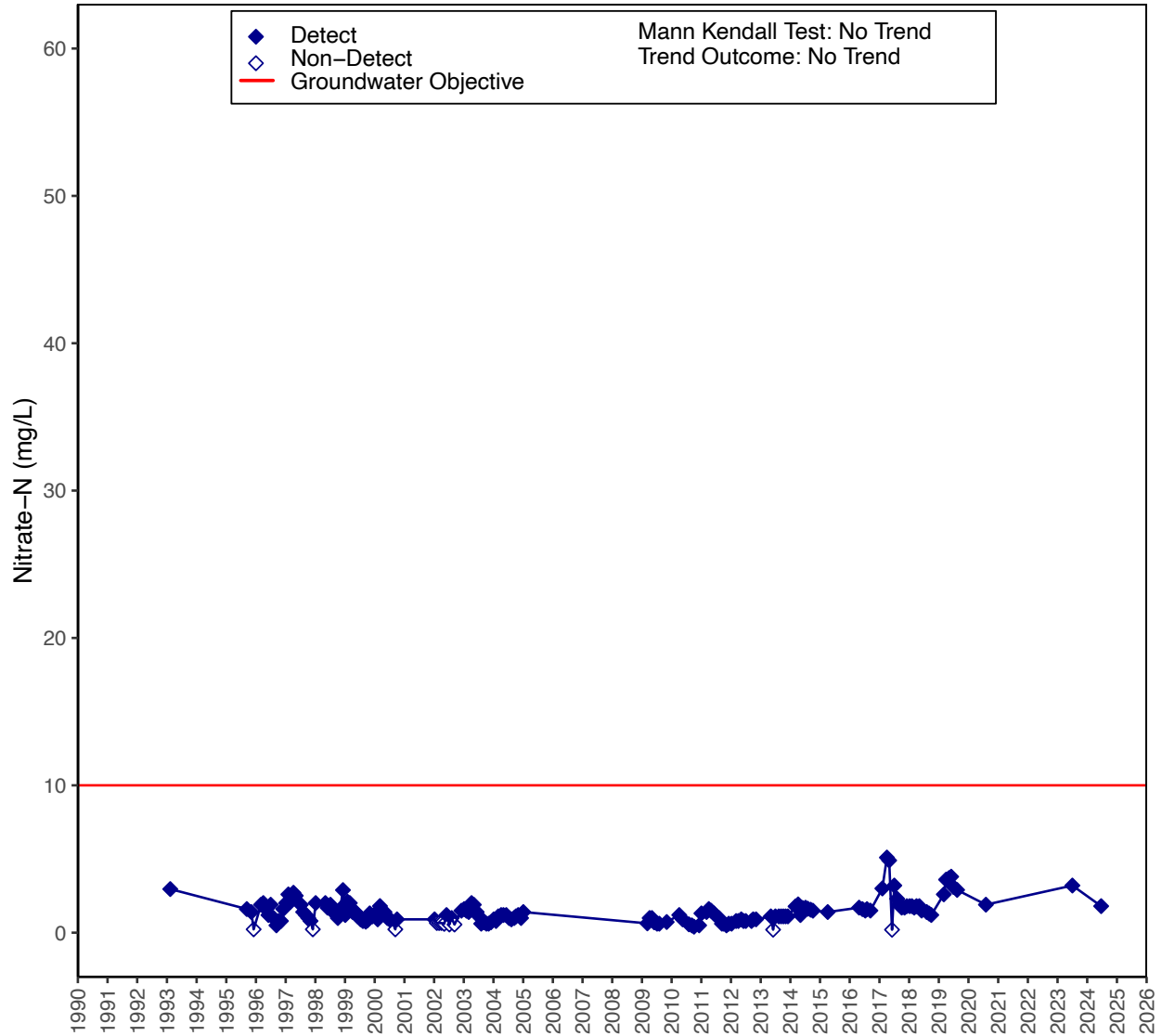
Upper Ojai Valley Basin 04N22W12F02S_F02S



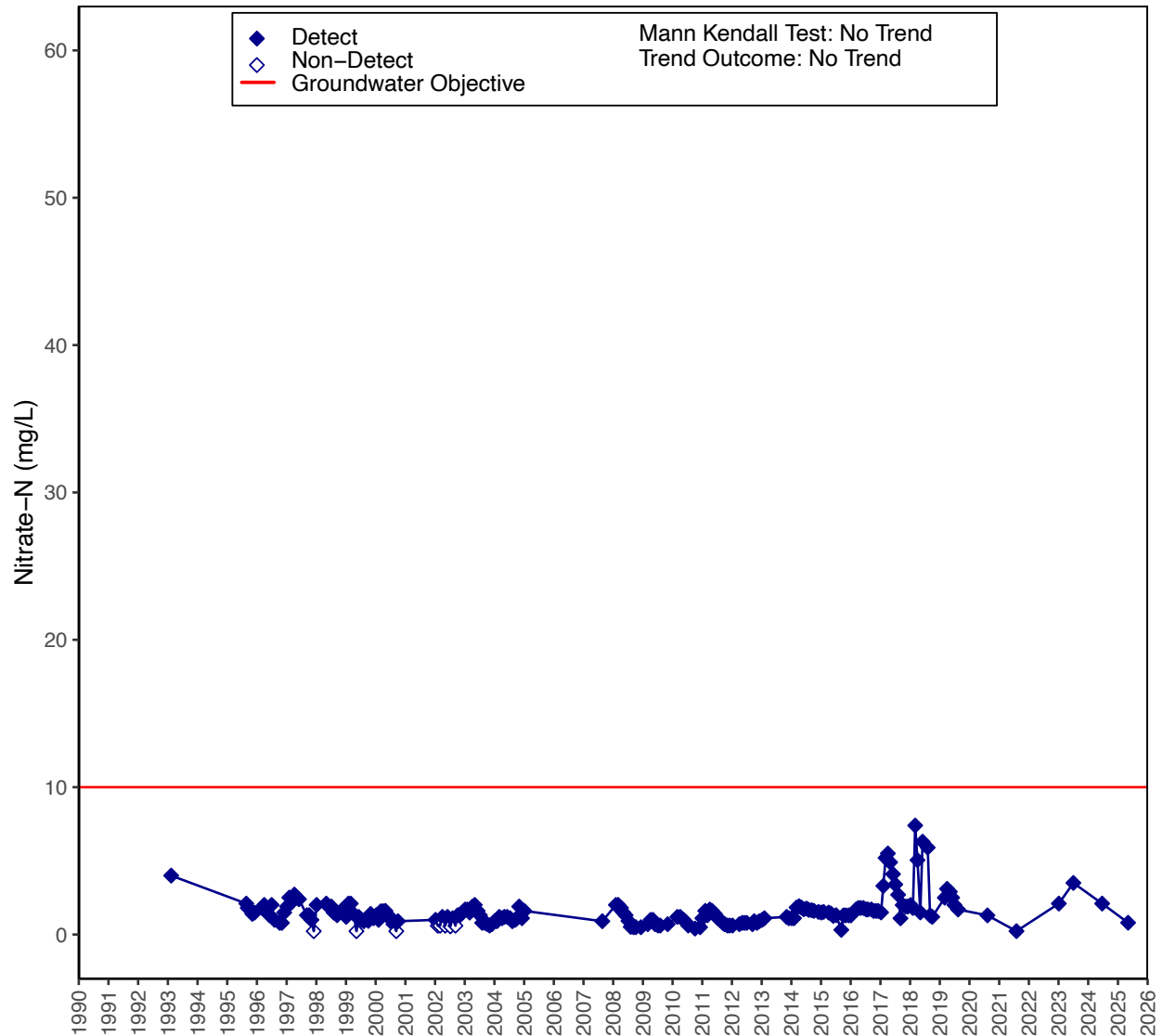
Upper Ventura River Basin 03N23W05H01S_H01S



