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2025 Targeted Sampling Program

ANNUAL REPORT

Wisconsin Department of Agriculture, Trade and Consumer Protection
Agricultural Resource Management Division
Environmental Quality Unit

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Introduction

The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) continued its Targeted Sampling Program in 2025. The purpose of this program is to evaluate impacts to private well water quality in rural areas from pesticide use on agricultural land across Wisconsin. In 2025, the Targeted Sampling Program partnered with the Wisconsin State Biomonitoring Program to provide private well sampling for some participants in the 2025-26 Wisconsin Rural Health Study. In total, 100 private potable well samples from 24 counties were collected between July and November. Each sample was collected by DATCP and tested for nitrate plus nitrite as nitrogen (N) and 115 pesticide compounds. This document provides a narrative of the activities and summarizes the analytical data of the DATCP 2025 Targeted Sampling Program.

A compilation of acronyms and definitions used throughout this document is provided in Appendix A – Acronyms and Definitions.

Purpose of Targeted Sampling

Agriculture contributes about $116.3 billion annually to Wisconsin's economy (Wisconsin Department of Agriculture, Trade and Consumer Protection, 2026). Growers use millions of pounds of pesticides and millions of tons of fertilizers annually to grow a wide variety of crops. The Targeted Sampling Program utilizes a biased approach to evaluate risks to groundwater quality by selecting private potable wells within areas where agricultural chemicals are widely used. The Targeted Sampling Program helps the agency meet its statutory obligation to monitor groundwater. Wisconsin's groundwater law, Chapter 160, requires regulatory agencies to sample and monitor groundwater for substances that have a reasonable probability of entering the groundwater resources of the state. The regulation applies to activities such as waste disposal, agricultural practices, and industrial activities that have the potential to contaminate groundwater. Under this regulation, agencies are required to determine whether Preventive Action Limits (PAL's) or Enforcement Standards (ES's)[1] of a substance in groundwater have been exceeded at a specific location, depth, or distance from a facility, activity, or practice. The statute further specifies that agencies develop monitoring plans that include provisions for conducting four types of monitoring (Wis. Stats., Ch. §160.05 and §160.27):

- Problem assessment monitoring, to detect substances in the groundwater, and to assess the significance of the concentrations of the detected substances;
- Regulatory monitoring, to determine if PALs or ESs are attained or exceeded, and to obtain information necessary for the implementation of responses for specific sites;
- At-risk monitoring, to define and sample at-risk potable wells in areas where substances are detected in the groundwater or where PALs or ESs are attained or exceeded; and
- Management practice monitoring, to assure practices are within compliance regulations.

[1] An essential part of Wisconsin's groundwater protection laws was the creation of water quality standards for different substances, outlined in Wis. Admin. Code Chapter NR 140. The Wisconsin Department of Natural Resources sets groundwater standards for substances of public health concern based on recommendations from Wisconsin Department of Health Services. Groundwater standards have two components: an enforcement standard (ES) and a preventative action limit (PAL). The ES is a concentration that, if exceeded, requires intervention from the appropriate authority. The PAL is a percentage of the ES; 10% of the ES for carcinogenic, mutagenic, teratogenic properties, or interactive effects; and 20% of the ES for the remaining substances. The intention of the PAL is for it to act as a trigger for intervention before a pollutant becomes a serious risk to public health or the environment.

Program Approach and Site Selection Criteria

The potential for agricultural chemicals to affect groundwater quality at any particular location depends on site-specific conditions. Criteria used to select study areas for the Targeted Sampling Program testing focus on conditions that make groundwater prone to contamination. These criteria vary from year to year and between study areas.

Criteria used for study area selection include:

- Areas susceptible to groundwater contamination due to geology (i.e., sandy soils with shallow groundwater, shallow depth to bedrock, or karst features);
- Areas where prior testing by others (county government, university, private owner, etc.) indicates concerning concentrations of nitrate, pesticides, or other compounds;
- Areas in or near an existing atrazine prohibition area (PA), or areas where other restrictions on pesticide use have occurred out of concern for groundwater protection;
- Areas with little to no crop rotation (e.g. corn, soybeans, potatoes grown year after year) and a high likelihood of repetitive pesticide use in the area;
- Areas where the grown crops require extensive chemical or fertilizer inputs and/or irrigation; and
- Areas where pesticides with characteristics of high mobility in soil and resistance to degradation are used.

Planning for the Targeted Sampling Program is usually performed early in the calendar year, with DATCP staff and management agreeing on the number of samples to be collected for the coming year. Program objectives vary from year to year. Relationships between groundwater quality observations and well construction properties, such as well depth, casing depth, well age, and geologic formation at the screen, are also explored through analysis of data collected through the program.

Permission to sample private potable wells is generally obtained in advance through letters and permission slips mailed to the well owners. Once the sample is collected and analyzed by the DATCP Bureau of Laboratory Services (BLS), DATCP hydrogeologists provide homeowners with a copy of their analytical results. DATCP staff provide an interpretation of results and advise the well owner on resolving any water contamination issues as needed. The well owner receives drinking water health advisory information if a compound exceeds a water quality standard, such as an ES or a Wisconsin Department of Health Services (DHS) Health Advisory Level (HAL).

2025 PROGRAM SPECIFICS

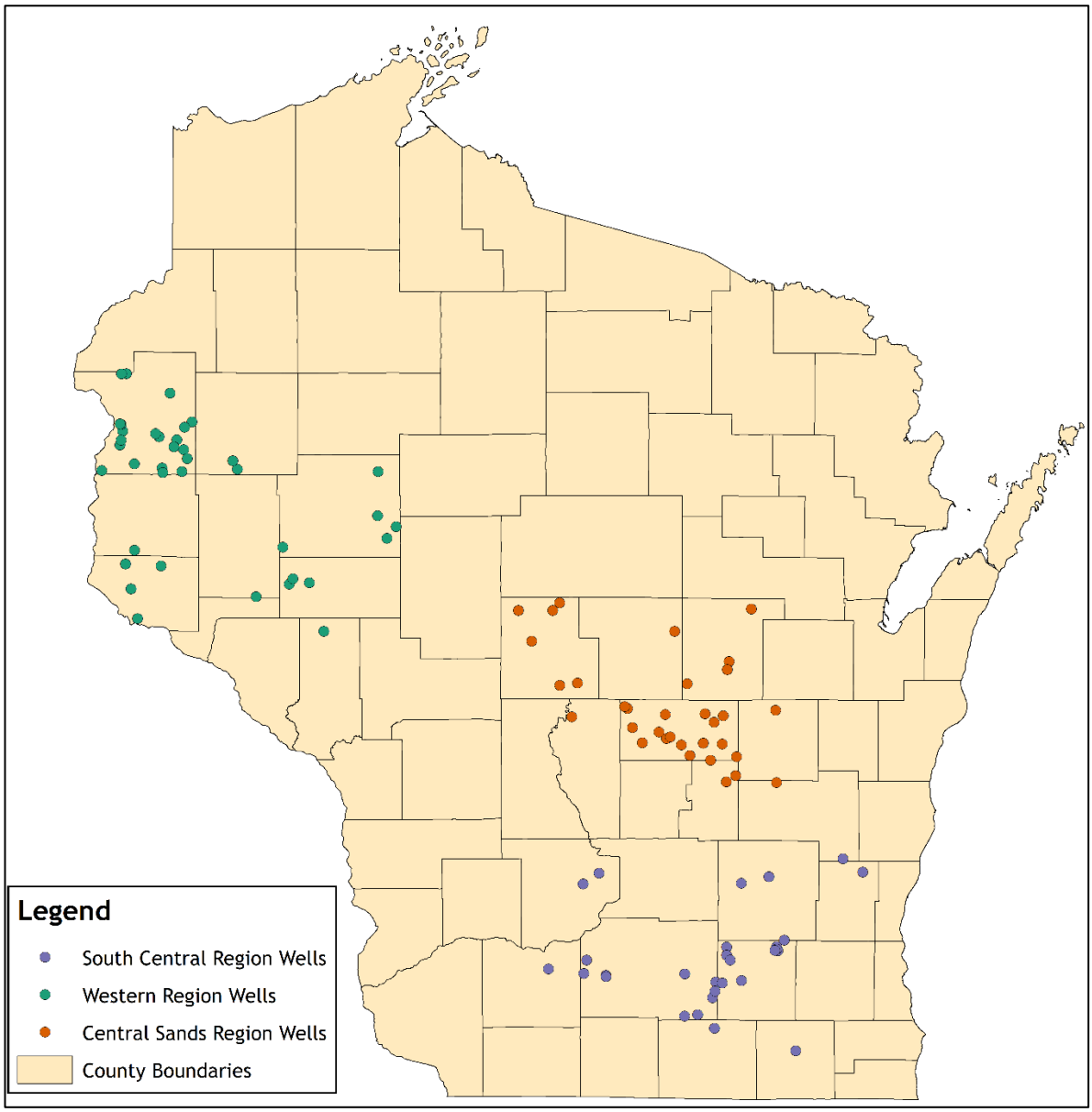
The 2025 process for selecting wells to sample varied from prior years. Samples were collected in partnership with the Wisconsin State Biomonitoring Program's Wisconsin Rural Health Study. During recruitment for participation in the Wisconsin Rural Health Study, prospective participants were screened for eligibility for private well testing (i.e. a participant owned a home with a private well) and asked if they would allow DATCP to sample their private well. Participants that consented to sample collection were informed that a limited number of samples could be collected in 2025, and that not all participant wells could be sampled. DATCP prioritized wells located near active agricultural areas when selecting wells to sample. Ultimately, 100 private wells were sampled. Samples were collected concurrently with recruitment in three regions in Wisconsin used by the Wisconsin Rural Health Study. Table 1 summarizes the counties in each region, along with the number of samples collected within each region. Figure 1 shows the locations of the 100 wells that were sampled in the 2025 Targeted Sampling Program, color-coded by their region.

In past years, one priority of the Targeted Sampling Program was to resample some wells that had been sampled by DATCP previously. This is done to be able to monitor changes in pesticide concentrations over time. Due to the nature of the sample selection process for the Wisconsin Rural Health Study, it was not possible to prioritize this aspect of site selection. None of the 100 wells sampled in the 2025 Targeted Sampling Program were previously sampled by DATCP.

Table 1: 2025 Targeted Sampling Program Sample Location Summary

Region	Counties	Number of Samples
South Central	Dane, Dodge, Fond du Lac, Iowa, Jefferson, Rock, Sauk, Walworth, Washington	29
Western	Barron, Chippewa, Dunn, Eau Claire, Pierce, Polk, St. Croix, Trempealeau	38
Central Sands	Adams, Fond du Lac, Green Lake, Portage, Waupaca, Waushara, Winnebago, Wood	33

Figure 1: Map of 2025 Targeted Sampling Program Locations



Sample Collection and Analysis

Sample collection followed Wisconsin Department of Natural Resources (DNR) and DATCP standard operating procedures (Wisconsin Department of Natural Resources, 1996). Groundwater samples were collected from either an outside spigot or from a valve at the water system pressure tank to ensure the collection of raw and untreated water (i.e. water not passing through a water treatment system). Whenever a sample was collected from an outside spigot, the water was allowed to flow for several minutes to ensure that fresh water was obtained from the aquifer. Groundwater samples were collected by directly filling a laboratory-provided one-liter amber-colored glass sampling bottle at the designated sampling location. Bottles were then placed in a shipping container cooler on ice, and the sample's information was recorded on a sample collection form. Shipping container coolers were hand delivered to the DATCP Bureau of Laboratory Services (BLS), typically within 24 hours of sample collection, and then analyzed for pesticides and nitrogen. A summary of the analytical data for the 2025 Targeted Sampling Program is included in Appendix B. Detailed analytical reports are available upon request.

BLS performed groundwater analytical testing using gas chromatography with tandem mass spectrometry (GC-MS/MS) and liquid chromatography with tandem mass spectrometry (LC-MS/MS) methods in accordance with ISO 17025 accreditation standards. Each sample was tested for 115 pesticides (pesticide active ingredients or metabolites), and nitrate plus nitrite as nitrogen (N). Table 3 in Appendix B lists each analyte tested and their corresponding laboratory reporting limits. The laboratory reporting limit is the minimum analyte concentration that can be reliably quantified and reported by the laboratory. If the concentration of a compound is reported to be less than the respective laboratory reporting limit, the compound is reported as ***not detected*** in the water sample. If the concentration of a compound is reported to be greater than the respective laboratory reporting limit, it is reported as ***detected*** in the water sample. We are unable to determine if water samples contain other compounds not listed in Table 3 of Appendix B.

Results

A total of 100 groundwater samples were collected and submitted for chemical analysis as a part of the DATCP's 2025 Targeted Sampling Program. A full listing of compounds analyzed and detected concentrations are included in Table 3 of Appendix B along with Wisconsin's groundwater quality standards. Groundwater quality standards include both Wisconsin Administrative Code (Wis. Admin. Code) ch. NR 140 PALs and ESs, and DHS HALs.

SUMMARY

Below is a summary of the sampling results followed by a description of the 2025 data by sample region. Compounds detected, the number of detections, the range of detected concentrations, and exceedances of established groundwater standards are listed in Table 2.

Detections

Detected compounds and respective detection rates[2] for the 2025 Targeted Sampling Program are shown in Figure 2.

- Of the 115 pesticide analytes included in the laboratory testing methods, 22 were detected in the 2025 Targeted Sampling Program data. Detections include seven herbicides, 10 herbicide metabolites, four insecticides, and one fungicide.
- In 20 of the 100 samples, no nitrate, nitrite, or pesticide compounds were detected.
- Nitrogen as nitrate plus nitrite was detected in 68 samples (68% detection rate).
- One or more pesticide compounds were detected in 59 samples (59% of samples).
- The highest number of pesticides detected in a single sample was 13; this sample was collected from a well located in Waushara County.
- Metolachlor Ethane Sulfonic Acid (ESA), a metabolite of the herbicide metolachlor, was the most frequently detected pesticide compound; it was found in 47 samples (47% detection rate).

[2] The detection rate (%) is calculated as follow: $\frac{number\ of\ detects}{total\ number\ of\ samples}\ x\ 100$

- The second most frequently detected compound overall was alachlor ESA (a metabolite of alachlor), found in 25 samples (25% detection rate).
- De-ethyl atrazine, a metabolite of atrazine, was the third most frequently detected compound, found in 24 samples (24% detection rate).
- Atrazine Total Chlorinated Residues (TCR), the sum of atrazine parent material and three of its breakdown products (de-ethyl atrazine, de-isopropyl atrazine, and diamino atrazine), was found in 25 samples (25% detection rate).
- At least one neonicotinoid compound (clothianidin, dinotefuran, imidacloprid, and thiamethoxam) was detected in 12 samples (12% of samples). Clothianidin was the most frequently detected neonicotinoid compound.
- Three new analytes, 4-Hydroxychlorothalonil, Imazamox, and Imazapic, were added to the BLS testing list in April 2025. None of these compounds were detected in Targeted Sampling Program samples in 2025.