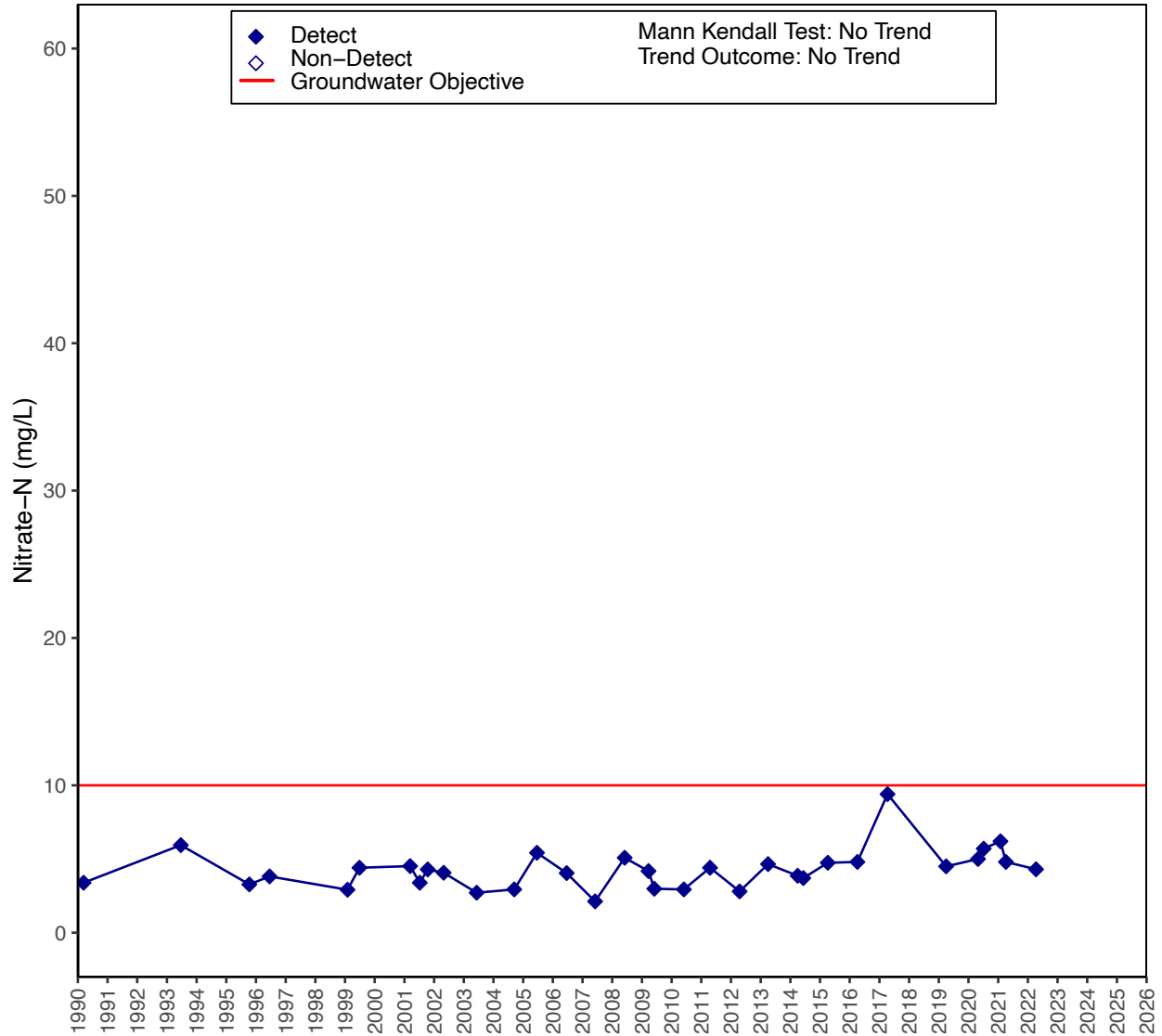
Upper Ventura River Basin 03N23W05P02S_P02S



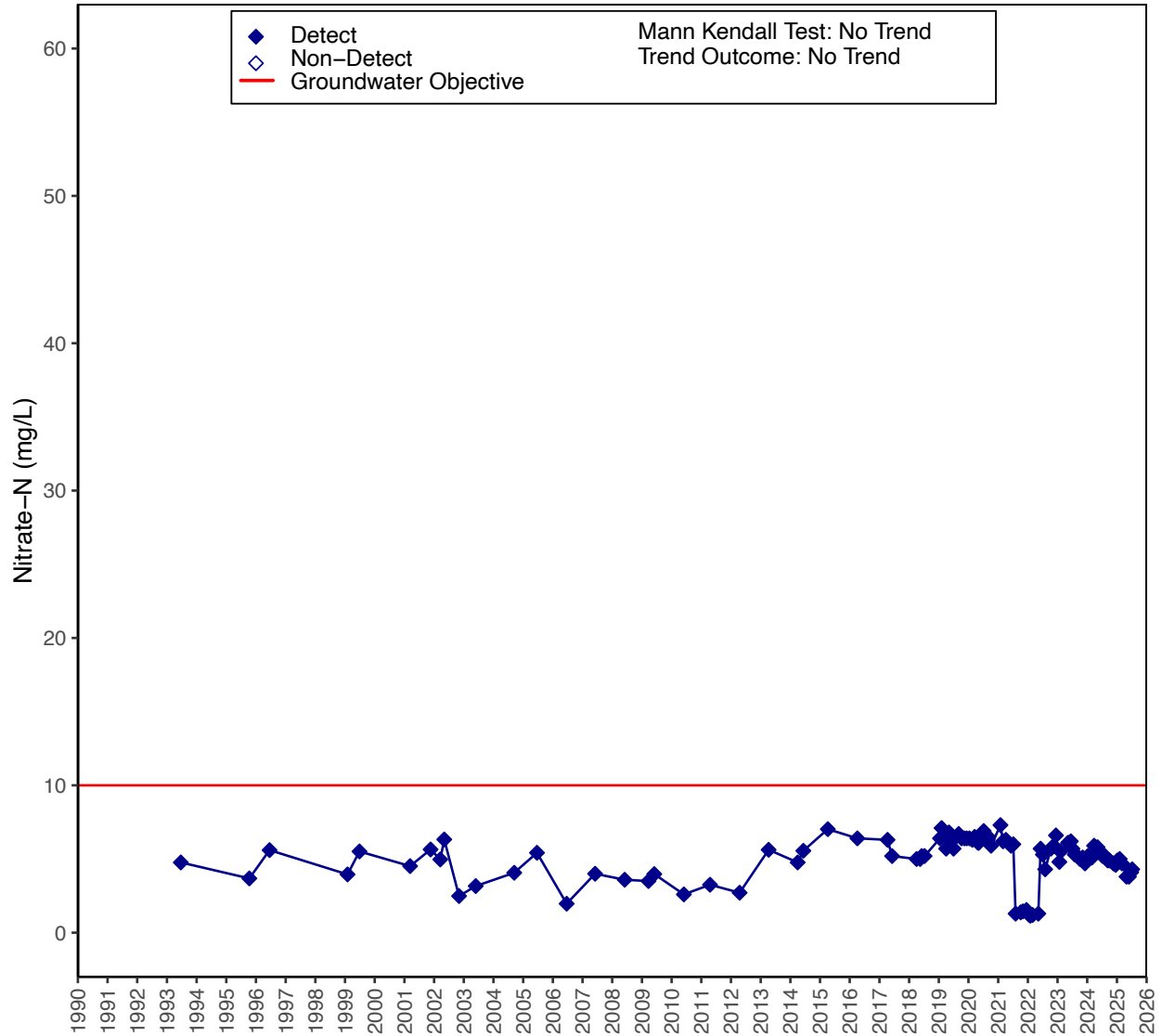
Upper Ventura River Basin 03N23W08C02S_C02S



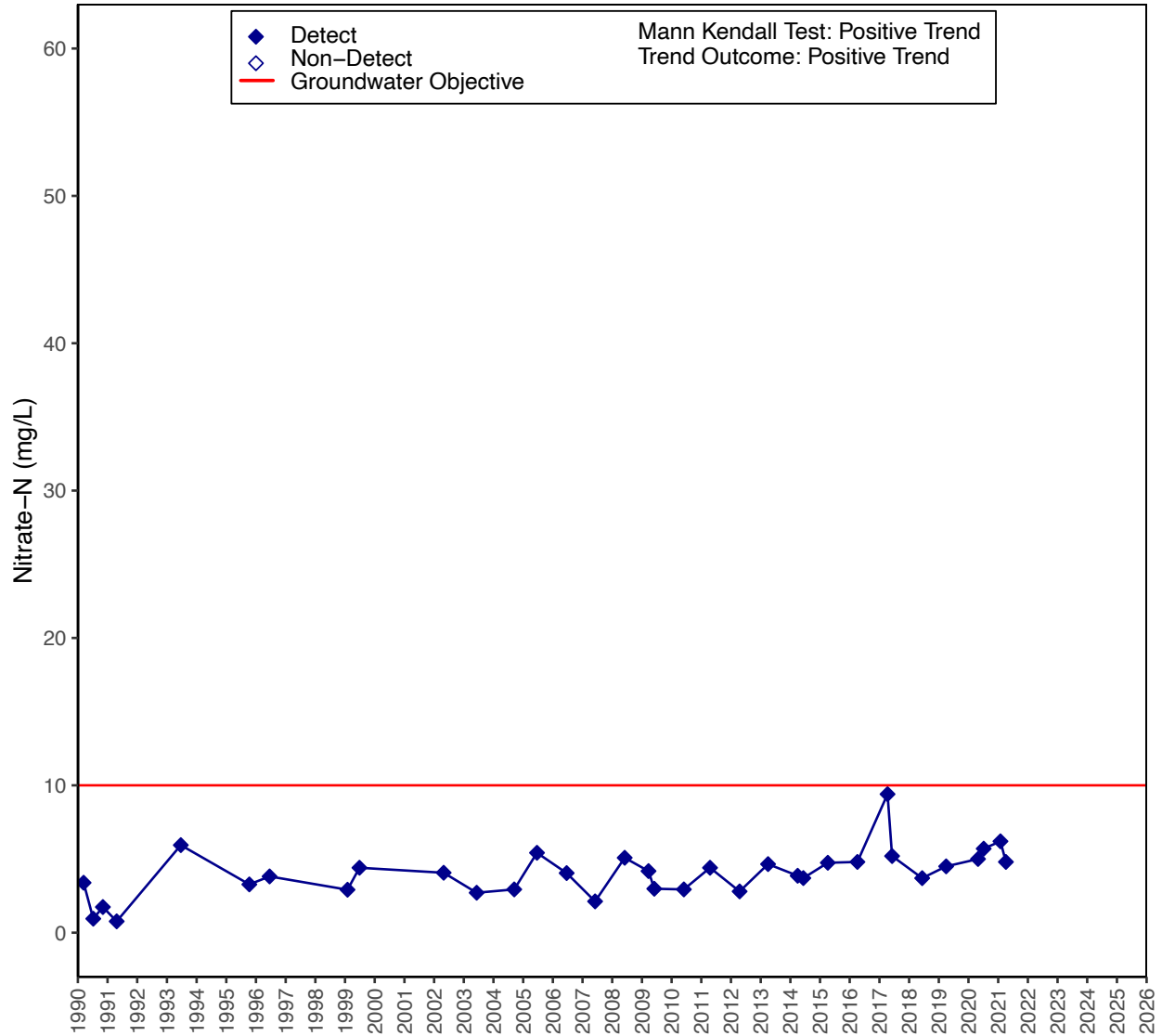
Upper Ventura River Basin 04N23W09B03S_B03S



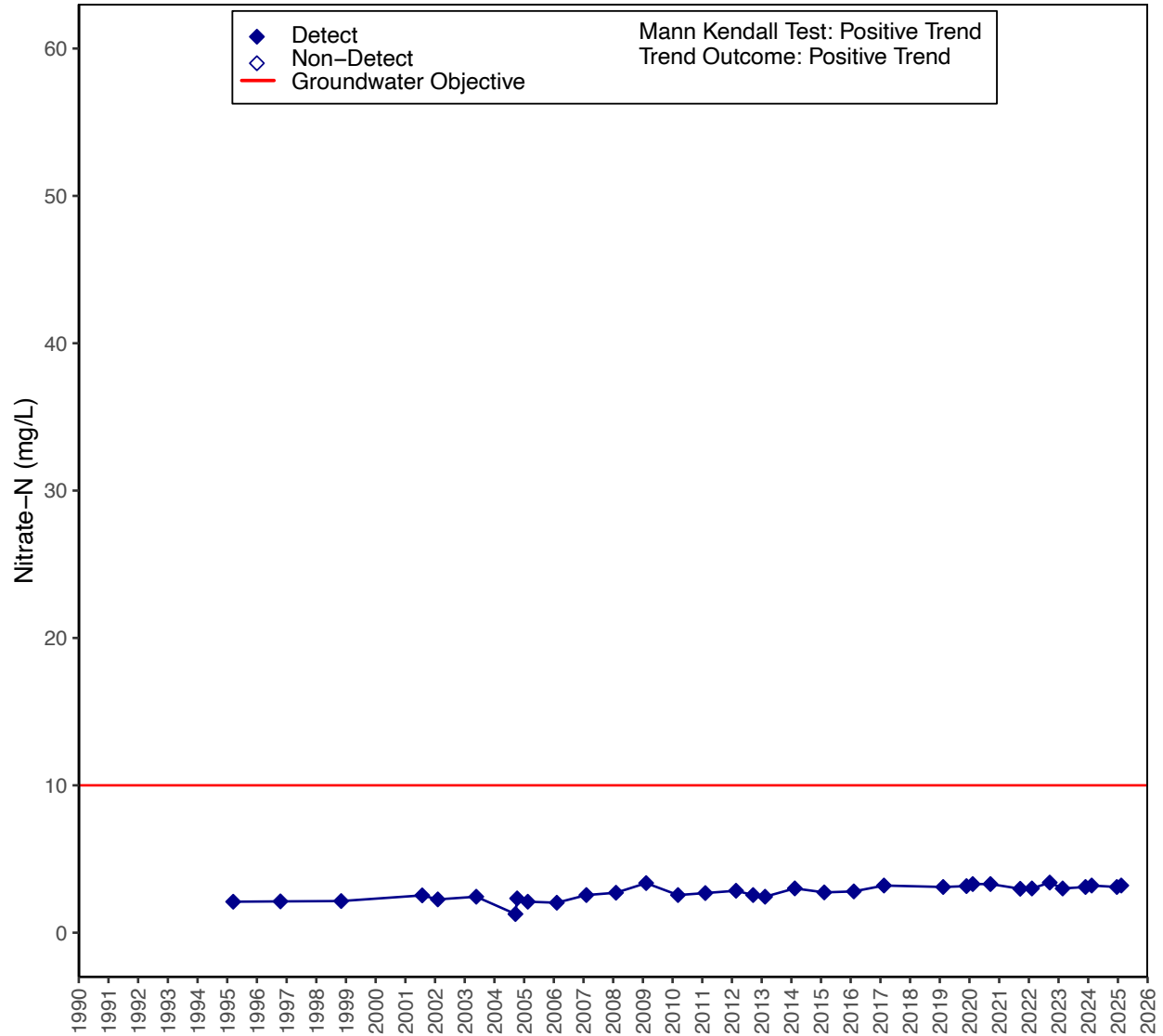
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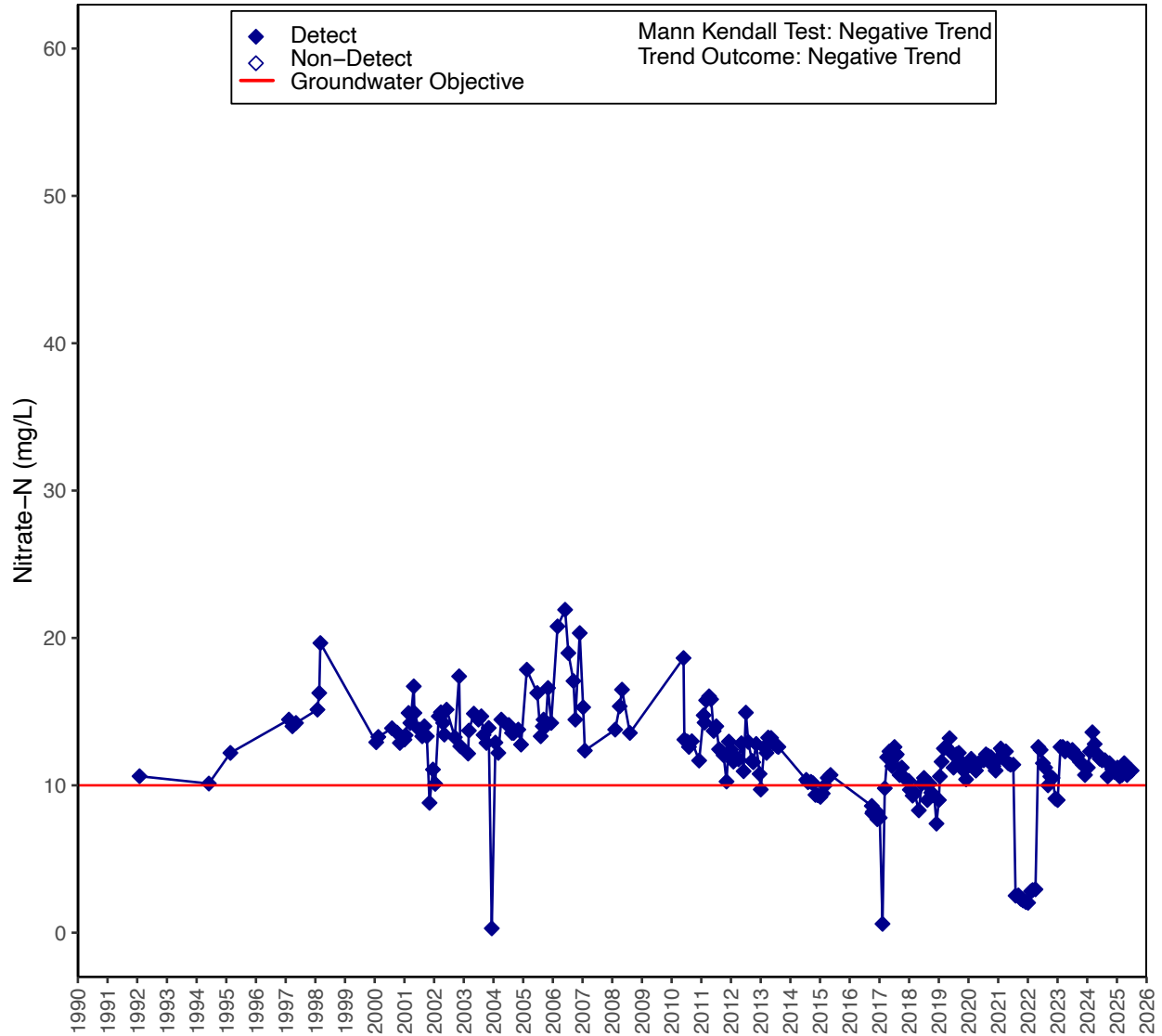
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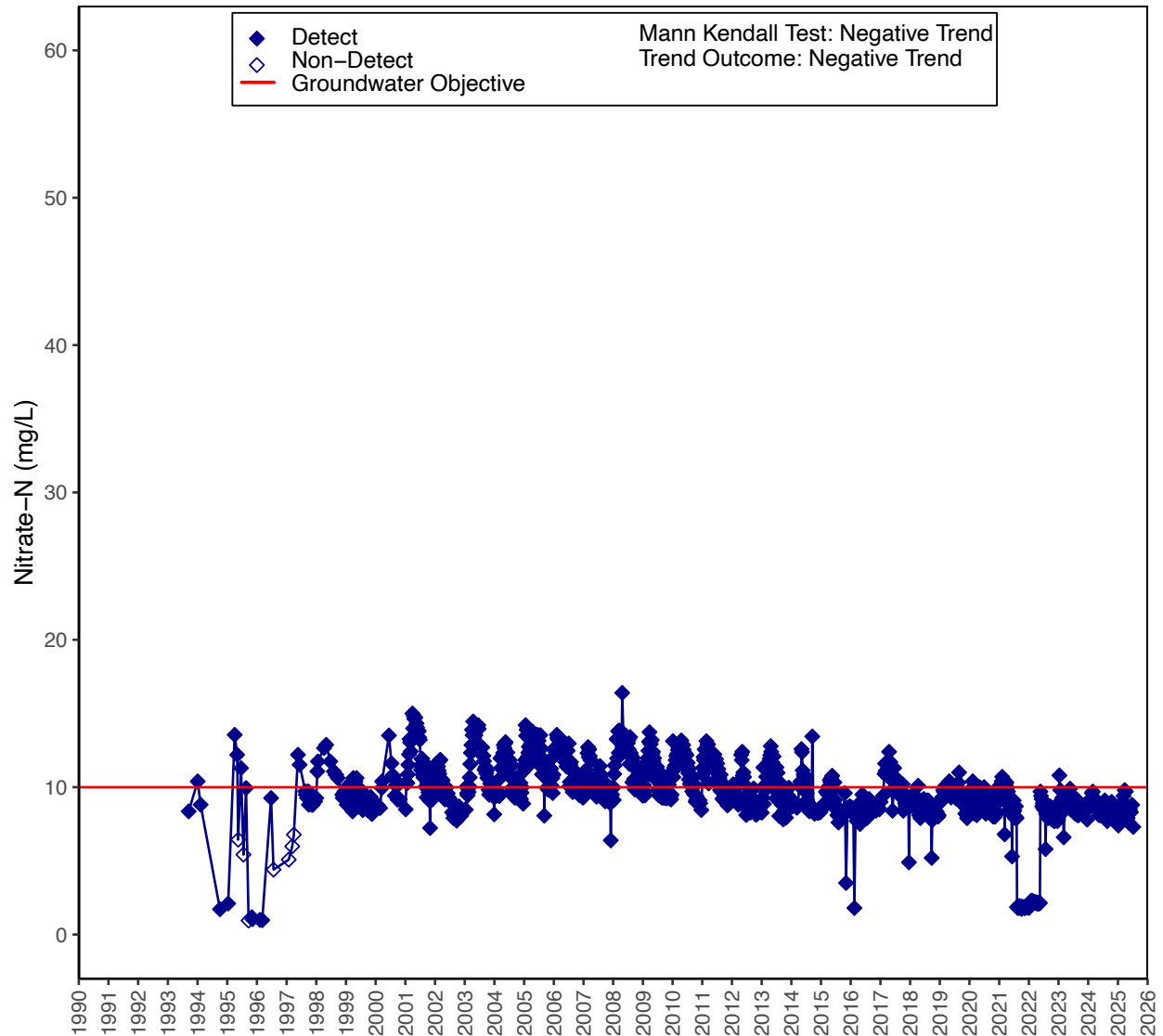
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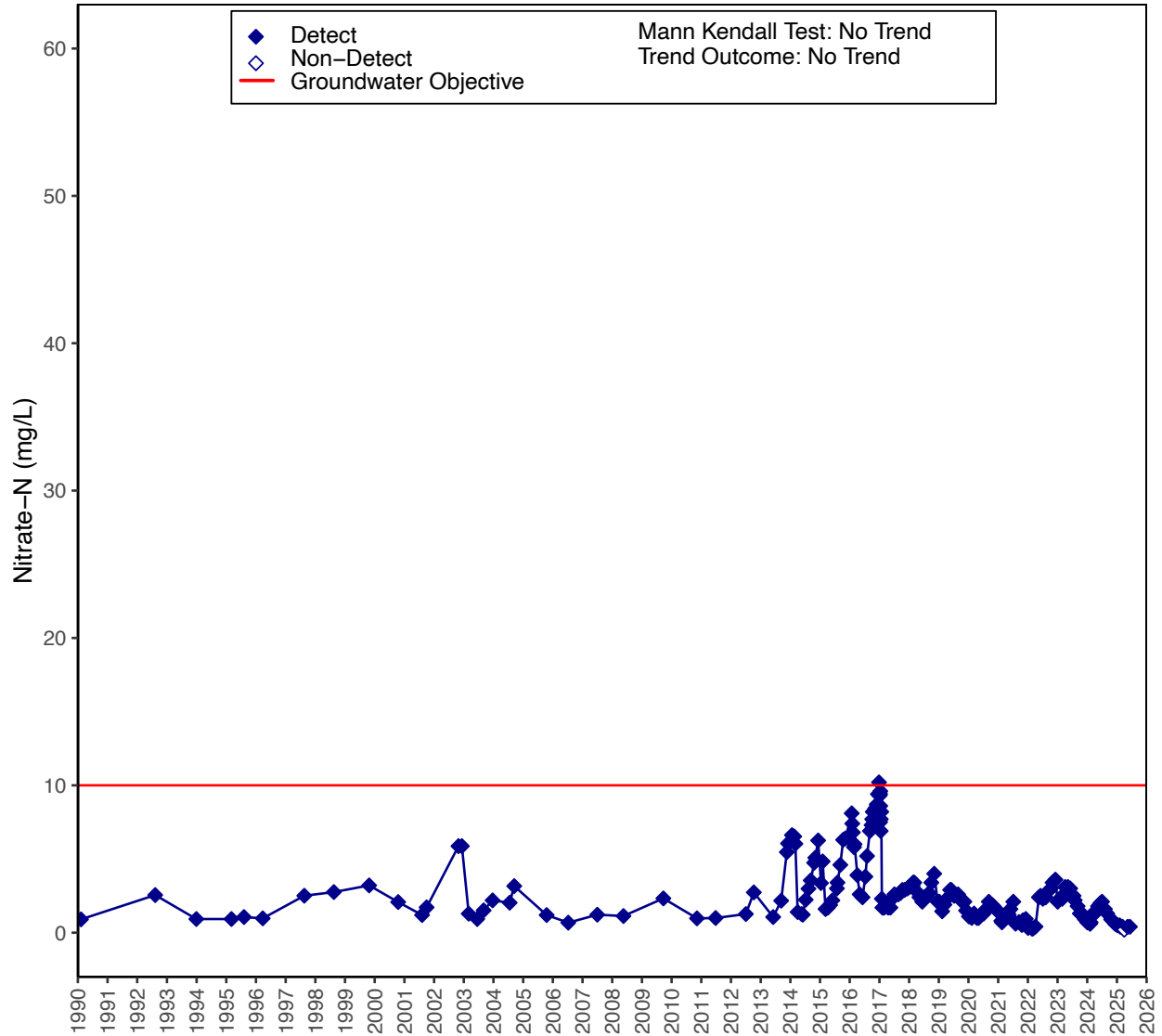
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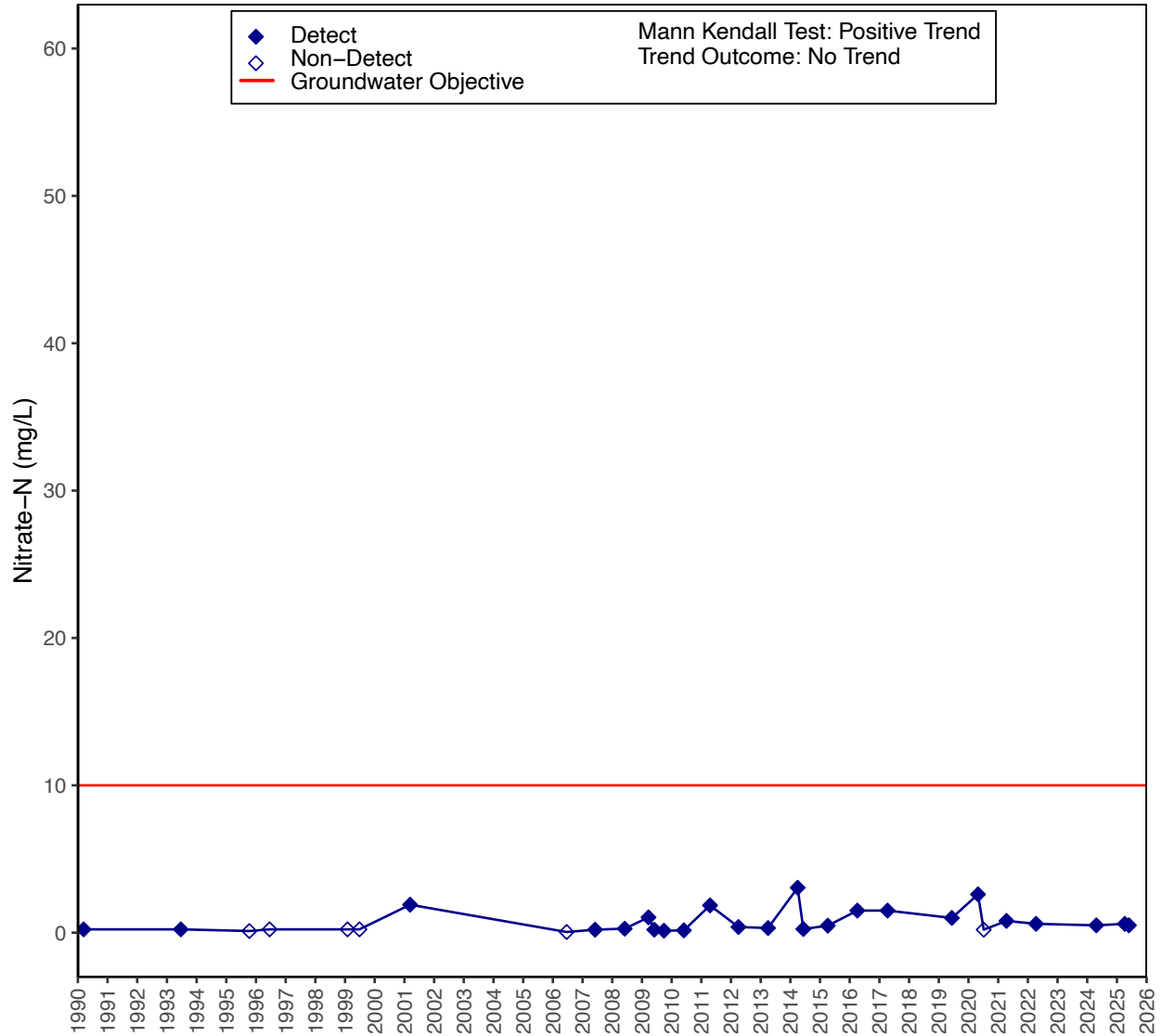
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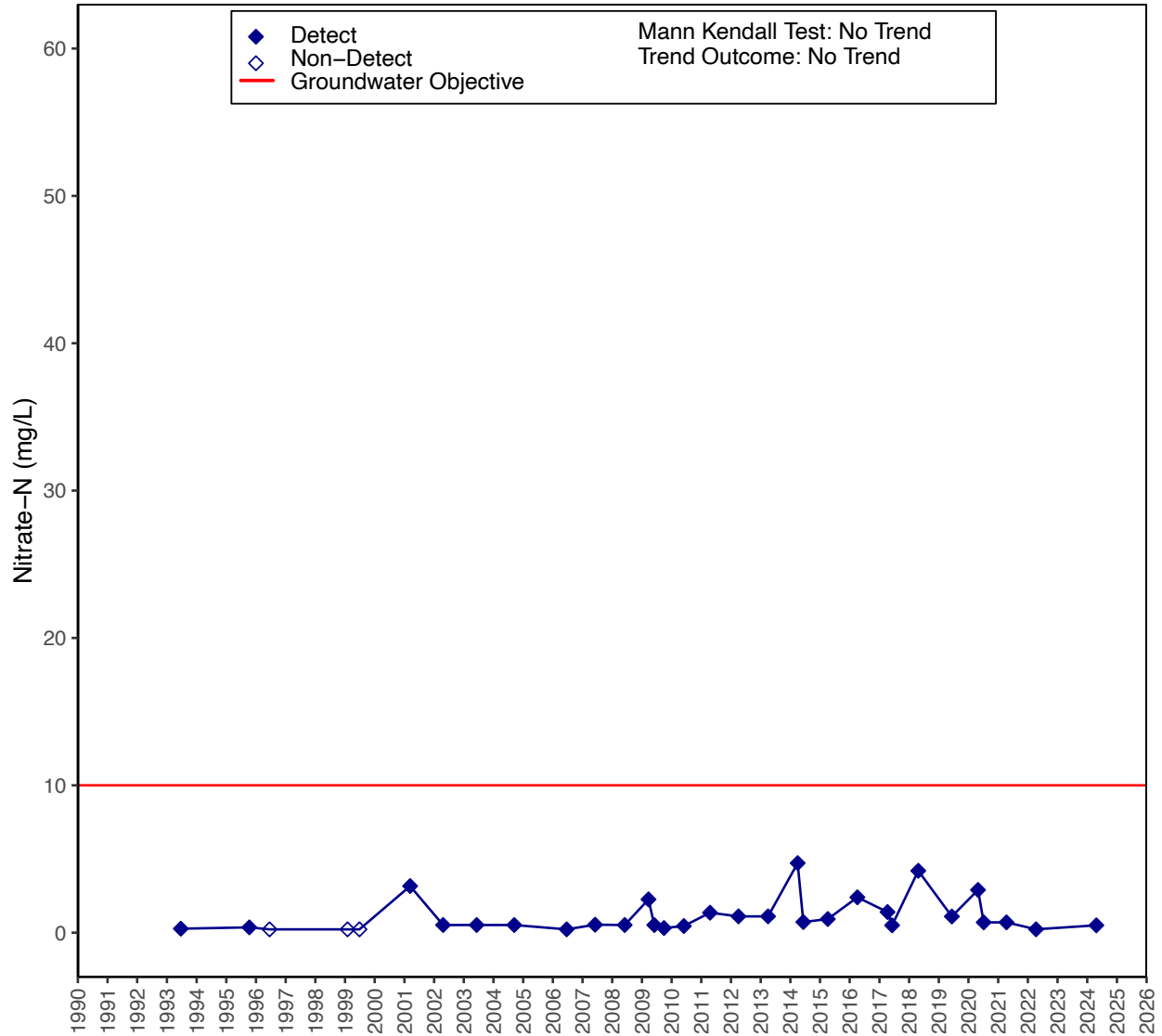
Upper Ventura River Basin 04N23W16C08S_C08S