Figure 2: Detection and Exceedance Rates of Water Quality Standards by Compounds in 2025

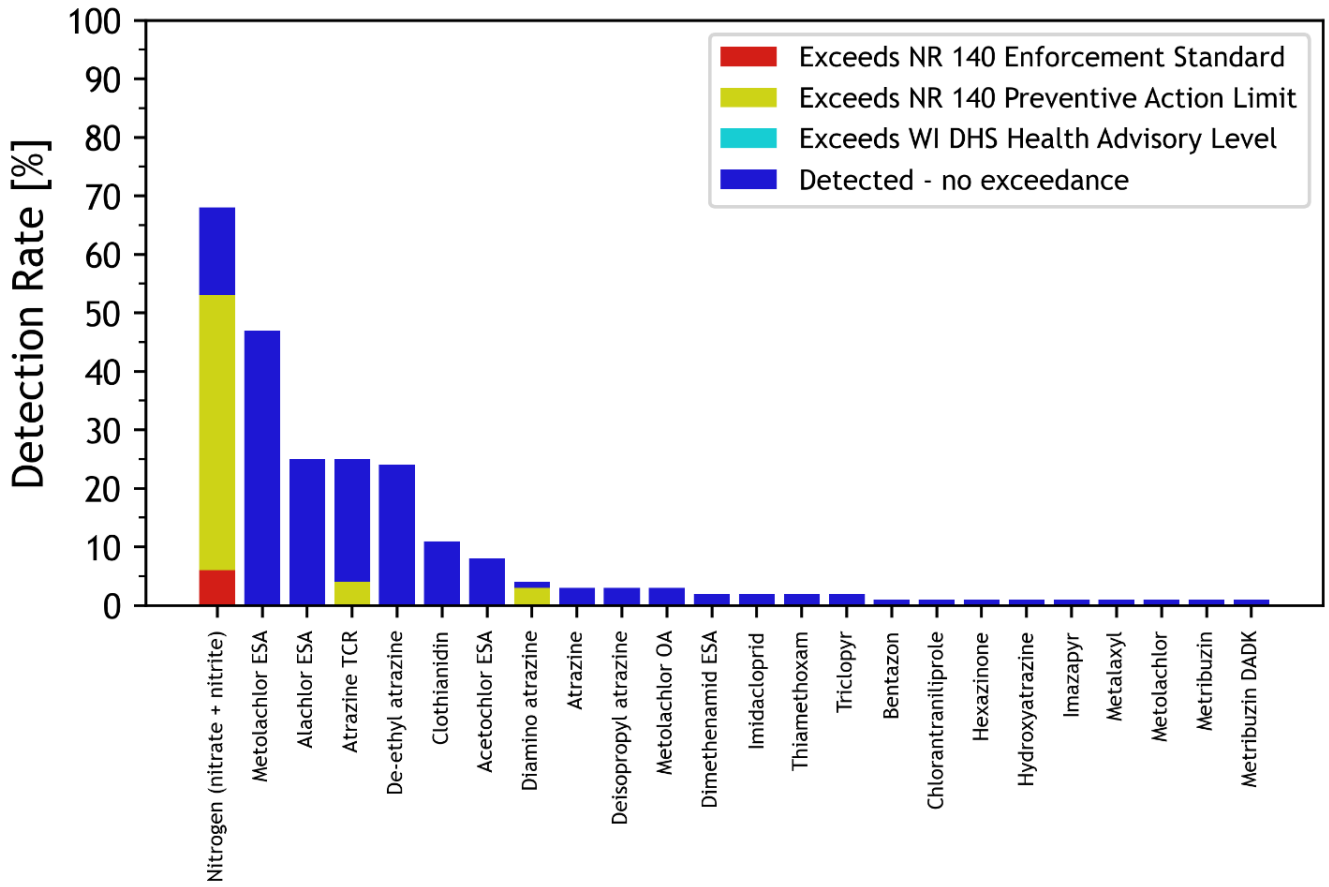


Table 2: Summary of Compounds Detected Through the 2025 DATCP Targeted Sampling Program

Compound Detected	Range Detected (µg/L)	Detections				PAL - ES (µg/L)	HAL (µg/L)
		Total	>=PAL	>=ES	>=HAL		
Nitrate plus Nitrite as N	0.579 – 36.8 mg/L	68	47	6	---	2 - 10 mg/L	---
Acetochlor ESA	0.0927 – 0.679	8	0	0	---	46 - 230	---
Alachlor ESA	0.051 – 2.97	25	0	0	---	46 – 230	---
Atrazine	0.0629 – 0.137	3	0	0	---	0.3 - 3.0	---
Atrazine TCR	0.05 – 0.8873	25	4	0	---	0.3 - 3.0	---
Bentazon	0.101	1	0	0	---	60 - 300	---
Chlorantraniliprole	0.198	1	---	---	0	---	16,000
Clothianidin	0.01 – 1.25	11	---	---	0	---	1,000
De-ethyl Atrazine	0.05 – 0.234	24	0	0	---	0.3 - 3	---
Deisopropyl Atrazine	0.0569 – 0.0946	3	0	0	---	0.3 - 3	---
Diamino Atrazine	0.248 – 0.605	4	3	0	---	0.3 - 3	---
Dimethenamid ESA	0.0556 – 0.13	2	---	---	---	---	---
Hexazinone	0.165	1	---	---	0	---	400
Hydroxyatrazine	0.108	1	---	---	---	---	---
Imazapyr	0.157	1	---	---	---	---	---
Imidacloprid	0.0194 – 0.0313	2	---	---	0	---	0.2
Metalaxyl	0.202	1	---	---	0	---	800
Metolachlor	0.109	1	0	0	---	10 - 100	---
Metolachlor ESA	0.0526 – 4.36	47	0	0	---	260 - 1300	---
Metolachlor OA	0.513 – 2.84	3	0	0	---	260 - 1300	---
Metribuzin	3.5	1	0	0	---	14 - 70	---
Metribuzin DADK	0.85	1	---	---	---	---	---
Thiamethoxam	0.0397 – 0.11	2	---	---	0	---	120
Triclopyr	0.142 – 0.374	2	---	---	---	---	---

***Notes**: Units: Nitrate plus Nitrite as N = mg/L (milligrams per liter, equivalent to parts per million) and Pesticides = µg/L (micrograms per liter, equivalent to parts per billion).*

--- Standard not established.
DADK Desaminodiketo
ES Enforcement Standard as defined in Wisconsin Administrative Code Chapter NR 140.
ESA Ethanesulfonic acid
HAL Wisconsin Department of Health Services Health Advisory Level
OA Oxanilic acid
PAL Preventive Action Limit as defined in Wisconsin Administrative Code Chapter NR 140.
TCR Total Chlorinated Residues of atrazine. It is the sum of atrazine (parent material) and its three metabolites (de-ethyl, deisopropyl, and diamino atrazine).

Exceedances of Drinking Water Standards

A small number of analytes exceeded Wis. Admin. Code ch. NR 140 groundwater standards – PALs and ESs – in 2025. In cases where a compound lacks an established NR 140 Enforcement Standard, DATCP refers to the DHS HAL, if available.

- Nitrate plus nitrite as N was detected in exceedance of the Wis. Admin. Code ch. NR 140 PAL of 2 milligram per liter (mg/L) in 47 samples (47%).
- Nitrate plus nitrite as N was detected in exceedance of the Wis. Admin. Code ch. NR 140 ES of 10 mg/L in six samples (6%).

No pesticide analytes were detected at a concentration exceeding respective Wis. Admin. Code ch. NR 140 ES. Exceedances of the NR 140 PAL are as follows:

- Atrazine TCR was detected in exceedance of the Wis. Admin. Code ch. NR 140 PAL of 0.3 microgram per liter (µg/L) in four samples (4%)
- Diamino atrazine was detected in exceedance of the Wis. Admin. Code ch. NR 140 PAL of 0.3 microgram per liter (µg/L) in three samples (3%)

No analytes tested in 2025 Targeted Program samples exceeded any DHS HALs.

NITRATE PLUS NITRITE AS N

Nitrate plus nitrite as N was detected in 68% of samples collected through the 2025 Targeted Sampling Program. Nitrate plus nitrite as N occurrence data is summarized below.

- <2 mg/L: 15 wells (15%)
- ≥2 and <10 mg/L: 47 wells (47%)
- ≥10 mg/L: six wells (6%)

The 2 mg/L PAL and the 10 mg/L ES of for nitrate plus nitrite as N was exceeded in 47% and 6% of samples, respectively. These results were compared to estimated statewide detection rates from the 2023 Statewide Survey of Groundwater. The PAL exceedance rate for 2025 Targeted Sampling Program samples is slightly higher than in the 2023 survey while the ES exceedance rate for 2025 Targeted Program samples is nearly the same as that of the 2023 survey. In that survey, 380 randomly selected samples were collected from private potable wells. Based on survey results, the statewide exceedance rate of the PAL for nitrate plus nitrite as N was estimated to be 32.7%, and the statewide exceedance rate of the ES for nitrate plus nitrite as N was estimated to be 7.3%. The overall detection rate of nitrate plus nitrite as N was also somewhat higher in 2025 Targeted Sampling Program samples (68%) compared to the estimated statewide detection rate of nitrate plus nitrite as N from the 2023 statewide survey (52.3%) (Wisconsin Department of Agriculture, Trade and Consumer Protection & U.S. Department of Agriculture – National Agricultural Statistics Service, 2024).

PESTICIDES

One or more pesticide or pesticide metabolite compounds were detected in 59% of samples collected in 2025. A total of 22 different pesticides or pesticide metabolites were detected in these samples (Table 2 and Figure 2). Compounds detected more than once in 2025 are listed below along with the number of times (n) that each compound was detected, as well as the detection rate.

- Metolachlor ESA (herbicide metabolite; n = 47, detection rate = 47%)
- Alachlor ESA (herbicide metabolite; n = 25, detection rate = 25%)
- De-ethyl atrazine (herbicide metabolite; n = 24, detection rate = 24%)
- Clothianidin (insecticide; n = 11, detection rate = 11%)
- Acetochlor ESA (herbicide metabolite; n = 8, detection rate = 8%)
- Diamino atrazine (herbicide metabolite; n = 4, detection rate = 4%)
- Atrazine (herbicide; n = 3, detection rate = 3%)
- Deisopropyl atrazine (herbicide metabolite; n = 3, detection rate = 3%)
- Metolachlor Oxalic Acid (OA) (herbicide metabolite; n = 3, detection rate = 3%)
- Dimethenamid ESA (herbicide metabolite; n = 2, detection rate = 2%)
- Imidacloprid (insecticide; n = 2, detection rate = 2%)
- Thiamethoxam (insecticide; n = 2, detection rate = 2%)
- Triclopyr (herbicide; n = 2, detection rate = 2%)

Of these 15 most frequently detected compounds, eight are metabolites of the herbicides metolachlor, alachlor, acetochlor, atrazine, and dimethenamid. Each of these compounds is used in products commonly used to control weeds in corn or other crops grown in the state. Metolachlor ESA and alachlor ESA were reported as the two most frequently detected pesticide residues in the 2023 statewide sampling of private wells conducted by DATCP in 2023 (Wisconsin Department of Agriculture, Trade and Consumer Protection & U.S. Department of Agriculture – National Agricultural Statistics Service, 2024). Alachlor ESA concentrations

are expected to decline over time because alachlor is a cancelled product and growers significantly reduced use prior to cancellation in June 2016 (United States Environmental Protection Agency, 2016). The compounds clothianidin, imidacloprid, and thiamethoxam are systemic neonicotinoid insecticides that are used to control insects in a variety of crops such as corn, small grains, soybeans, and vegetable crops.

Pesticides or pesticide metabolites detected in the 2025 Targeted Sampling Program were compared to existing groundwater quality standards listed in Wis. Admin. Code ch. NR 140 (NR 140) and DHS HALs. Of the 22 detected pesticide compounds, there are 11 compounds with established regulatory groundwater standards, six compounds with DHS HALs, and five compounds that do not currently have either groundwater standards or DHS HALs. Table 2 shows established Wis. Admin. Code ch. NR 140 PALs, ESs, and DHS HALs for the compounds detected.

One individual pesticide compound, diamino atrazine, was detected above its Wis. Admin. Code ch. NR 140 PAL. Diamino atrazine was detected in exceedance of the 0.3 µg/L PAL in 3.0% of the samples (three samples). Atrazine TCR – the sum of atrazine plus three of its metabolites (de-ethyl atrazine, deisopropyl atrazine, and diamino atrazine) – exceeded the 0.3 µg/L PAL in 4.0% of the sample (four samples).

Six pesticide compounds – chlorantraniliprole, clothianidin, hexazinone, imidacloprid, metalaxyl, and thiamethoxam – were detected in one or more samples. While DHS HALs are currently available, no groundwater standards have been established for these compounds at this time. Five pesticide compounds – dimethenamid ESA, hydroxyatrazine, imazapyr, metribuzin desaminodiketo (DADK), and triclopyr – were detected in one or more samples but currently have no established groundwater quality standards or DHS HALs.

South Central Region – Detailed Summary

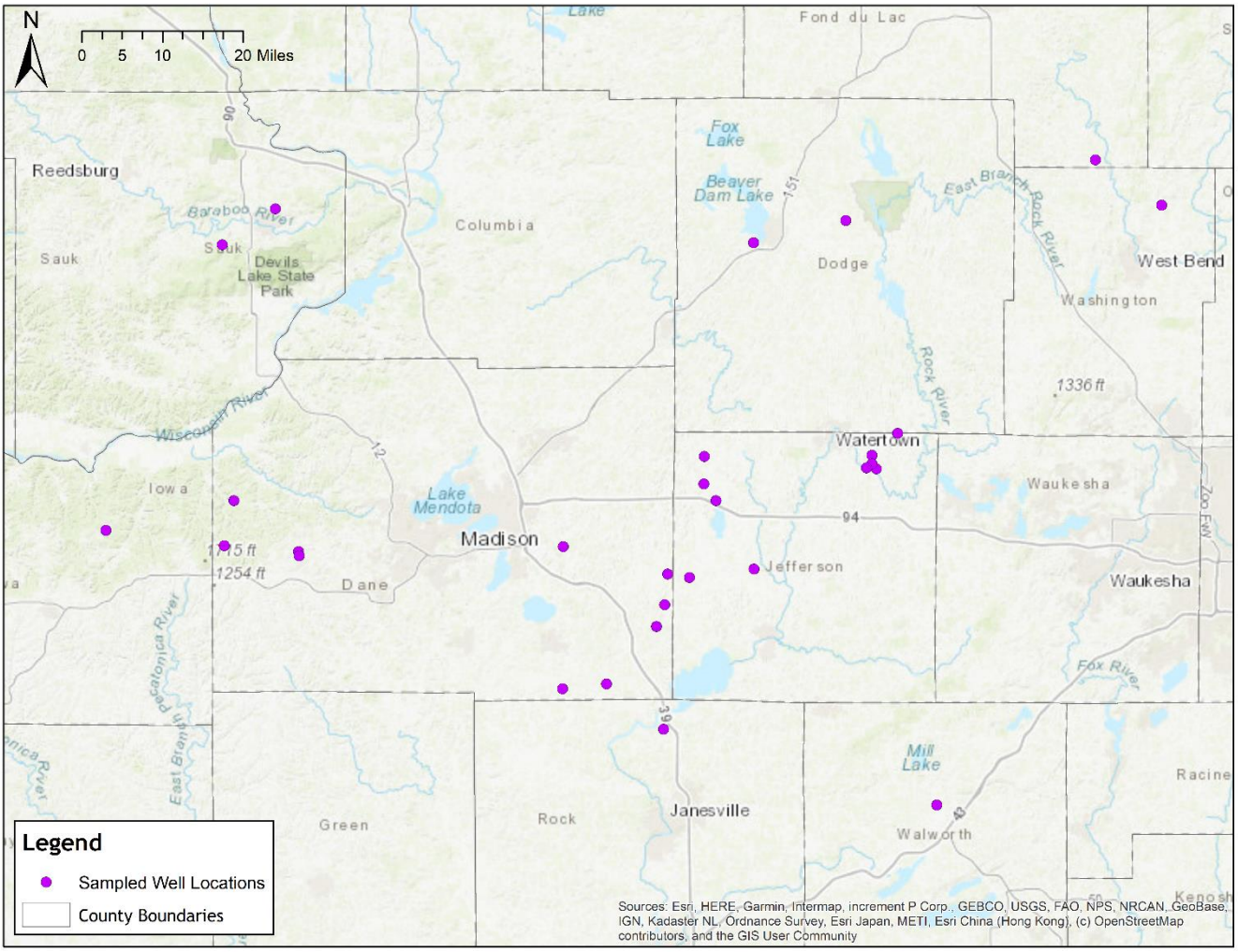
BACKGROUND

DATCP collected water samples from 29 private potable wells within Dane, Dodge, Fond du Lac, Iowa, Jefferson, Rock, Sauk, Walworth, and Washington counties in July and August of 2025 as part of the Targeted Sampling Program (Figure 3).