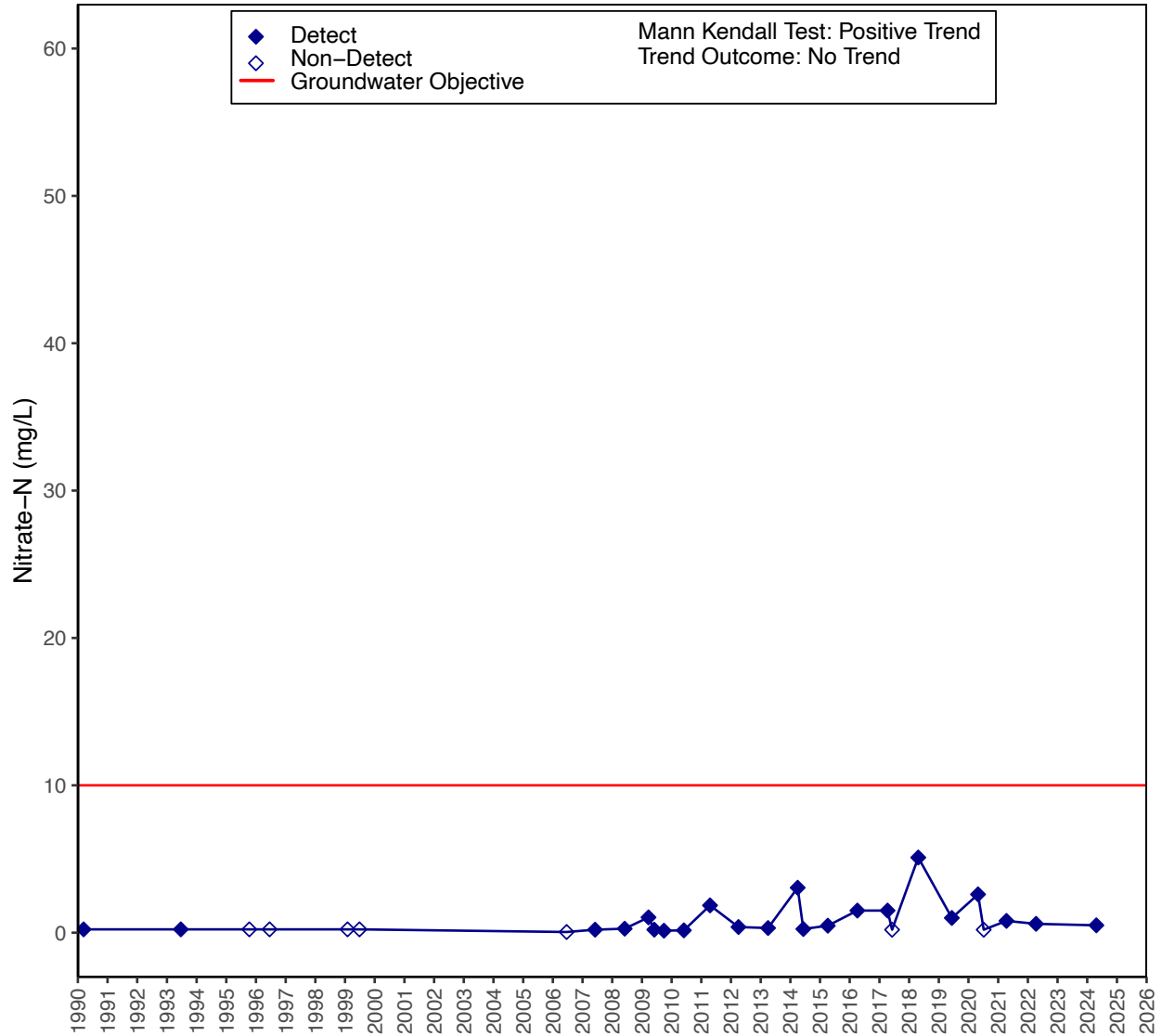
Upper Ventura River Basin 05N23W33B02S_B02S