The South Central Region of the 2025 Targeted Sampling Program includes areas with a wide range of susceptibility to groundwater contamination. The more eastern counties in the region (Dodge, Jefferson, Rock, Walworth, and Washington) generally are within higher susceptibility areas while much of the western counties (Sauk, Iowa, and western Dane County) have more areas with lower susceptibility (Schmidt & Kessler, 1989).

This region's bedrock geology is primarily formed by Precambrian crystalline rock overlain by various sandstone, shale, and dolomite formations of Cambrian to Silurian age. Ordovician bedrock in this region, such as the Prairie du Chien Group and the Sinnipee Group, contains larger proportions of dolomite formations than the older Cambrian rock. These Ordovician rocks are generally thicker and nearer to the surface in the eastern part of this region than in the west. In the eastern portions of Fond Du Lac, Dodge, Washington, and Walworth counties, Ordovician bedrock is also overlain by Silurian dolomite formations. By contrast, the western part of the region largely consists of Cambrian bedrock that is dominated by sandstone units. The stratigraphy near the Baraboo Hills in Sauk County contains large amounts of Precambrian quartzite not overlain by younger rock (Bradbury et al., 1999; Stewart, 2024; Young and Batten, 1980; Mudrey et al., 1982). A surficial Quaternary aquifer system of glacial deposits overlies much of the bedrock in the northeastern part of this region. These unconsolidated deposits, mostly laid down during the Wisconsin Glaciation, range from fine clays to sand and gravel. The Lower Wisconsin River Valley of Dane, Iowa, and Sauk counties also contains an important unconfined aquifer of mostly well-sorted sand and gravel deposited by the fluvial processes of the Wisconsin River (Rawling et al., 2025; Bradbury et al., 1999).

Figure 3: Map of South Central Region Sampling Locations



RESULTS

Detections and Comparisons to Standards

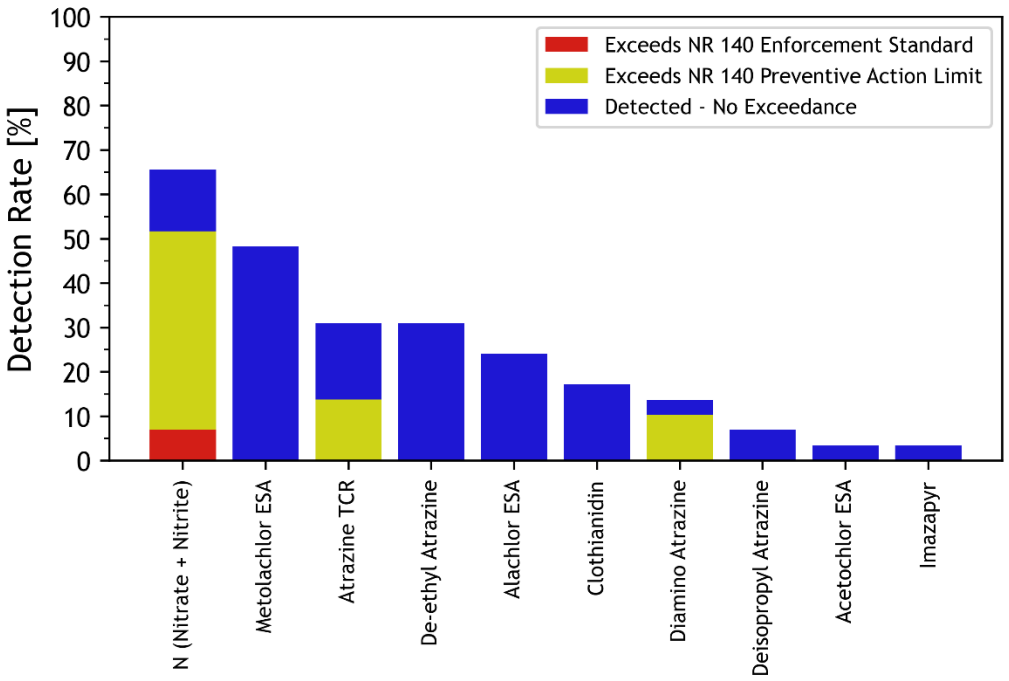
Nitrogen as nitrate plus nitrite and eight pesticide compounds were detected in 2025 Targeted Sampling Program samples collected from the South Central Region (review Figure 4 and Table 3 in Appendix B). Nitrogen was the sole compound to be found in exceedance of the 10 mg/L ES. Atrazine TCR and diamino atrazine were found at concentrations exceeding the 0.3 µg/L PAL (Figure 4). No pesticide compound exceeded any DHS HAL. Below is a summary of the detection rate, the range of values detected for each compound, and the exceedance rate of the respective PAL and ES or DHS HAL.

- Nitrogen as nitrate plus nitrite was detected at 19 wells (65.5%) at concentrations between 1.17 mg/L and 14.9 mg/L. The 2 mg/L PAL was exceeded in 13 wells (44.8%), and the 10 mg/L ES was exceeded at two wells (6.9%).
- Metolachlor ESA, a metabolite of the herbicide metolachlor, was detected at 14 wells (48.3%) at concentrations between 0.0597 µg/L and 2.03 µg/L. No samples exceeded the 260 µg/L PAL or the 1,300 µg/L ES for metolachlor ESA.
- De-ethyl atrazine, a metabolite of the herbicide atrazine, was detected at nine wells (31.0%) at concentrations between 0.05 µg/L and 0.234 µg/L. No samples exceeded the 0.3 µg/L PAL or the 3 µg/L ES for de-ethyl atrazine.

- Alachlor ESA, a metabolite of the herbicide alachlor, was detected at seven wells (24.1%) at concentrations between 0.051 µg/L and 2.97 µg/L. No samples exceeded the 4 µg/L PAL or the 20 µg/L ES for alachlor ESA.
- Clothianidin, a neonicotinoid insecticide, was detected at five wells (17.2%) at concentrations between 0.01 µg/L and 0.0519 µg/L. No PAL and ES standards have been established for this compound at this time. DHS has set the HAL for clothianidin at 1,000 µg/L. No samples exceeded the HAL for clothianidin.
- Diamino atrazine, a metabolite of atrazine, was detected at four wells (13.8%) at concentrations between 0.248 µg/L and 0.605 µg/L. The 0.3 µg/L PAL was exceeded in three wells (10.3%). No samples exceeded the 3 µg/L ES for diamino atrazine.
- Deisopropyl atrazine, a metabolite of atrazine, was detected at two wells (6.9%) at concentrations of 0.0633 µg/L and 0.0946 µg/L, respectively. No samples exceeded the 0.3 µg/L PAL or the 3 µg/L ES for deisopropyl atrazine.
- Acetochlor ESA, a metabolite of the herbicide acetochlor, was detected at one well (3.4%) at a concentration of 0.107 µg/L. No samples exceeded the 46 µg/L PAL or the 230 µg/L ES for acetochlor ESA.
- Imazapyr, an herbicide, was detected at one well (3.4%) at a concentration of 0.157 µg/L. No PAL, ES, or DHS HAL has been established for this compound at this time.

Atrazine TCR was detected at nine wells (31.0%) at concentrations between 0.05 µg/L and 0.8873 µg/L. Atrazine TCR exceeded the PAL of 0.3 µg/L at four wells (13.8%) but did not exceed the 3 µg/L ES at any wells.

Figure 4: 2025 Targeted Sampling Program South Central Region Detection and Exceedance Rates



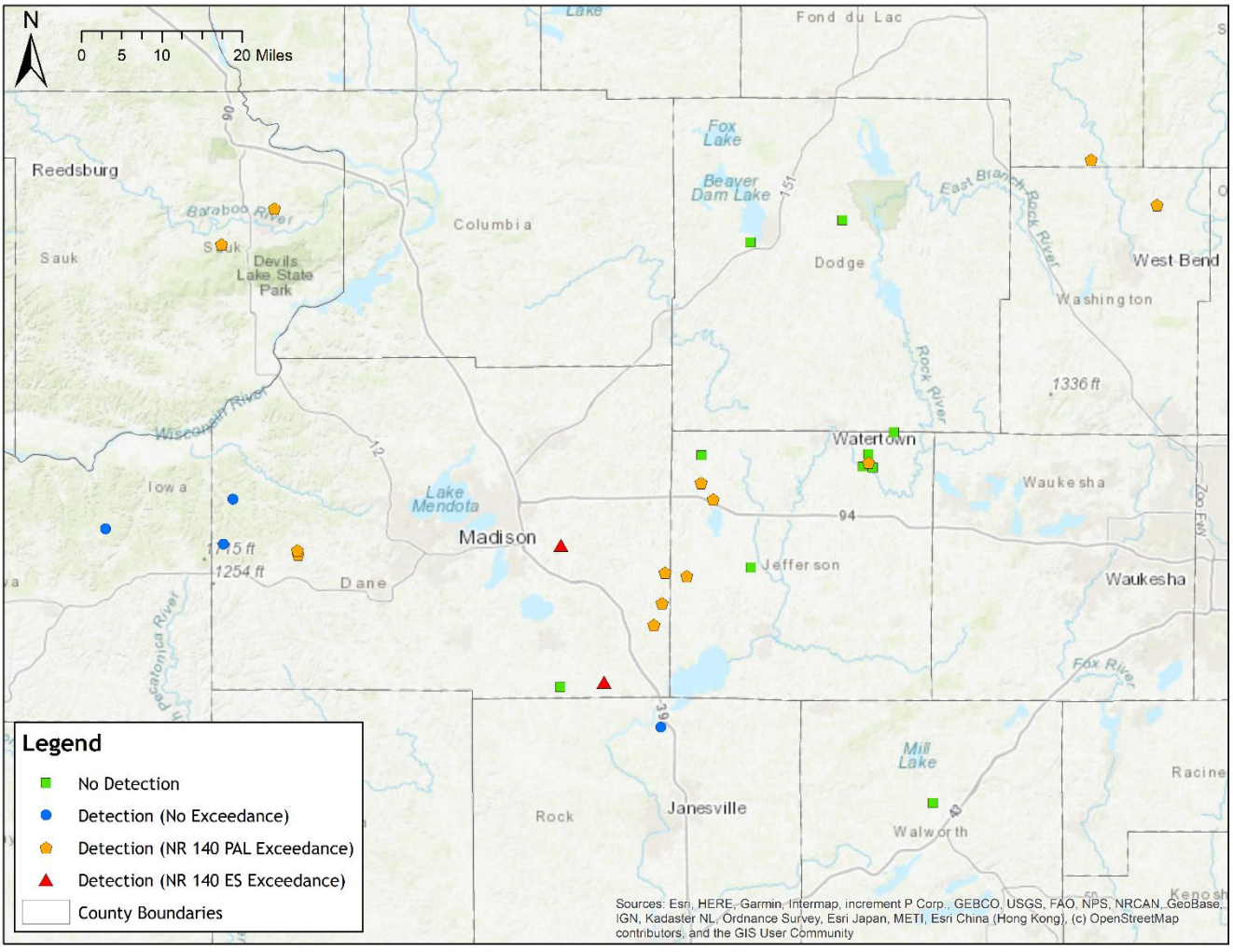
Nitrate

Although nitrogen as nitrate plus nitrite was detected in 19 of 29 samples collected, it only exceeded the 10 mg/L ES at two wells. It was most frequently detected between 2 and 10 mg/L. The distribution of detected nitrogen as nitrate plus nitrite concentrations is summarized below.

- <2 mg/L: four wells (13.8%)
- ≥2 mg/L and <10 mg/L: 13 wells (44.8%)
- ≥10 mg/L: two wells (6.9%)

As shown in Figure 5, both wells with nitrogen concentrations exceeding the ES of 10 mg/L are located in eastern Dane County. Samples from wells within eastern Dane County and western Jefferson County detected nitrogen concentrations exceeding the 2 mg/L PAL at several locations. Samples from wells located at nearby areas within northern Jefferson County and Dodge County had nitrogen concentrations frequently below detection limits.

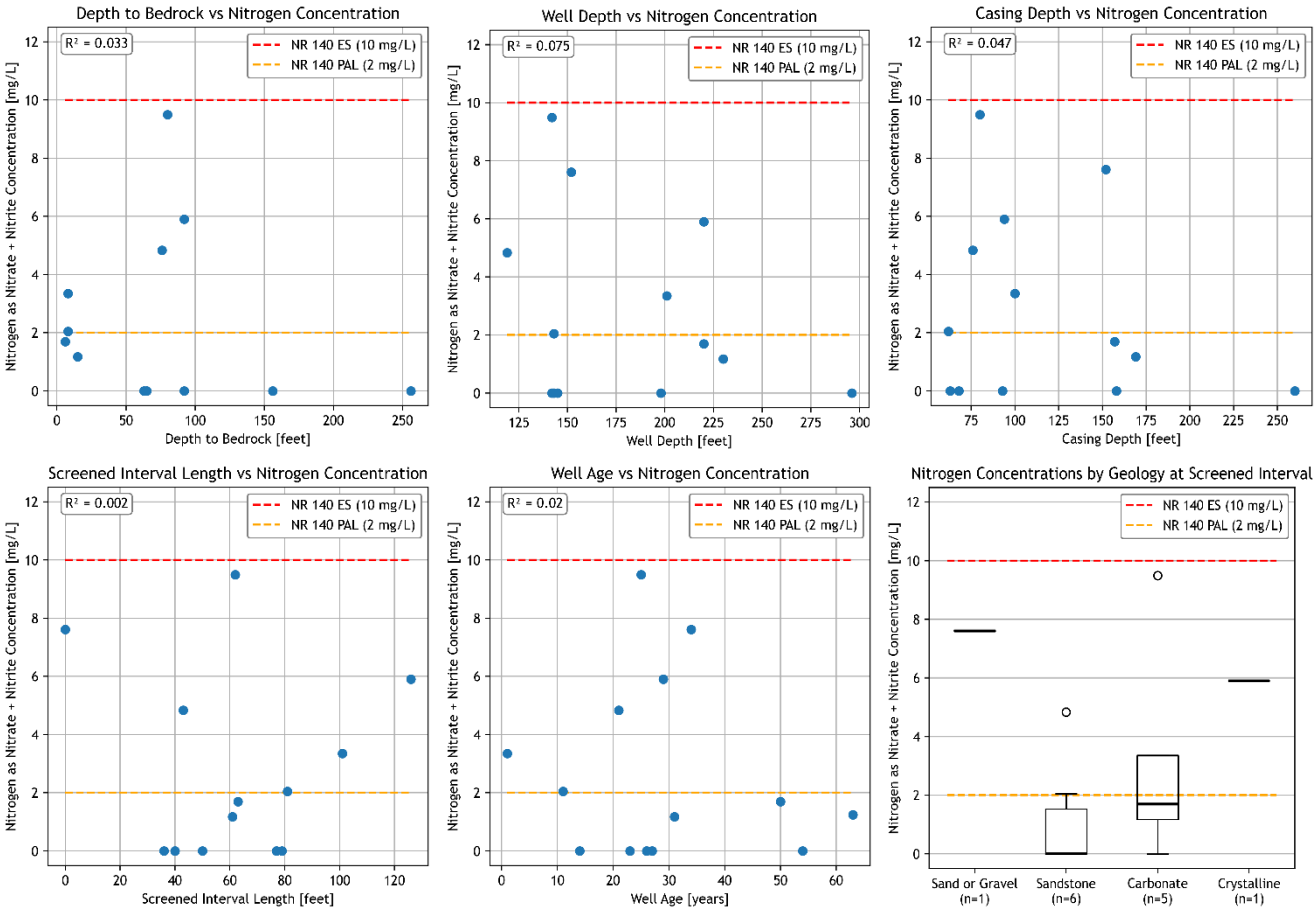
Figure 5: Map of South Central Region Nitrogen as Nitrate plus Nitrite Detections



To further examine trends in nitrogen contamination for wells sampled in the South Central Region, DATCP compared nitrogen concentrations to a variety of geologic and well construction characteristics retrieved from public well construction records for each sampled well. Well characteristics include the depth to bedrock at the well's location, the well depth, the depth of the bottom of the well casing, the length of the screened interval (depth of well minus depth of casing bottom), the well age (2025 minus the year the well was constructed), and the geologic unit present within the screened interval of the well. Only 13 of the 28

wells sampled had complete well construction records. Figure 6 shows plots of these well characteristics compared to nitrogen concentrations.

Figure 6: South Central Region Nitrogen as Nitrate plus Nitrite Comparison to Well Characteristics



All five well characteristics were compared to nitrogen concentrations, but none had a high correlation coefficient (R^2). The correlation coefficient is a statistical term that describes how much variation in a dependent variable (in this case: nitrogen concentration) is explained by an independent variable (in this case: depth to bedrock, well depth, et cetera). The characteristic with the highest R^2 value, well depth (R^2 = 0.075), showed a weak negative correlation with nitrogen concentration. That is, greater well depth was associated with lower nitrogen as nitrate plus nitrite concentration. However, even this relationship was statistically insignificant due to its low goodness of fit, and the other well characteristics had even weaker correlations to nitrogen concentration. The boxplot of geology at well screen intervals shows that almost all wells with complete well construction records sampled in this region were screened in sandstone or carbonate bedrock units. Between these two groups, wells screened in carbonate units had greater variability and generally higher detected concentrations of nitrogen as nitrate plus nitrite.

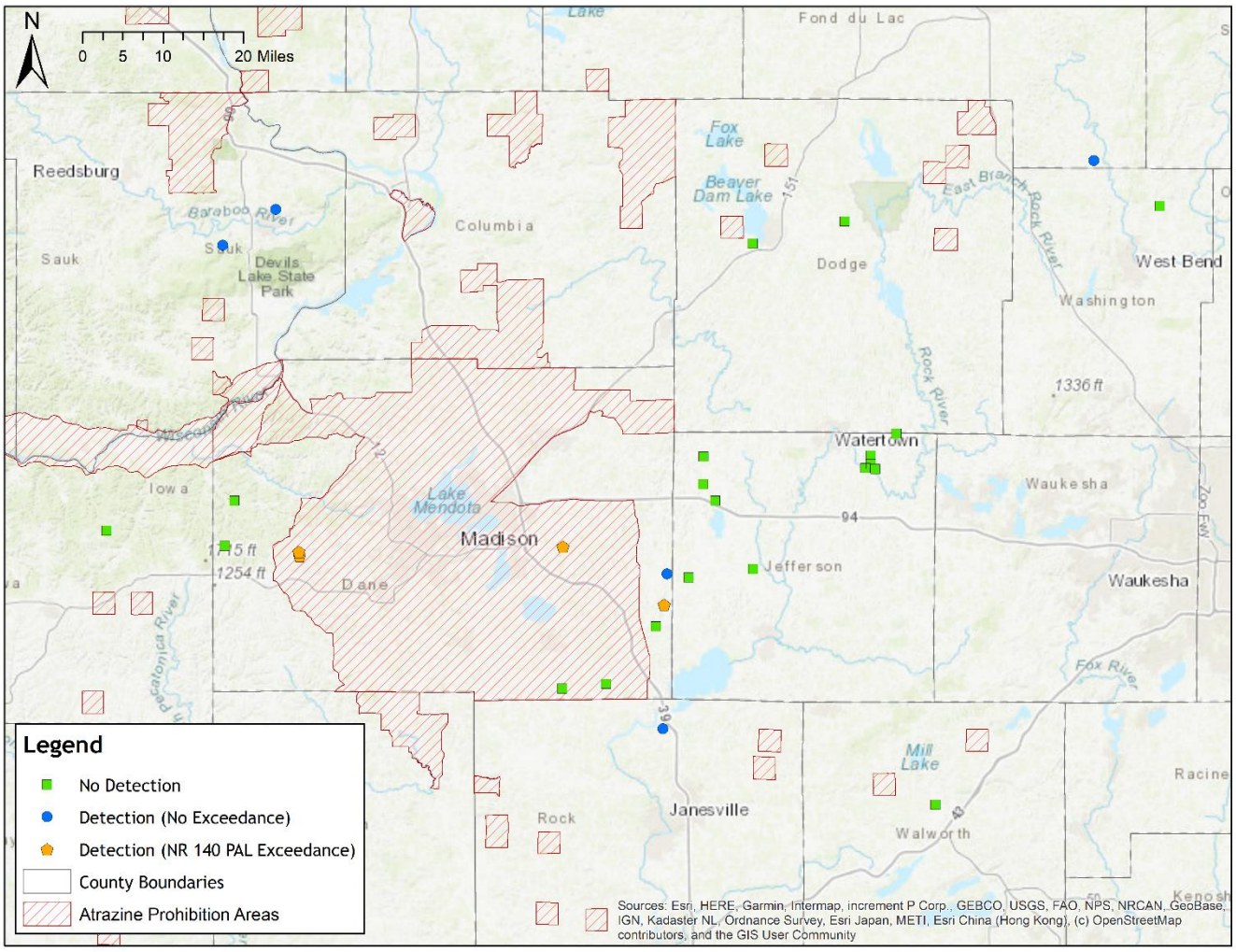
Atrazine

Atrazine is an herbicide used to selectively control weeds on several crops, such as field corn, sweet corn, sorghum, and sugarcane. In Wisconsin, it is registered as a restricted-use pesticide and use is prohibited within 101 prohibition areas throughout the state. There are 24 atrazine prohibition areas within Dane, Dodge, Fond du Lac, Iowa, Jefferson, Rock, Sauk, Walworth, and Washington counties, the largest of which covers approximately 70% of Dane County.

Atrazine TCR is the sum of the concentrations of the herbicide atrazine, and three of its metabolites: de-ethyl atrazine, deisopropyl atrazine, and diamino atrazine. Atrazine TCR was detected in nine wells in the South Central Region in 2025. Atrazine parent material was not detected in any South Central Region samples

in 2025, but de-ethyl atrazine, deisopropyl atrazine, and de-ethyl atrazine were each detected at least twice in South Central Region samples. Atrazine TCR concentrations exceeded the PAL of 0.3 µg/L in four wells. Atrazine TCR was detected throughout the sampling area. All four of the wells where the PAL for Atrazine TCR was exceeded were located within Dane County and three of these four wells were located within the Dane County atrazine prohibition area (Figure 7).

Figure 7: Map of South Central Region Atrazine TCR Detections

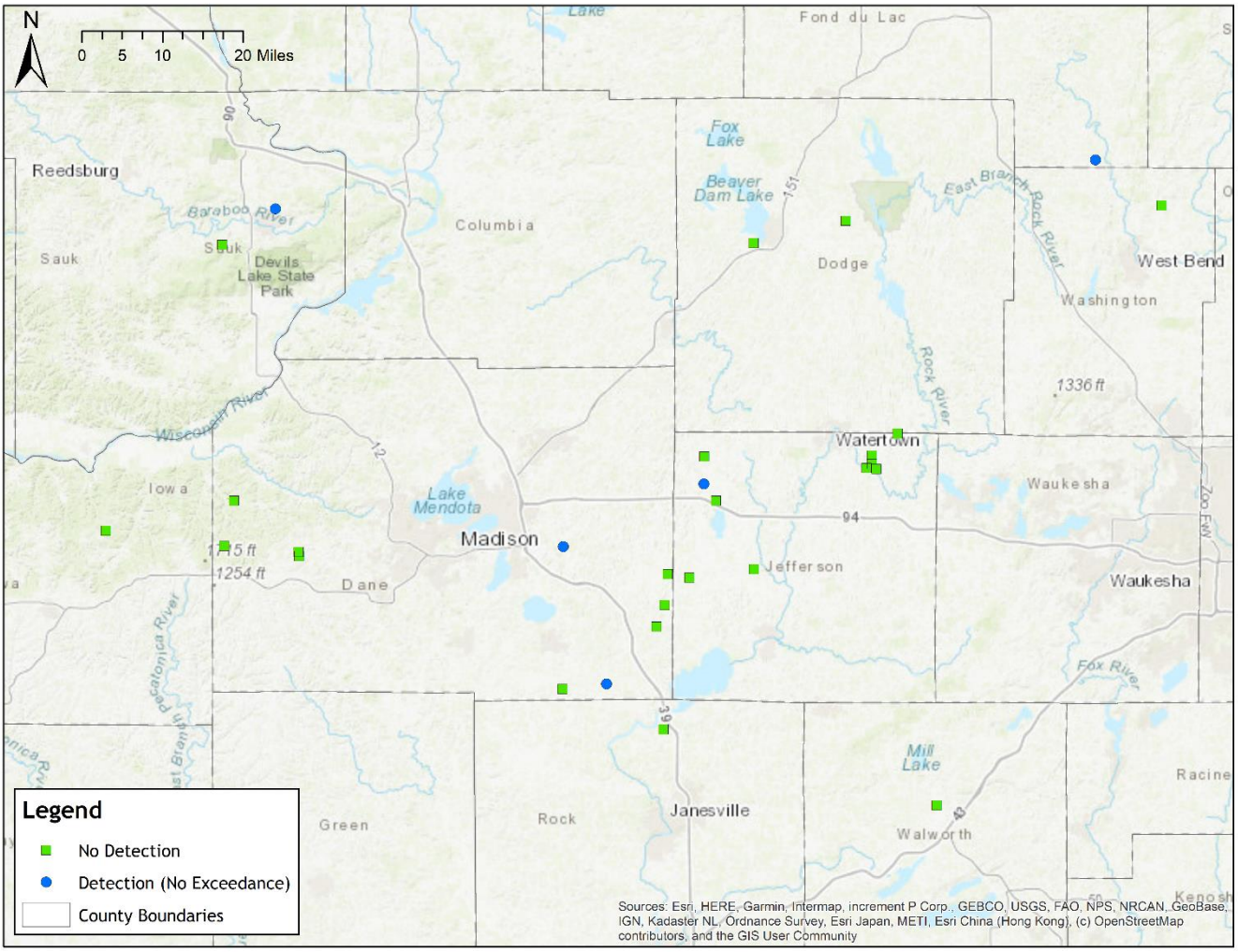


Neonicotinoids

Neonicotinoids are a class of insecticides widely used in Wisconsin. These insecticides are usually applied as seed treatments on major Wisconsin crops, such as corn, soybeans, beans, potatoes, small grains, vegetables, fruit crops, and more. DATCP began testing for neonicotinoids in 2008; initial testing was limited to thiamethoxam. Currently, BLS tests water samples for six neonicotinoid compounds: acetamiprid, clothianidin, dinotefuran, imidacloprid, thiacloprid, and thiamethoxam. Of these, four (clothianidin, dinotefuran, imidacloprid, and thiamethoxam) have been detected multiple times in groundwater and surface water samples across Wisconsin. While dinotefuran, imidacloprid, and thiamethoxam are active ingredients, clothianidin can be either an active ingredient or a metabolite of thiamethoxam, linking it to the use of insecticides containing either clothianidin or thiamethoxam.

Clothianidin was the only neonicotinoid detected in 2025 South Central Region samples. It was detected in five wells across the region (Figure 8), and three of the five detections occurred in the area of eastern Dane County and western Jefferson County. None of the detected clothianidin concentrations exceeded the DHS HAL of 1000 µg/L.

Figure 8: Map of South Central Region Clothianidin Detections



CONCLUSION AND RECOMMENDATIONS

Groundwater samples were collected between July and August 2025 from 29 private potable wells across Dane, Dodge, Fond du Lac, Iowa, Jefferson, Rock, Sauk, Walworth, and Washington counties. All samples were tested for nitrogen and 115 pesticide compounds. Nitrogen as nitrate plus nitrite was detected between 2 and 10 mg/L in 44.8% of the wells sampled withing the South Central Region. Two samples (6.9%) exceeded the 10 mg/L ES for nitrogen as nitrate plus nitrite. DATCP provided well owners with information about water treatment options for private well systems when exceedances occurred and recommended that well owners perform annual testing. No strong linear relationships were found between nitrogen concentrations and well construction characteristics. Additional data would be needed to further evaluate these trends.

A total of eight individual pesticide compounds were detected. No pesticide concentrations exceeded their respective ES groundwater standard or DHS HALs. Atrazine TCR was found in exceedance of the 0.3 µg/L PAL at four wells. Three of the four wells where an atrazine TCR PAL exceedance was detected are located within the Dane County atrazine prohibition area. Atrazine use had been prohibited in this area covering approximately 70% of Dane County since the early 1990s. Atrazine and atrazine metabolite detections are unexpected within the prohibition area. However, several factors might explain their presence, including groundwater recharge from outside the prohibition area, natural attenuation of atrazine applied before the creation of the prohibition area, or illegal use within the prohibition area. To date, out of 10 inspections for illegal atrazine use, DATCP has recorded two violations in Dane County (one in 2008 and one in 2011).

Clothianidin was the only neonicotinoid pesticide detected in the South Central Region in 2025, and no detected clothianidin concentrations exceeded the DHS HAL of 1000 µg/L.

Of the three regions where samples were collected as part of the Targeted Sampling Program in 2025, the South Central Region had the lowest number of pesticide compounds detected but had the highest number of groundwater quality standard exceedances.

DATCP will consider resampling wells where pesticide compounds of interest (atrazine, atrazine metabolites, and clothianidin) were detected. Because no PAL, ES, or DHS HAL has been established for the pesticide imazapyr, we are currently unable to assess the human health risk associated with the detection of this compound. The levels of detection of other pesticides in this region does not raise noteworthy concerns regarding risks to human health.

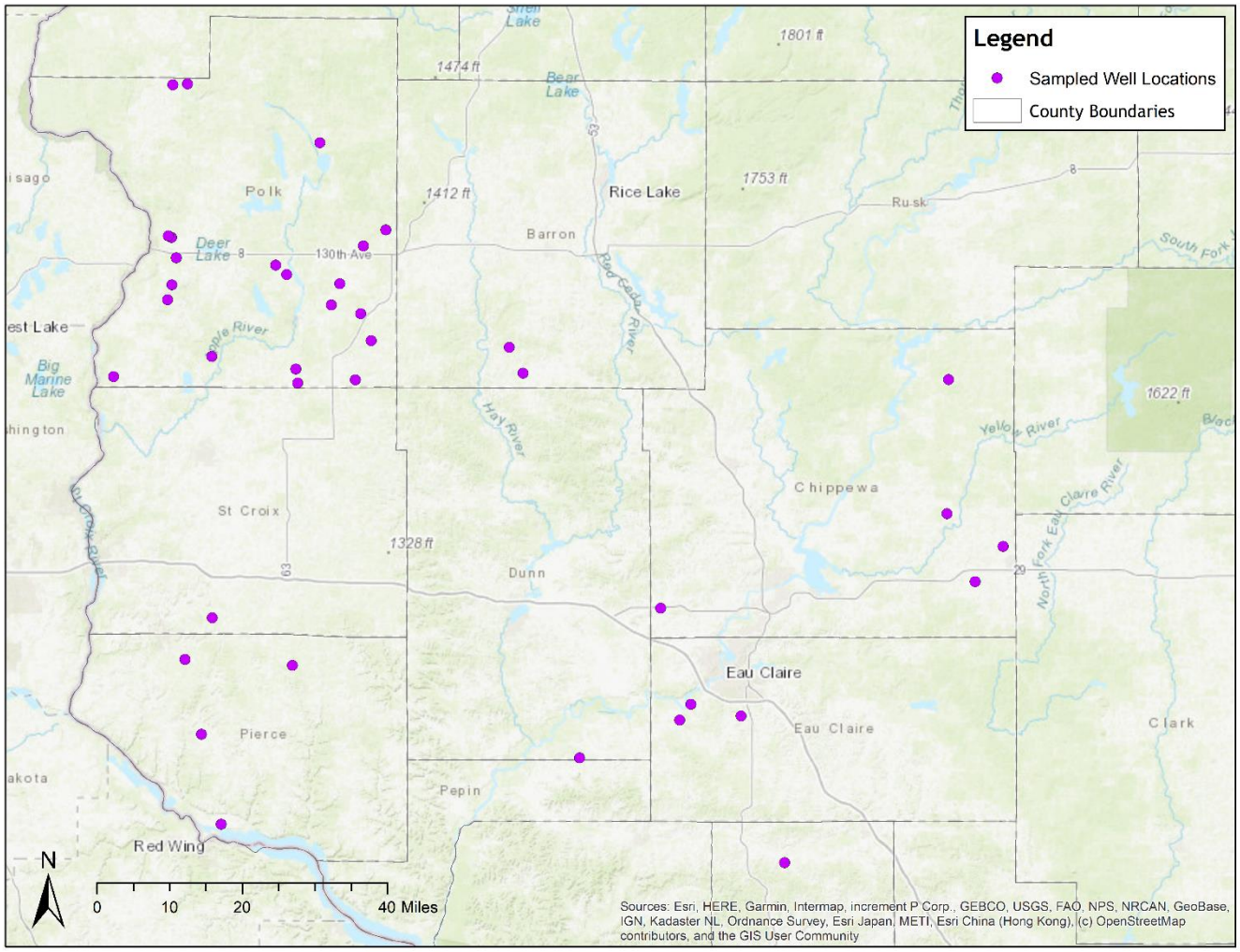
Western Region – Detailed Summary

DATCP collected water samples from 38 private potable wells within Barron, Chippewa, Dunn, Eau Claire, Pierce, Polk, St. Croix, and Trempealeau counties between September and October of 2025 as part of the Targeted Sampling Program (Figure 9).