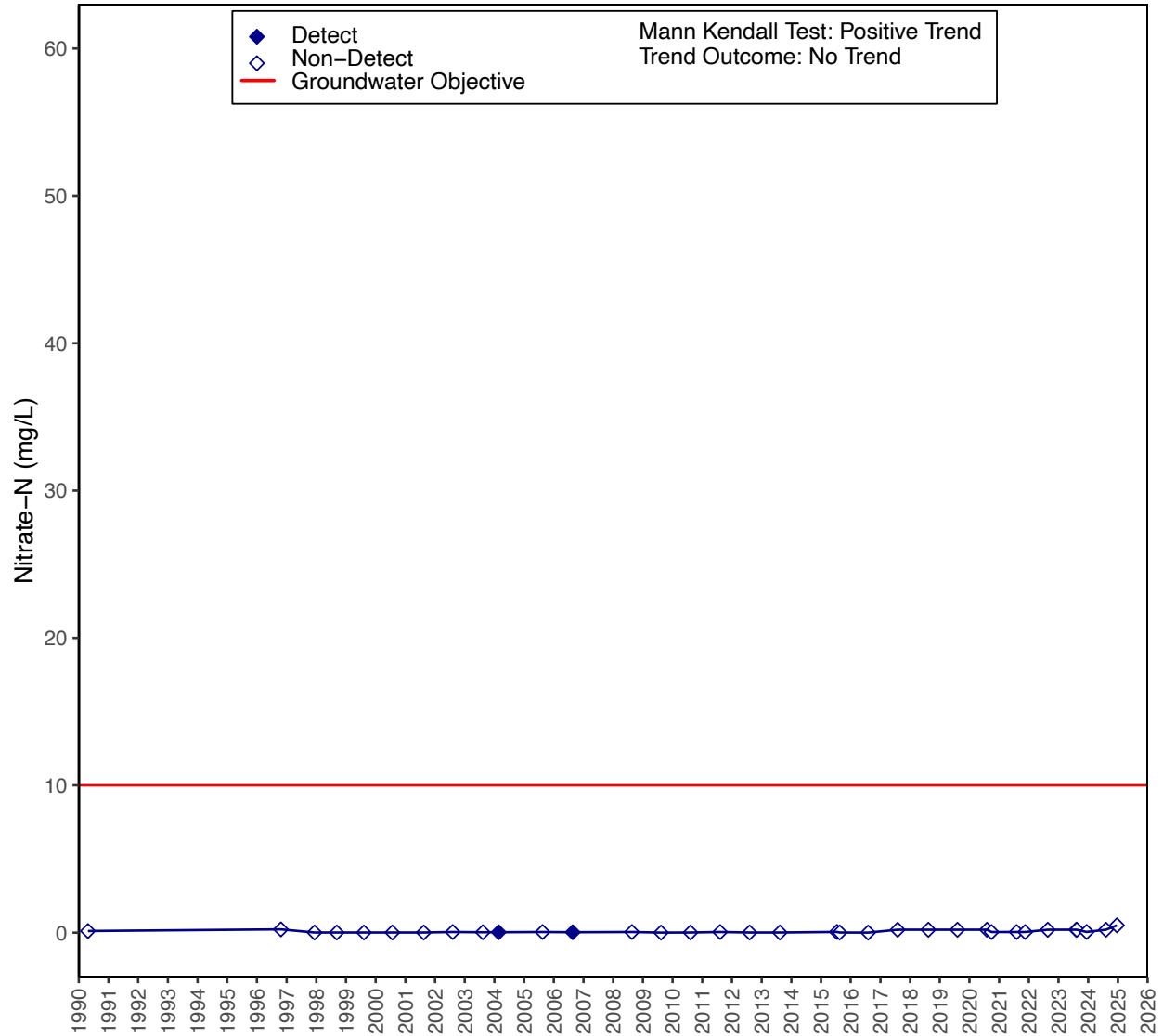
Upper Ventura River Basin 05N23W33B03S_B03S