The Western Region of the 2025 Targeted Sampling Program generally contains areas with moderate susceptibility to groundwater contamination. Notable exceptions to this are western St. Croix County and much of Polk County, along with the valleys carved by the Chippewa River and its tributaries (Schmidt & Kessler, 1989).

Most of this region's bedrock geology consists of Precambrian crystalline rock overlain by a large sequence of Cambrian rock. These Cambrian formations, such as the Mount Simon, Tunnel City, and Jordan Formations, are dominated by sandstone units. In much of the western and southern parts of this region (Polk, St. Croix, Pierce, Dunn, and Trempealeau counties), Cambrian bedrock is overlain by Ordovician formations such as the Prairie du Chien and Sinnipee Groups. These Ordovician formations have higher proportions of dolomite units than their Cambrian precursors. In the northern and eastern parts of this region (Polk, Barron, and Chippewa counties), there are no Cambrian or younger formations overlying the Precambrian crystalline bedrock (Mudrey, 1987; Brown, 1988; Mudrey et al., 1982). A surficial aquifer system of unconsolidated sediments, formed by glacial deposition, fluvial action, and/or *in situ* weathering covers most of this region. Glacial deposits are more common in the north of this region, while sediments from *in situ* weathering are more common in the south. The carved river valleys of this region are where sandy, fluvial deposits are most common (Rawling et al., 2025).

Figure 9: Map of Western Region Sampling Locations



RESULTS

Detections and Comparisons to Standards

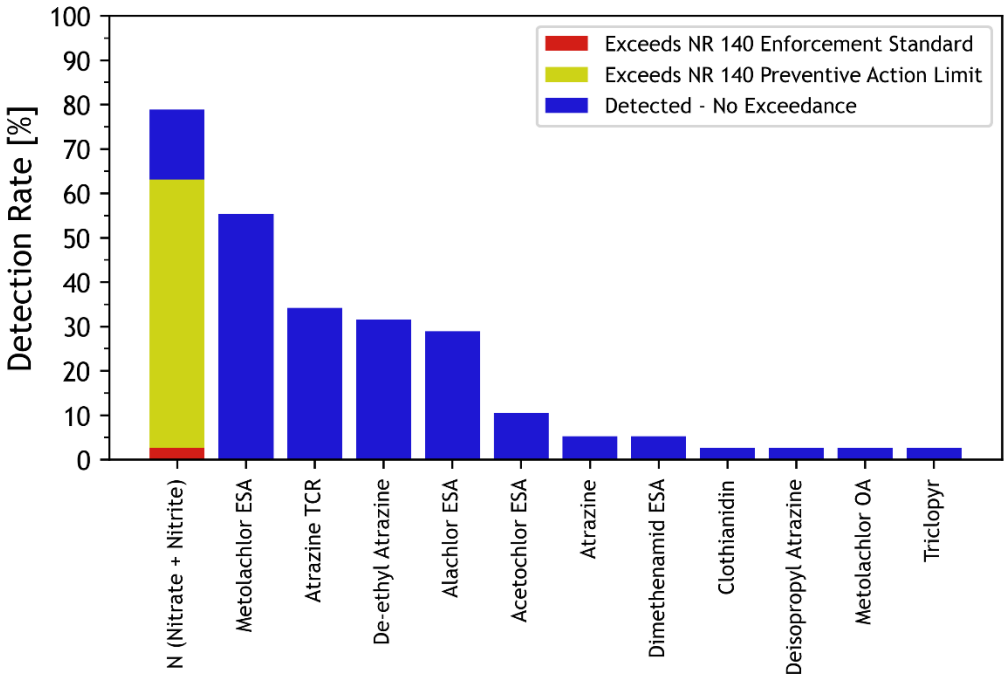
Nitrogen and 10 pesticide compounds were detected in 2025 Western Region samples (Figure 10). Nitrogen was the sole compound found in exceedance of a Wis. Admin. Code ch. NR 140 ES or PAL. No tested compounds exceeded any DHS HALs. Below is a summary of the detection rate, the range of values detected for each compound, and the exceedance rate of the respective PAL or ES (if applicable).

- Nitrogen as nitrate plus nitrite was detected at 30 wells (detection rate of 78.9%) at concentrations between 0.611 mg/L and 13.5 mg/L. The 2 mg/L PAL was exceeded at 23 wells (60.5%), and the 10 mg/L ES was exceeded at one well (2.6%).
- Metolachlor ESA, a metabolite of the herbicide metolachlor, was detected at 21 wells (55.3%) at concentrations between 0.0526 µg/L and 1.6 µg/L. No samples exceeded the 260 µg/L PAL or the 1,300 µg/L ES for this compound.
- De-ethyl atrazine, a metabolite of the herbicide atrazine, was detected at 12 wells (31.6%) at concentrations between 0.0514 µg/L and 0.22 µg/L. No samples exceeded the 0.3 µg/L PAL or the 3 µg/L ES for this compound.
- Alachlor ESA, a metabolite of the herbicide alachlor, was detected at 11 wells (28.9%) at concentrations between 0.0598 µg/L and 1.73 µg/L. No samples exceeded the 4 µg/L PAL or the 20 µg/L ES for this compound.

- Acetochlor ESA, a metabolite of the herbicide acetochlor, was detected at four wells (10.5%) at concentrations between 0.193 µg/L and 0.679 µg/L. No samples exceeded the 46 µg/L PAL or the 230 µg/L ES for this compound.
- Atrazine, an herbicide, was detected at two wells (5.3%) at concentrations of 0.0629 µg/L and 0.137 µg/L. No samples exceeded the 0.3 µg/L PAL or the 3 µg/L ES for this compound.
- Dimethenamid ESA, a metabolite of the herbicide dimethenamid, was detected at two wells (5.3%) at concentrations of 0.0556 µg/L and 0.13 µg/L .
- Clothianidin, a neonicotinoid pesticide, was detected at one well (2.6%) at a concentration of 0.0149 µg/L. No samples exceeded the 1000 µg/L HAL for this compound.
- Deisopropyl atrazine, a metabolite of the herbicide atrazine, was detected at one well (2.6%) at a concentration of 0.0569 µg/L. No samples exceeded the 0.3 µg/L PAL or the 3 µg/L ES for this compound.
- Metolachlor OA, a metabolite of the herbicide metolachlor, was detected at one well (2.6%) at a concentration of 0.513 µg/L. No samples exceeded the 260 µg/L PAL or the 1300 µg/L ES for this compound.
- Triclopyr, an herbicide, was detected at one well (2.6%) at a concentration of 0.142 µg/L.

Atrazine TCR was detected at 13 wells (34.2% of this region's samples). Atrazine TCR was detected at concentrations between 0.0514 µg/L and 0.284 µg/L. No samples exceeded the 0.3 µg/L PAL or the 3 µg/L ES for this grouping of compounds.

Figure 10: 2025 Targeted Sampling Program Western Region Detection and Exceedance Rates



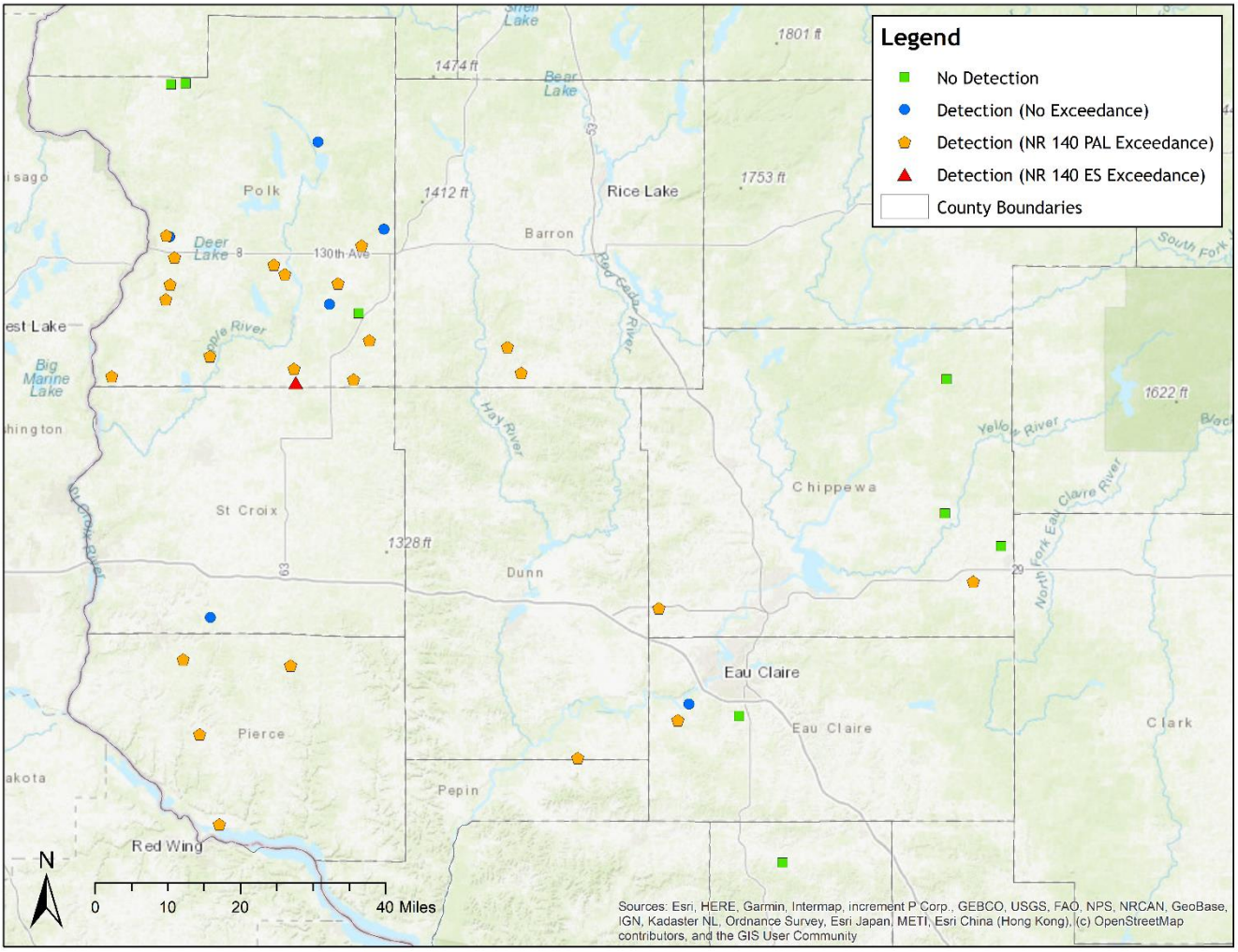
Nitrate

Nitrogen as nitrate plus nitrite was detected in 30 of the 38 samples collected from the Western region, and the 10 mg/L ES was exceeded at one well. The distribution of nitrate plus nitrite as nitrate concentrations in the Western Region is summarized below.

- <2 mg/L: six wells (15.8%)
- ≥2 mg/L and <10 mg/L: 23 wells (60.5%)
- ≥10 mg/L: one well (2.6%)

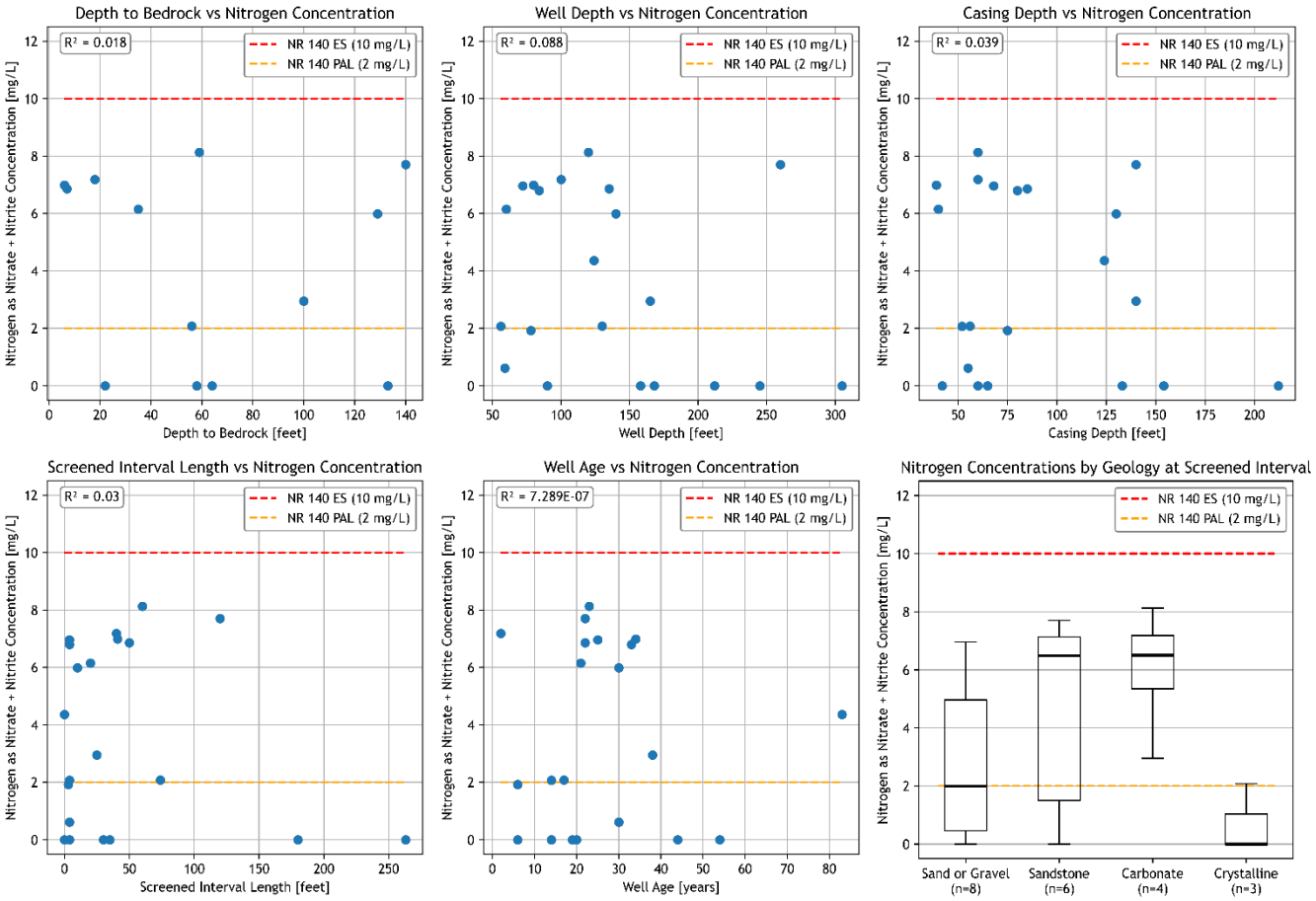
While only one well in southern Polk County exceeded the 10 mg/L ES, exceedances of the 2 mg/L PAL were found across the sampling area. No regional pattern could be identified (Figure 11).

Figure 11: Map of Western Region Nitrogen as Nitrate plus Nitrite Detections



To further examine trends in nitrogen contamination in wells sampled in the Western Region, DATCP compared nitrogen concentrations to a variety of geologic and well construction characteristics retrieved from public well construction records for each sampled well. Well characteristics include the depth to bedrock, the depth of the well, the depth of the bottom of the well's casing, the length of the screened interval (depth of well minus depth of casing bottom), the well age (2025 minus the year the well was constructed), and the geologic unit present within the screen interval of the well. Only 21 of the 38 wells sampled had complete well construction records. Figure 12 shows plots of these well characteristics compared to nitrogen concentrations.

Figure 12: Western Region Nitrogen as Nitrate plus Nitrite Comparison to Well Characteristics



All five of the well characteristics compared to nitrogen concentrations but none had a strong correlation or goodness of fit. The characteristic with the highest R^2 value, well depth (R^2 = 0.088), showed a weak negative correlation with nitrogen concentration. That is, greater well depth was associated with lower nitrogen as nitrate plus nitrite concentration. However, even this relationship was statistically insignificant due to its low goodness of fit, and the other well characteristics had even weaker correlations to nitrogen concentration. The boxplot of geology at the well screen interval shows that wells with complete well construction records sampled within this region were screened in a variety of geologic units. Of these groups, wells screened in carbonate units had the highest maximum detected nitrogen concentrations. Wells screened in sandstone units had a nearly identical median nitrogen concentration to those screened in carbonate units.

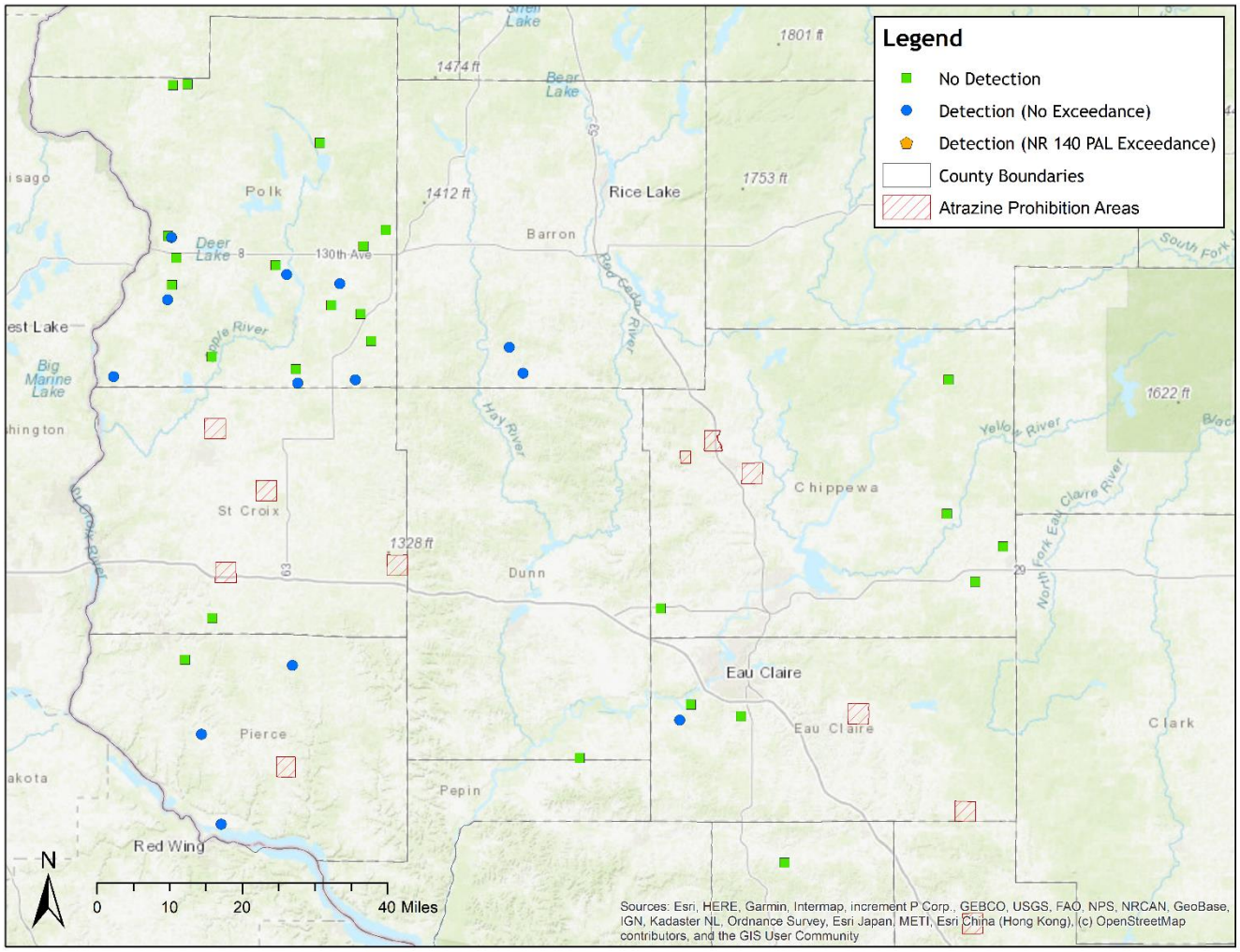
Atrazine

Atrazine is an herbicide used to selectively control weeds on several crops, such as field corn, sweet corn, sorghum, and sugarcane. In Wisconsin, it is registered as a restricted-use pesticide and prohibited in 101 areas (prohibition areas) throughout the state. Within Barron, Chippewa, Dunn, Eau Claire, Pierce, Polk, St. Croix, and Trempealeau counties there are 11 atrazine prohibition areas. No samples were collected from wells within atrazine prohibition areas in this region for the Targeted Sampling Program in 2025. However, the prohibition area located in Pierce County was sampled extensively in 2024. The 2024 sampling revealed that detections of atrazine and its metabolites were widespread throughout the prohibition area, but these detections were at relatively low concentrations. (Wisconsin Department of Agriculture, Trade and Consumer Protection, 2025).

Atrazine TCR is the sum of the concentrations of the herbicide atrazine, and three of its metabolites: de-ethyl atrazine, deisopropyl atrazine, and diamino atrazine. Atrazine TCR was detected at 13 wells within the Western Region in 2025. Atrazine parent material was detected at only two Western Region samples in 2025. The majority of atrazine TCR detections were due to the presence of atrazine metabolites. No atrazine TCR

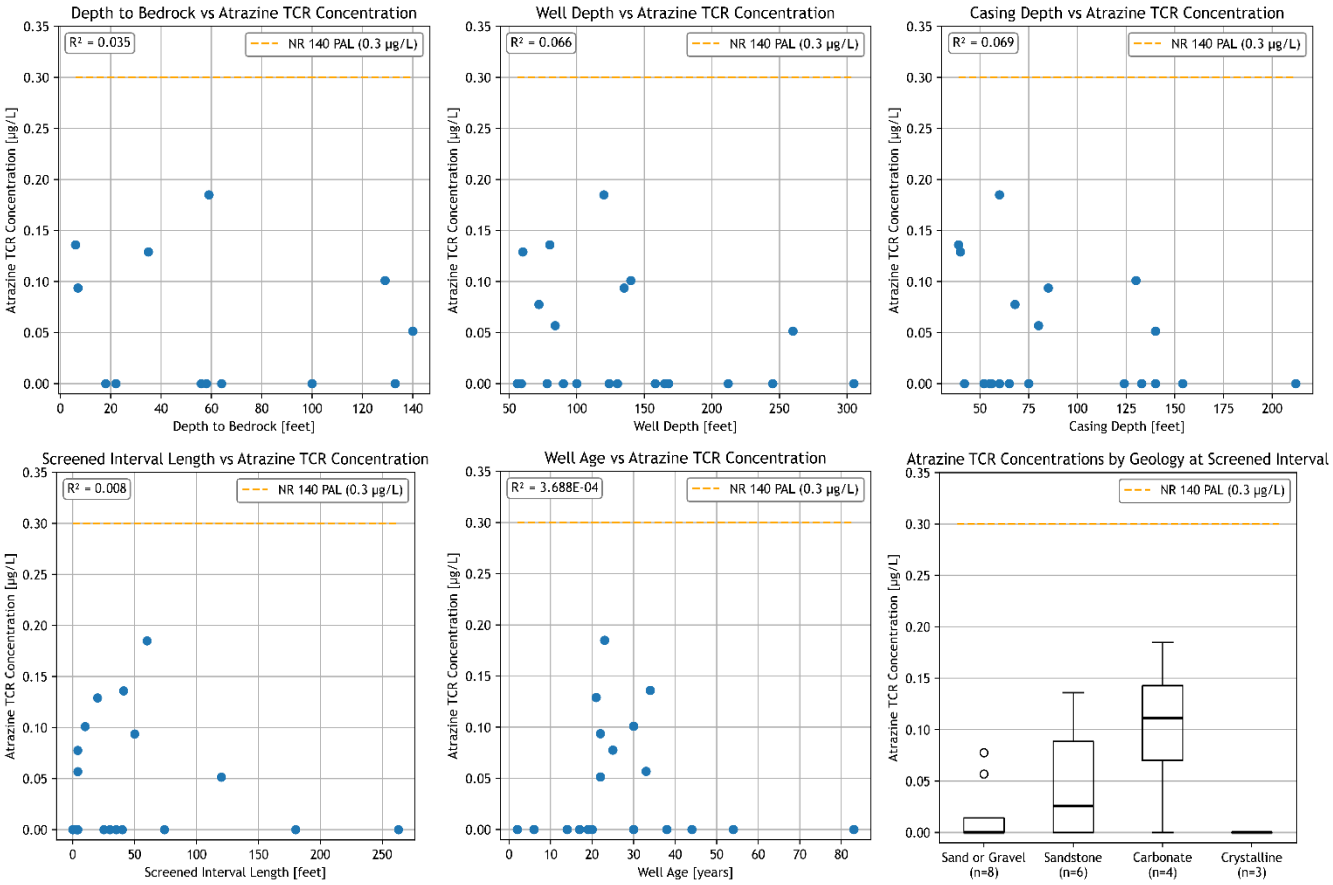
concentrations detected in the Western Region in 2025 exceeded the 0.3 µg/L PAL. Atrazine TCR was found at low concentrations within the sampling area. It was not detected at wells located in eastern Chippewa County and northern Polk County (Figure 13).

Figure 13: Map of Western Region Atrazine TCR Detections



To further examine trends in atrazine TCR contamination at wells sampled within the Western Region, DATCP compared atrazine TCR concentrations to a variety of geologic and well construction characteristics retrieved from public well construction records for each well sample. Well characteristics include the depth to bedrock at the well's location, the depth of the well, the depth of the bottom of the well's casing, the length of the screened interval of the well (depth of well minus depth of casing bottom), the well age (2025 minus the year the well was constructed), and the geologic unit present within the screened interval of the well. Only 21 of the 38 wells sampled had complete well construction records. Figure 14 shows plots of these well characteristics compared to atrazine TCR concentrations.

Figure 14: Western Region Atrazine TCR Comparison to Well Characteristics



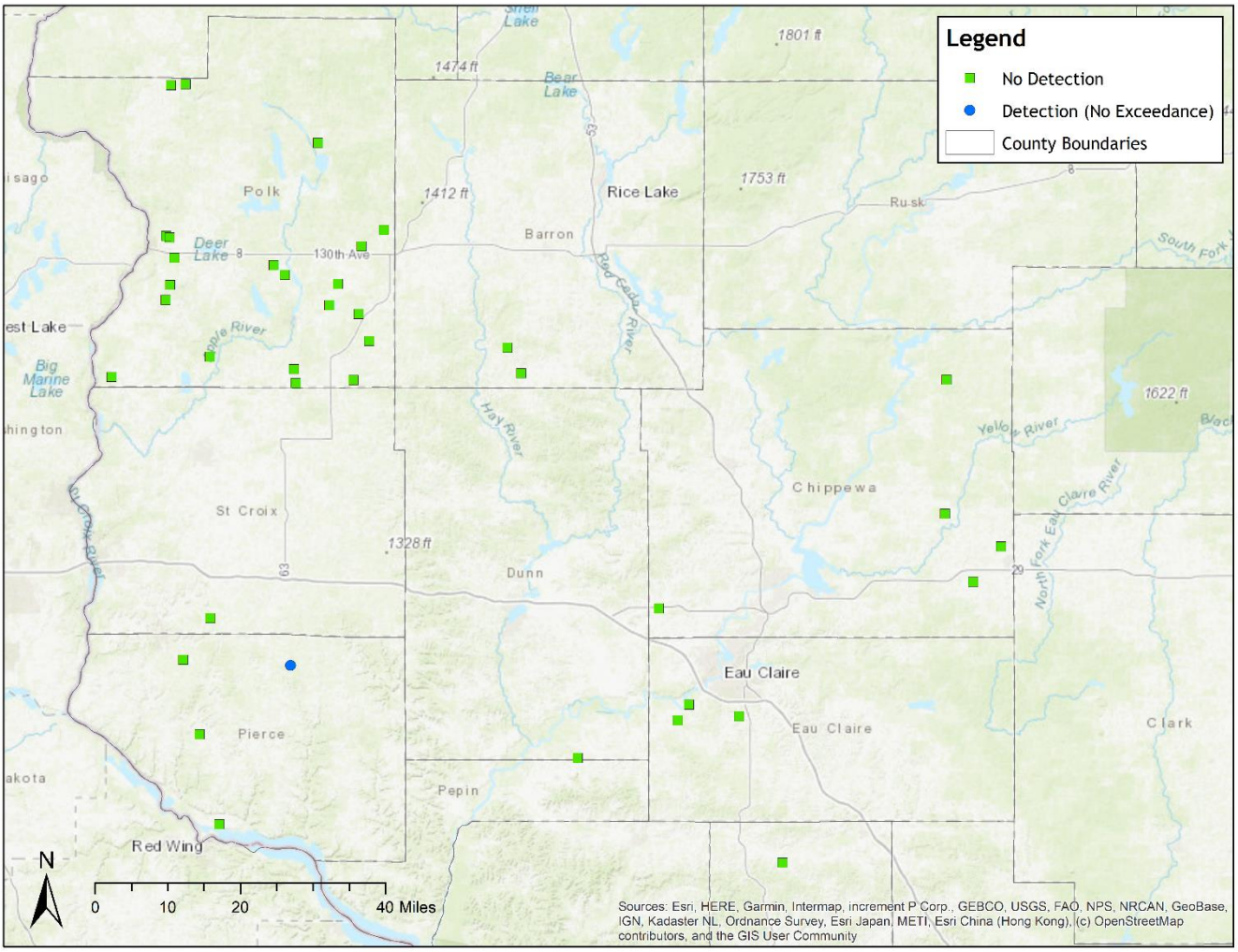
All five well characteristics compared to atrazine TCR concentrations, but none had a strong correlation or goodness of fit. The characteristic with the highest R^2 value, casing depth (R^2 = 0.069), showed a weak negative correlation with atrazine TCR concentration. That is, greater casing depth was associated with lower atrazine TCR concentration. However, even this relationship was statistically insignificant due to its low goodness of fit, and the other well characteristics had even weaker correlations to atrazine TCR concentration. The boxplot of geology at well screen intervals shows that the wells with complete well construction records sampled in this region were screened in a variety of geologic units. Wells screened in carbonate units had the largest range of atrazine TCR concentrations and generally higher concentrations overall.