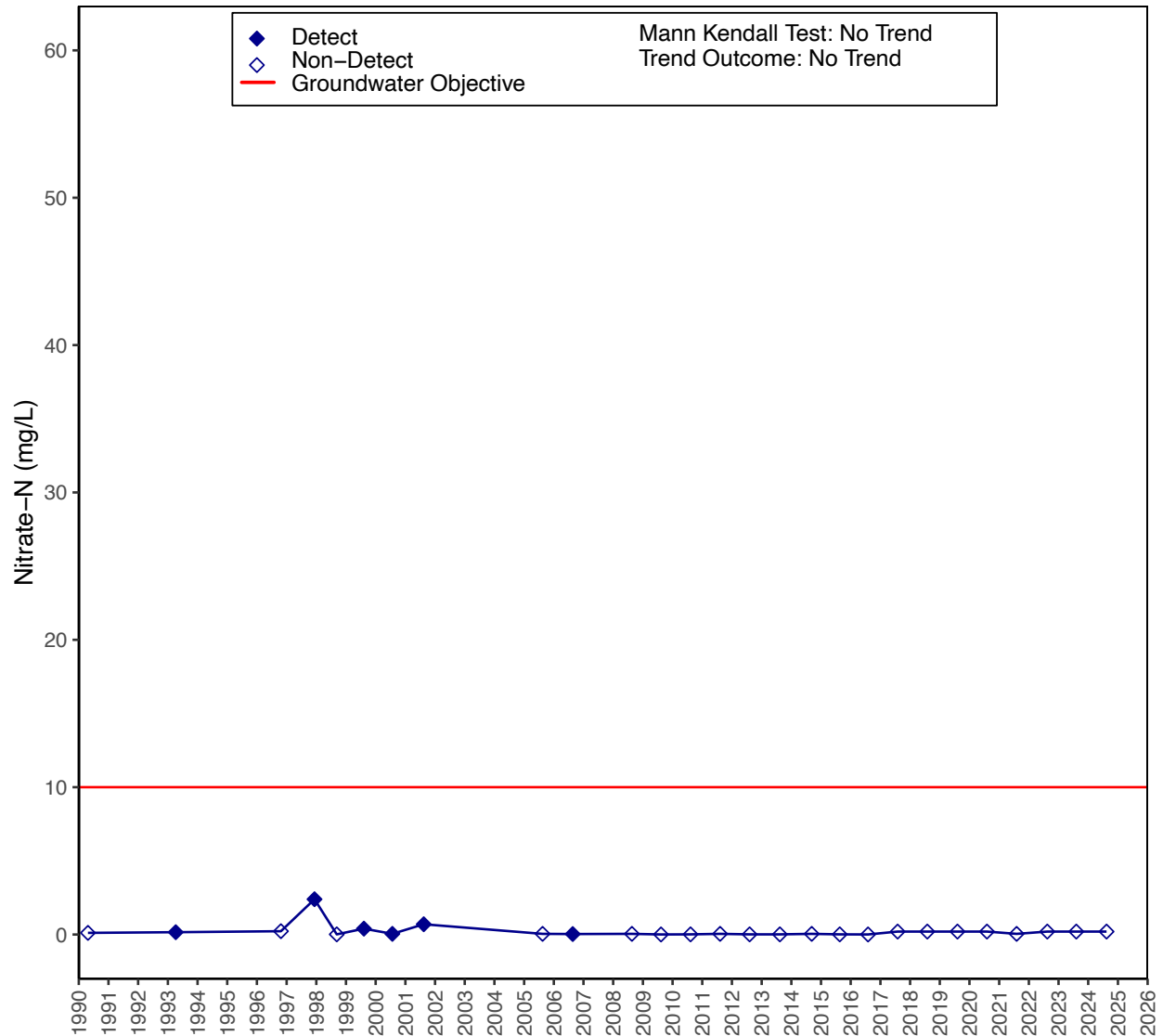
Upper Ventura River Basin 05N23W33B04S_B04S



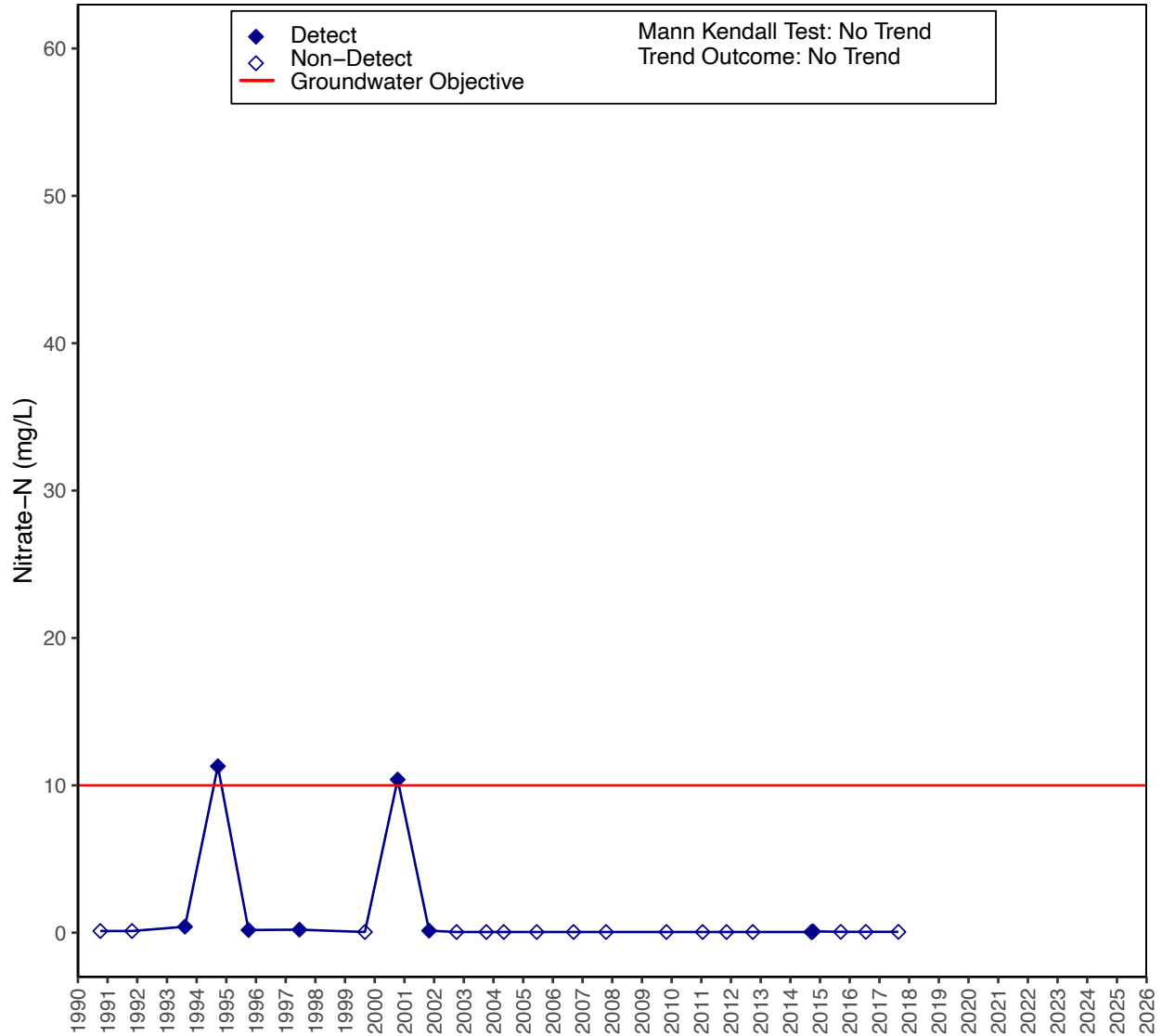
West Las Posas Valley Subbasin 02N20W06R01S_R01S