Neonicotinoids

Neonicotinoids are a class of insecticides widely used in Wisconsin. These insecticides are usually applied as seed treatments on major Wisconsin crops, such as corn, soybeans, beans, potatoes, small grains, vegetables, fruit crops, and more. DATCP began testing for neonicotinoids in 2008, starting with thiamethoxam. Currently, BLS tests water samples for the following six neonicotinoid compounds: acetamiprid, clothianidin, dinotefuran, imidacloprid, thiacloprid, and thiamethoxam. Of these, four (clothianidin, dinotefuran, imidacloprid, and thiamethoxam) have been detected multiple times in groundwater and surface water samples across Wisconsin. While dinotefuran, imidacloprid, and thiamethoxam are active ingredients, clothianidin can be either an active ingredient or a metabolite of thiamethoxam, making it potentially linked to the use of insecticides containing either clothianidin or thiamethoxam.

Clothianidin was the only neonicotinoid detected in Western Region samples collected in 2025. It was detected in just one well within the region (Figure 15). This detection occurred at a well in northern Pierce County and did not exceed the DHS HAL of 1000 µg/L.

Figure 15: Map of Western Region Clothianidin Detections



CONCLUSION AND RECOMMENDATIONS

Groundwater samples were collected between September and October 2025 from 38 private potable wells across Barron, Chippewa, Dunn, Eau Claire, Pierce, Polk, St. Croix, and Trempealeau counties. All samples were tested for nitrogen and 115 pesticide compounds. Nitrogen as nitrate plus nitrite was detected between 2 and 10 mg/L in 60.5% of the Western Region wells sampled. One sample (2.6%) exceeded the 10 mg/L ES for nitrogen as nitrate plus nitrite. DATCP provided well owners with information about water treatment options for private well systems when exceedances occurred and recommended that well owners perform annual testing. No strong linear relationships were found between nitrogen concentrations and well construction characteristics. Additional data would be needed to confirm these trends.

A total of 10 pesticide compounds were detected, but no pesticide concentrations exceeded their respective PAL or ES groundwater standards or DHS HALs. Clothianidin was the only neonicotinoid pesticide detected in the Western Region in 2025. This clothianidin detection did not exceed the DHS HAL of 1000 µg/L.

Of the three regions where samples were collected as part of the Targeted Sampling Program in 2025, the Western Region generally had higher detection rates compared to the other regions, but fewer groundwater standard exceedances.

DATCP will consider resampling wells where pesticide compounds of interest (atrazine, atrazine metabolites, and clothianidin) were detected. Because no PAL, ES, or DHS HAL has been established for the pesticide triclopyr, we are currently unable to assess the human health risk associated with the detection of this compound. The levels of detection of other pesticides in this region do not raise noteworthy concerns regarding risks to human health.

Central Sands Region – Detailed Summary

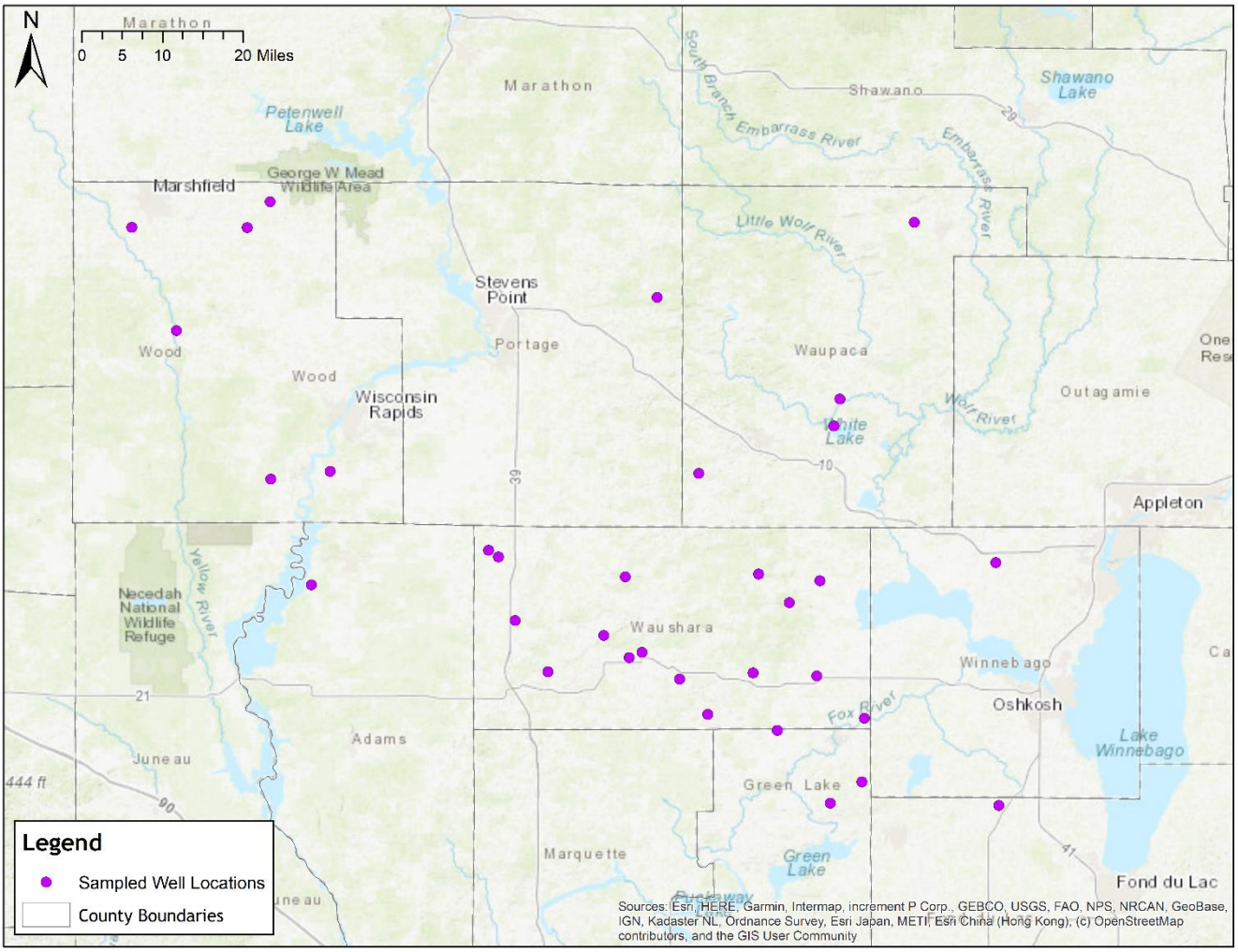
DATCP collected water samples from 33 private potable wells within Adams, Fond du Lac, Green Lake, Portage, Waupaca, Waushara, Winnebago, and Wood counties in October and November 2025 as part of the Targeted Sampling Program (Figure 16).

The Central Sands Region of the 2025 Targeted Sampling Program contains areas with a wide range of susceptibility to groundwater contamination. The area with the highest susceptibility is the Central Sand Plains region of southeastern Wood County, southwestern Portage County, northwestern Waushara County, and northeastern Adams County. This extremely high groundwater contamination susceptibility generally decreases away from this region, with areas of northern Wood County, eastern Waupaca and Waushara counties, and most of Winnebago County having relatively low susceptibility (Schmidt and Kessler, 1989).

The majority of the bedrock landscape of this region can be characterized by sandstone-dominated formations of Cambrian-age rock overlying a base of Precambrian crystalline basement formations. However, in the northern parts of this region (Wood, Portage, and Waupaca counties), Cambrian bedrock units are absent, with surficial deposits overlying the Precambrian basement. In the eastern parts of this region (Winnebago, Fond du Lac, and Green Lake counties), Ordovician formations overlie the Precambrian and Cambrian formations. These Ordovician formations have higher proportions of dolomite units than the older Cambrian formations (Mudrey et al., 1982).

Surficial deposits are also an important hydrogeologic feature of this region. The Central Sand Plains area within this region contains extensive deposits of glacial lacustrine and glacial outwash sand. These deposits can be more than 200 feet thick in some places. These sand-dominated sediment deposits extend to cover most or much of Wood, Portage, Waupaca, Adams, Waushara, Green Lake, and Winnebago counties. However, the surficial deposits of the eastern parts of this region are primarily finer-grained glacial tills, and much of central and northern Wood County is covered by deposits of silt or clay derived from *in situ* weathering (Batten, 1989; Rawling, 2025; Olcott, 1968).

Figure 16: Map of Central Sands Region Sampling Locations



RESULTS

Detections and Comparisons to Standards

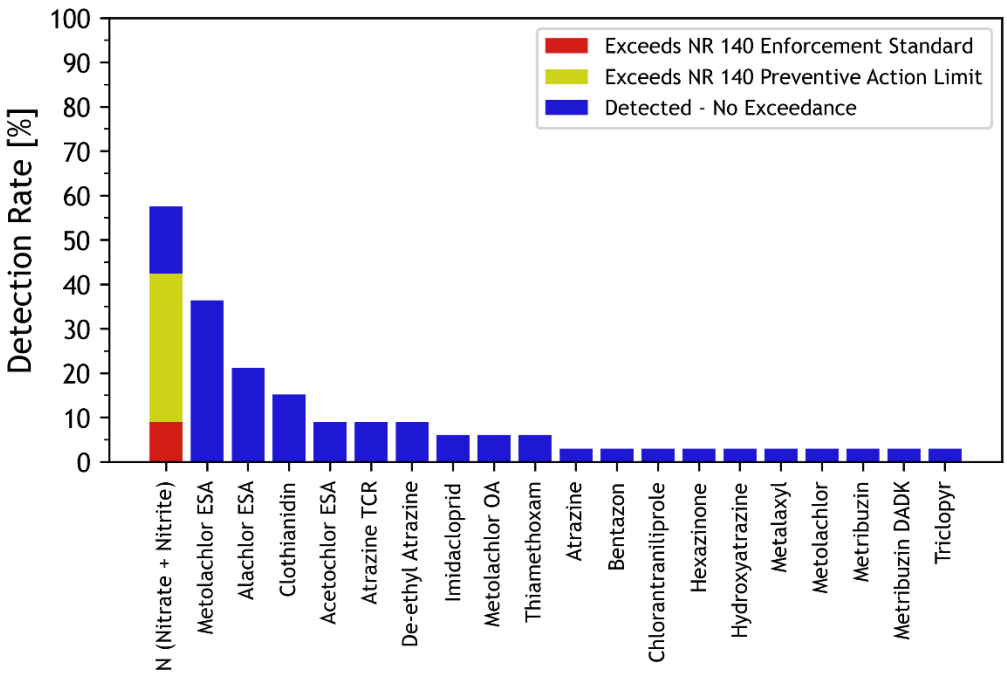
Nitrogen and 18 pesticide compounds were detected in 2025 Central Sands Region samples (Figure 17). Nitrogen was the sole compound to be found in exceedance of a Wis. Admin. Code ch. NR 140 PAL or ES. No compound exceeded any DHS HAL. Below is a summary of the detection rate, the range of values detected for each compound, and the exceedance rate of the respective PAL and/or ES (if applicable).

- Nitrogen as nitrate plus nitrite was detected at 19 wells (57.6%) at concentrations between 0.579 mg/L and 36.8 mg/L. The 2 mg/L PAL was exceeded at 11 wells (33.3%), and the 10 mg/L ES was exceeded at three wells (9.1%).
- Metolachlor ESA, a metabolite of the herbicide metolachlor, was detected at 14 wells (36.4%) at concentrations between 0.0546 µg/L and 4.36 µg/L. None of the samples exceeded the 260 µg/L PAL or the 1,300 µg/L ES for this compound.
- Alachlor ESA, a metabolite of the herbicide alachlor, was detected at seven wells (21.2%) at concentrations between 0.0783 µg/L and 2.18 µg/L. No samples exceeded the 4 µg/L PAL or the 20 µg/L ES for this compound.
- Clothianidin, a neonicotinoid insecticide, was detected at five wells (15.2%) at concentrations between 0.0112 µg/L and 1.25 µg/L. No PAL or ES standards have been established for this compound at this time. No samples exceeded the DHS HAL of 1000 µg/L for this compound.

- Acetochlor ESA, a metabolite of the herbicide acetochlor, was detected at three wells (9.1%) at concentrations between 0.0927 µg/L and 0.598 µg/L. No samples exceeded the 46 µg/L PAL or the 230 µg/L ES for this compound.
- De-ethyl atrazine, a metabolite of the herbicide atrazine, was detected at three wells (9.1%) at concentrations between 0.0771 µg/L and 0.182 µg/L. No samples exceeded the 0.3 µg/L PAL or the 3 µg/L ES for this compound.
- Imidacloprid, a neonicotinoid insecticide, was detected at two wells (6.1%) at concentrations of 0.0194 µg/L and 0.0313 µg/L. No samples exceeded the DHS HAL of 0.2 µg/L for this compound.
- Metolachlor OA, a metabolite of the herbicide metolachlor, was detected at two wells (6.1%) at concentrations of 0.892 µg/L and 2.84 µg/L. No samples exceeded the 260 µg/L PAL or the 1,300 µg/L ES for this compound.
- Thiamethoxam, a neonicotinoid insecticide, was detected at two wells (6.1%) at concentrations of 0.0397 µg/L and 0.11 µg/L. No PAL or ES standards have been established for this compound at this time. No samples exceeded the DHS HAL of 120 µg/L for this compound.
- Atrazine, an herbicide, was detected at one well (3.0%) at a concentration of 0.083 µg/L. This sample did not exceed the 0.3 µg/L PAL or the 3 µg/L ES for this compound.
- Bentazon, an herbicide, was detected at one well (3.0%) at a concentration of 0.101 µg/L. This sample did not exceed the 60 µg/L PAL or the 300 µg/L ES for this compound.
- Chlorantraniliprole, an insecticide, was detected at one well (3.0%) at a concentration of 0.198 µg/L. No PAL or ES standards have been established for this compound at this time. This sample did not exceed the 16,000 µg/L DHS HAL for this compound.
- Hexazinone, an herbicide, was detected at one well (3.0%) at a concentration of 0.165 µg/L. No PAL or ES standards have been established for this compound at this time. This sample did not exceed the 400 µg/L DHS HAL for this compound.
- Hydroxyatrazine, a metabolite of the herbicide atrazine, was detected at one well (3.0%) at a concentration of 0.108 µg/L. No PAL, ES, or DHS HAL has been established for this compound at this time.
- Metalaxyl, a fungicide, was detected at one well (3.0%) at a concentration of 0.202 µg/L. No PAL or ES standards have been established for this compound at this time. This sample did not exceed the 800 µg/L DHS HAL for this compound.
- Metolachlor, an herbicide, was detected at one well (3.0%) at a concentration of 0.109 µg/L. This sample did not exceed the 10 µg/L PAL or the 100 µg/L ES for this compound.
- Metribuzin, an herbicide, was detected at one well (3.0%) at a concentration of 3.5 µg/L. This sample did not exceed the 14 µg/L PAL or the 70 µg/L ES for this compound.
- Metribuzin DADK, a metabolite of the herbicide metribuzin, was detected at one well (3.0%) at a concentration of 0.85 µg/L. No PAL, ES, or DHS HAL has been established for this compound at this time.
- Triclopyr, an herbicide, was detected at one well (3.0%) at a concentration of 0.374 µg/L. No PAL, ES, or DHS HAL has been established for this compound at this time.

Atrazine TCR was detected at three wells (9.1% of this region's samples). Atrazine TCR was detected at concentrations between 0.0771 µg/L and 0.242 µg/L. No samples exceeded the 0.3 µg/L PAL or the 3 µg/L ES for this grouping of compounds.