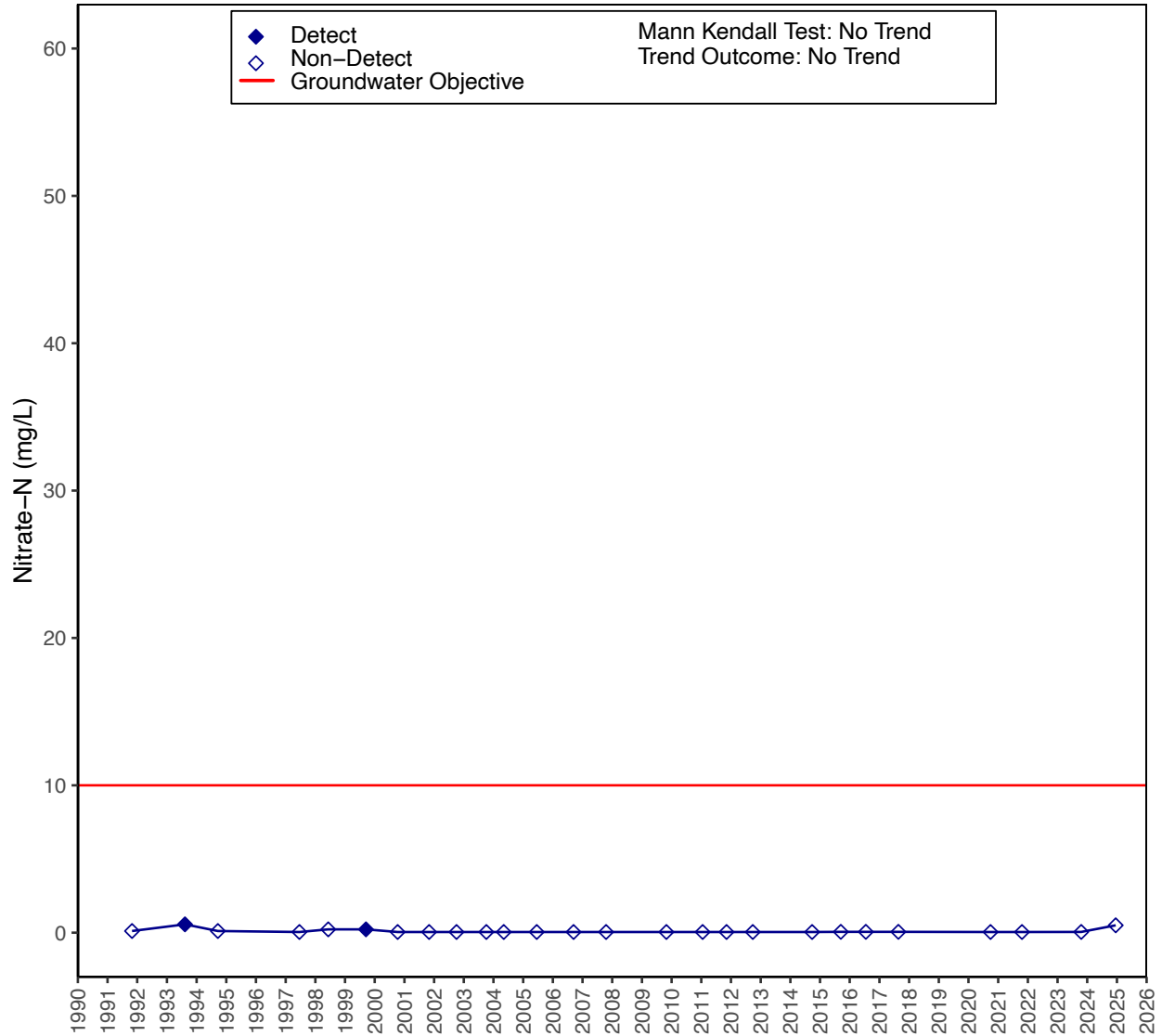
West Las Posas Valley Subbasin 02N20W08B01S_B01S



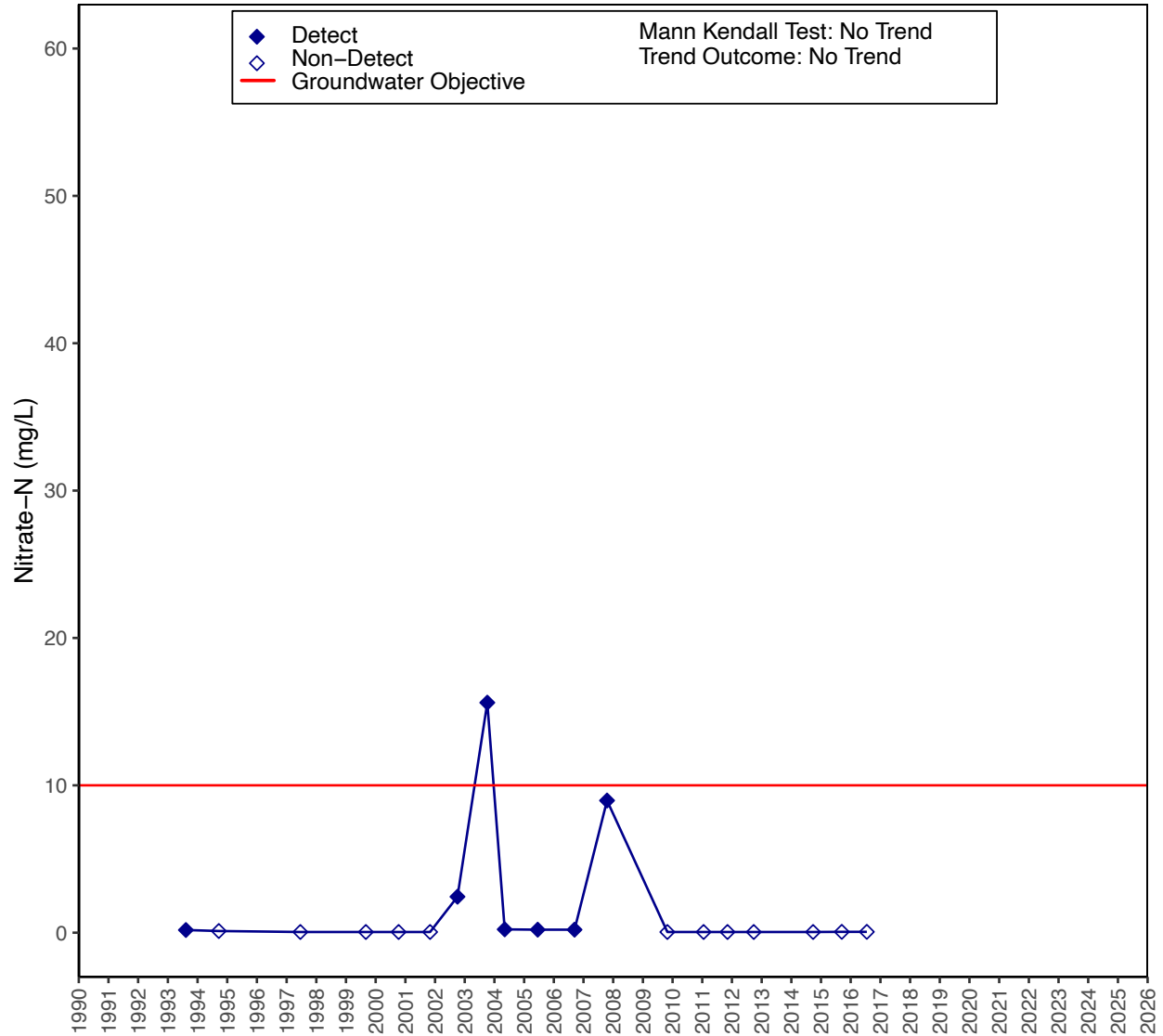
West Las Posas Valley Subbasin 02N20W08E01S_E01S



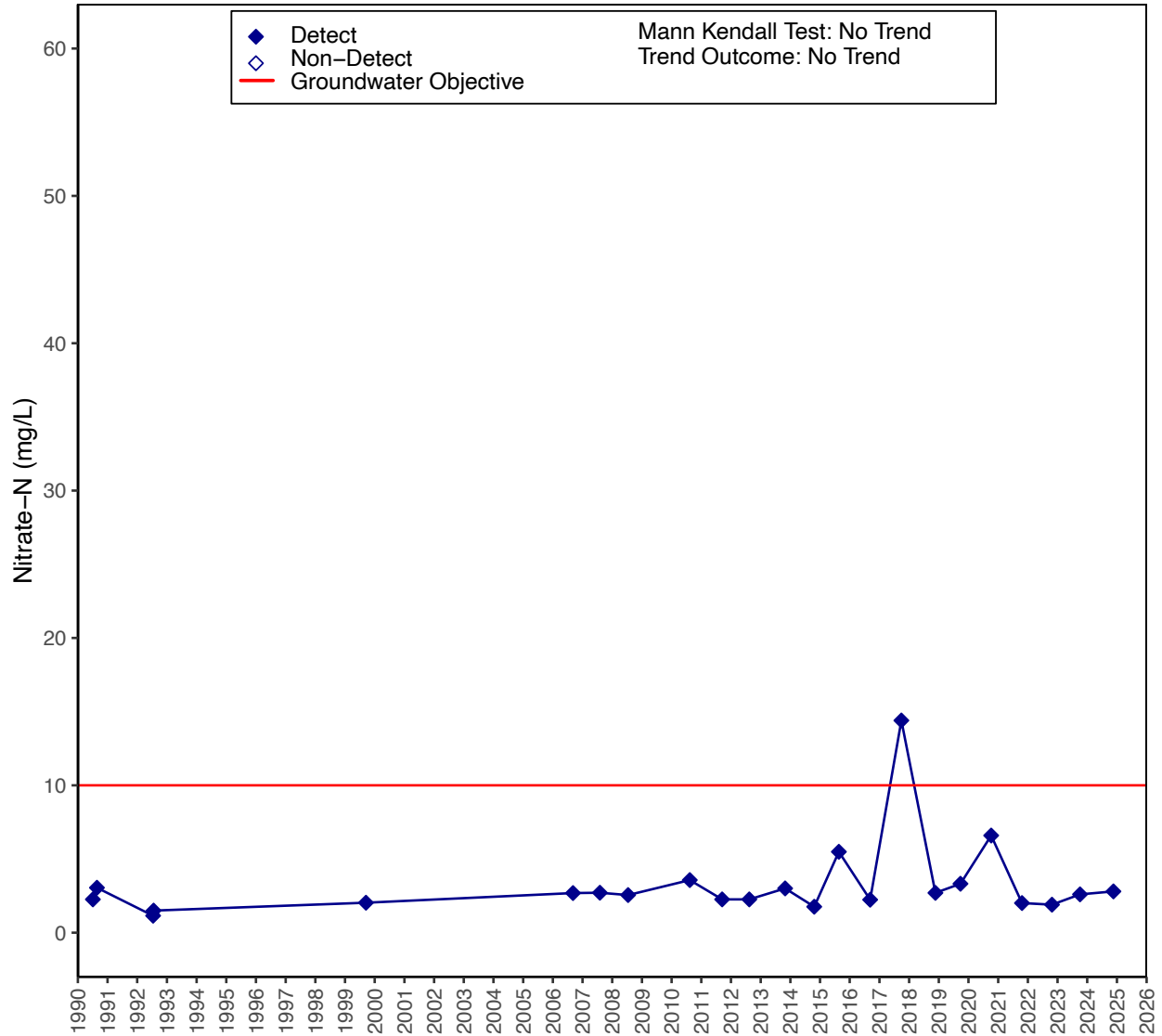
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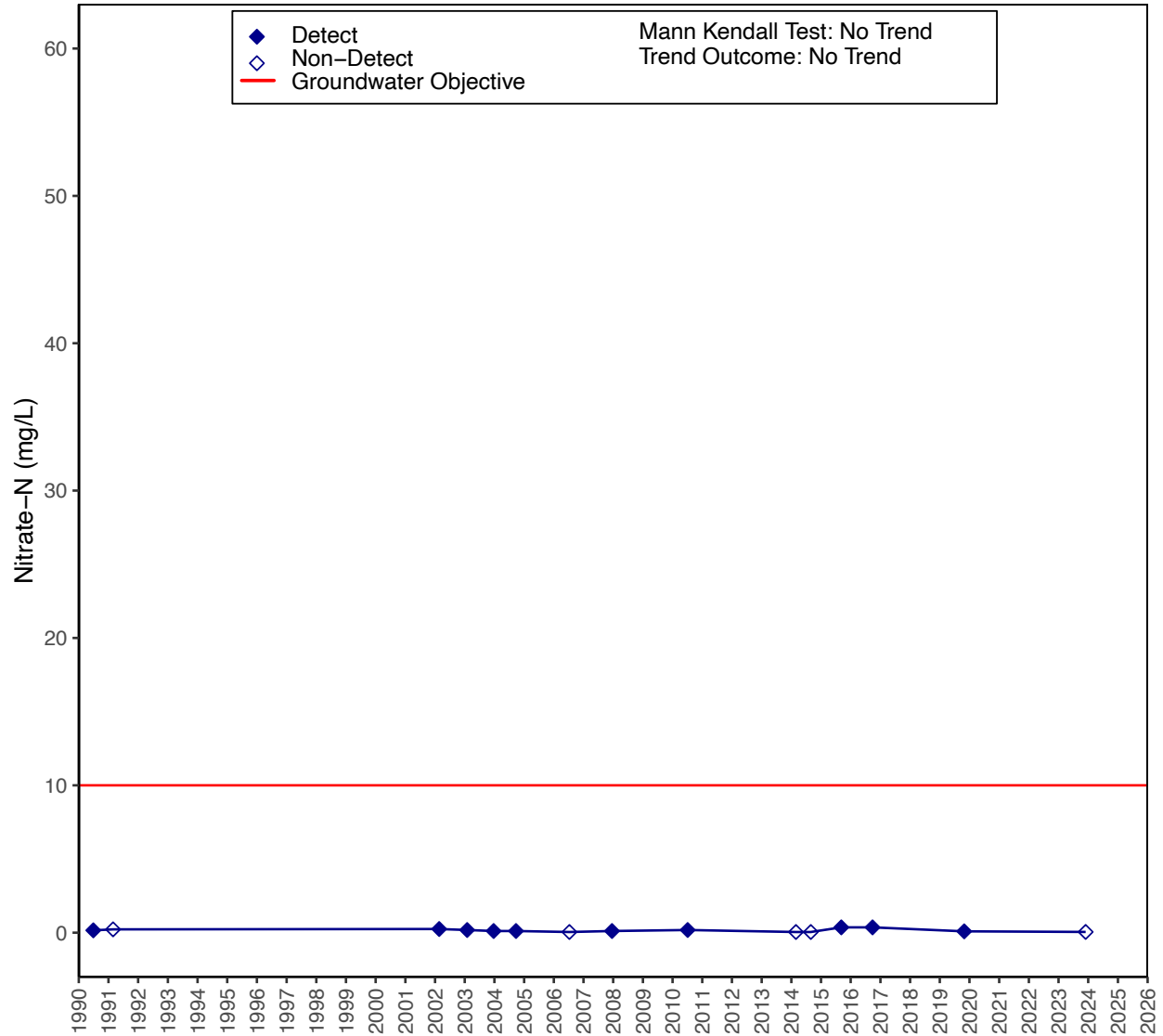
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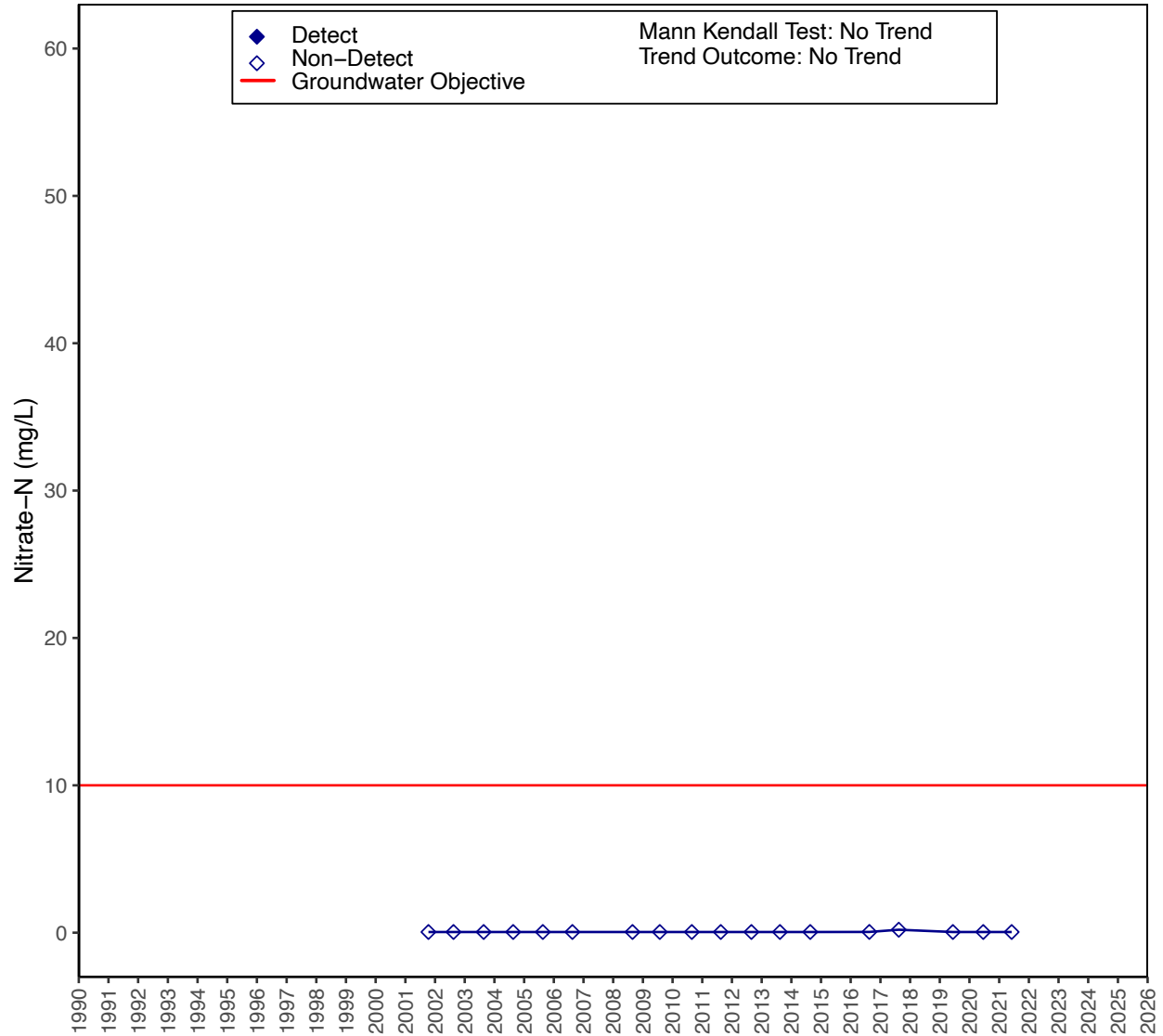
West Las Posas Valley Subbasin 02N21W15M04S_M04S



West Las Posas Valley Subbasin 02N21W18H12S_H12S



West Las Posas Valley Subbasin 02N21W22A01S_A01S



West Las Posas Valley Subbasin 02N21W22G01S_G01S