Figure 17: 2025 Targeted Sampling Program Central Sands Region Detection and Exceedance Rates



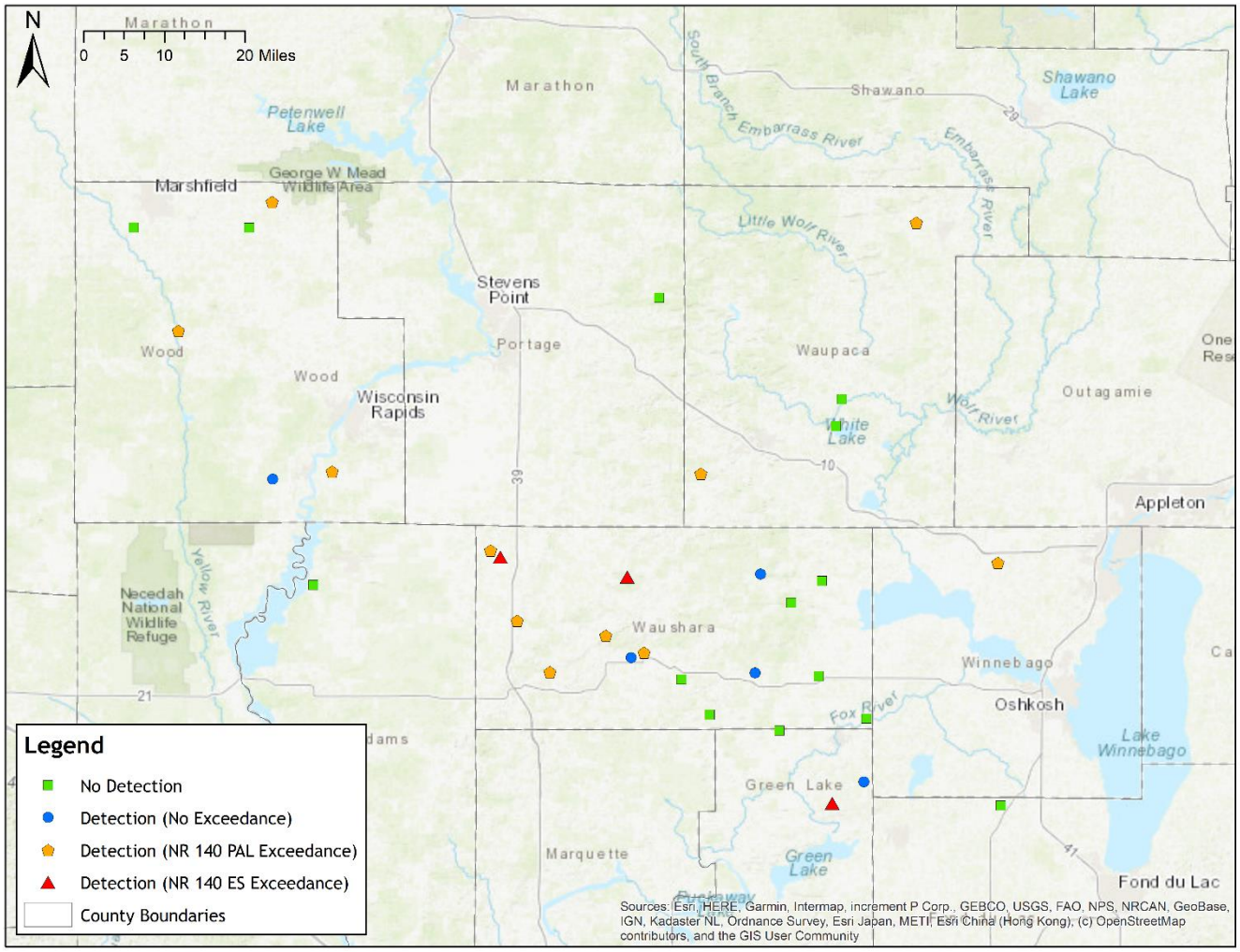
Nitrate

Nitrogen as nitrate plus nitrite was detected in 19 of the 33 samples collected from the Central Sands Region. The 10 mg/L ES was exceeded at three wells. The distribution of nitrogen as nitrate plus nitrite concentrations is summarized below.

- <2 mg/L: five wells (15.2%)
- ≥2 mg/L and <10 mg/L: 11 wells (33.3%)
- ≥10 mg/L: three wells (9.1%)

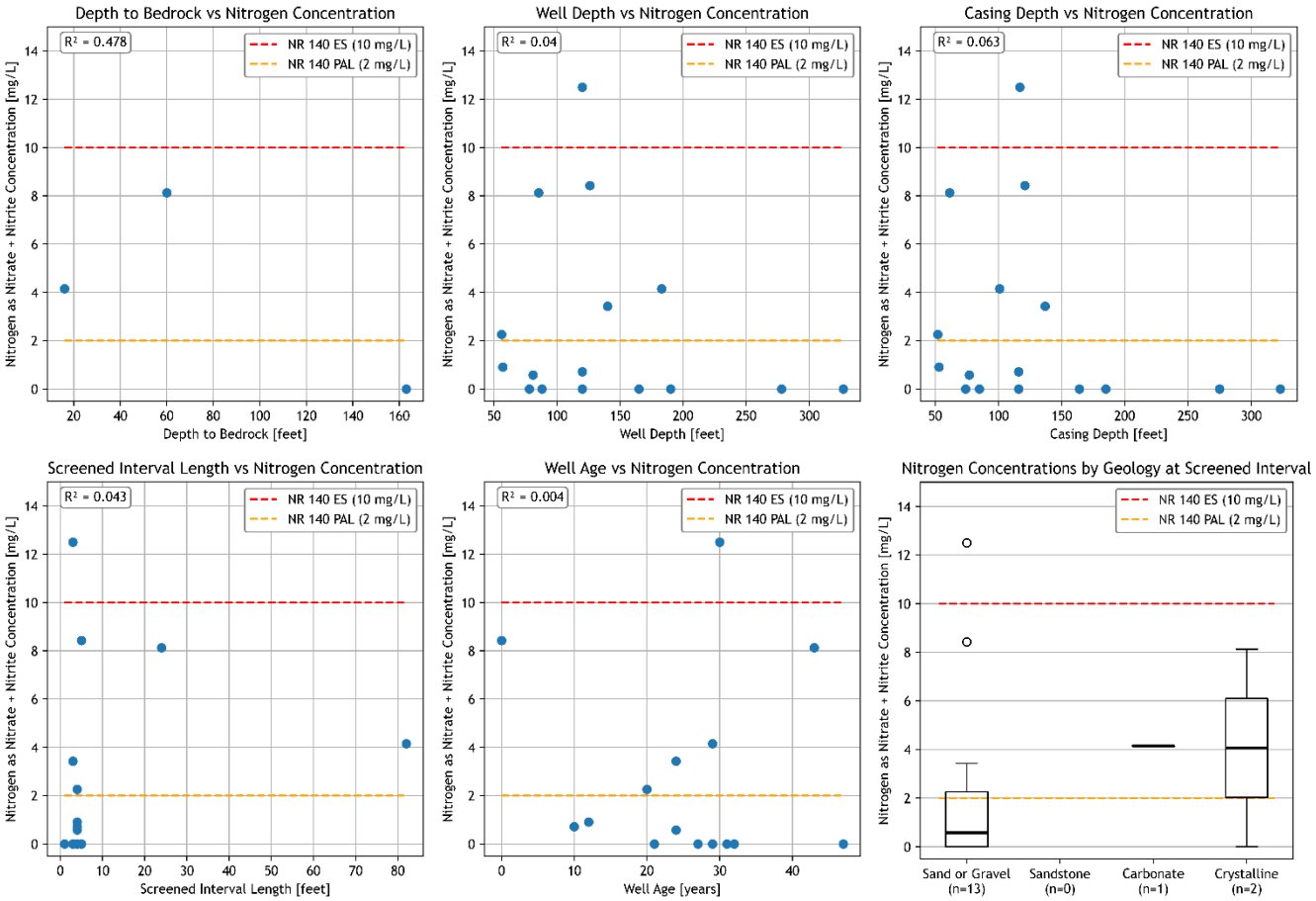
The spatial trend for nitrogen concentration within the Central region is shown on Figure 18. The largest number of wells sampled in this region were located within Waushara County. Nitrogen as nitrate plus nitrite concentrations tended to decrease from northwest Waushara County to southeast Waushara County. The most likely explanation for this trend is that northwestern Waushara County falls within the Central Sand Plains region of Wisconsin (Wisconsin Department of Natural Resources, 2015), an area known for its high proportion of agricultural land use and high susceptibility to groundwater contamination due to sandy soils and shallow water tables (Schmidt & Kessler, 1989).

Figure 18: Map of Central Sands Region Nitrogen as Nitrate plus Nitrite Detections



To further examine trends in nitrogen contamination in sampled wells in the Central Sands Region, DATCP compared nitrogen concentrations in sampled wells to a variety of geologic and well construction characteristics retrieved from public well construction records of the sampled wells. Well characteristics include the depth to bedrock at the well's location, the depth of the well, the depth of the bottom of the well's casing, the length of the screened interval (depth of well minus depth of casing bottom), the well age (2025 minus the year the well was constructed), and the geologic unit present within the screen interval of the well. Only 16 of the 33 wells sampled had complete well construction records. Figure 19 shows plots of these well characteristics compared to nitrogen concentrations.

Figure 19: Central Sands Region Nitrogen as Nitrate plus Nitrite Comparison to Well Characteristics



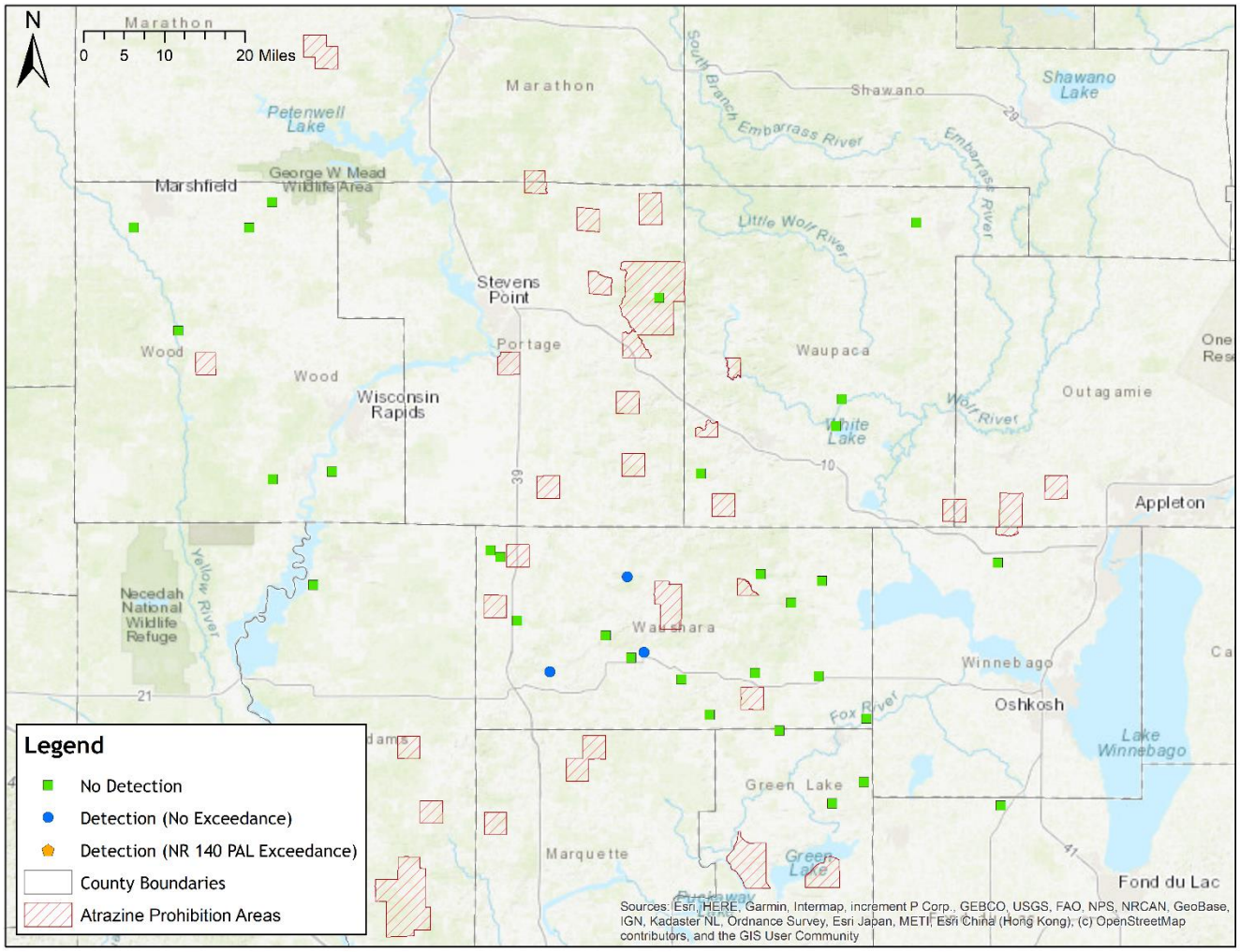
All five of the well characteristics compared to nitrogen concentrations, but none had a strong correlation or goodness of fit. The characteristic with the highest R^2 value, depth to bedrock (R^2 = 0.478), showed a negative correlation with nitrogen concentration. That is, greater depth to bedrock was associated with lower nitrogen as nitrate plus nitrite concentration. However, even this relationship was statistically insignificant due to its small sample size (n=3). The characteristic with the next highest R^2 value was casing depth (R^2 = 0.063). The boxplot of geology at well screen intervals shows that almost all wells sampled within this region (with complete well construction records) were screened in sand or gravel units. Although these wells showed a large range of concentrations, most concentrations were below the PAL of 2 mg/L.

Atrazine

Atrazine is an herbicide used to selectively control weeds on several crops, such as field corn, sweet corn, sorghum, and sugarcane. In Wisconsin, it is registered as a restricted-use pesticide and prohibited in 101 areas (prohibition areas) throughout the state. Within Adams, Fond du Lac, Green Lake, Portage, Waupaca, Waushara, Winnebago, and Wood counties there are 27 atrazine prohibition areas. One sample was collected from a Portage County well located within an atrazine prohibition area as part of the Targeted Sampling Program in 2025.

Atrazine TCR is the sum of the concentrations of the herbicide atrazine, and three of its metabolites: de-ethyl atrazine, deisopropyl atrazine, and diamino atrazine. Atrazine TCR was detected at three wells within the Central Sands Region in 2025. Atrazine parent material was detected in only one Central Sands Region sample in 2025; the remaining detections of atrazine TCR were due to the presence of atrazine metabolites. All three atrazine TCR detections within the Central Sands Region occurred in Waushara County. No atrazine TCR concentrations detected in the Western Region in 2025 exceeded the PAL of 0.3 µg/L.

Figure 20: Map of Central Sands Region Atrazine TCR Detections



Neonicotinoids

Neonicotinoids are a class of insecticides widely used in Wisconsin. These insecticides are usually applied as seed treatments on major Wisconsin crops, such as corn, soybeans, beans, potatoes, small grains, vegetables, fruit crops, and more. DATCP began testing for neonicotinoids in 2008, starting with thiamethoxam. Currently, BLS tests water samples for the following six neonicotinoid compounds: acetamiprid, clothianidin, dinotefuran, imidacloprid, thiacloprid, and thiamethoxam. Four of the six (clothianidin, dinotefuran, imidacloprid, and thiamethoxam) have been detected multiple times in groundwater and surface water samples across Wisconsin. These four compounds are active ingredients in over 500 registered pesticide products in the state (Kelly Solutions, 2024). While dinotefuran, imidacloprid, and thiamethoxam are active ingredients, clothianidin can be either an active ingredient or a metabolite of thiamethoxam, making it potentially linked to the use of insecticides containing either clothianidin or thiamethoxam.

Clothianidin was detected at five wells within the region (Figure 21). Four of the five detections occurred at wells located in western Waushara County. None of the five clothianidin detections exceeded the DHS HAL of 1,000 µg/L.

Imidacloprid was detected at two wells within the region (Figure 22). Both detections occurred at wells located in western Waushara County. Neither of these detections exceeded the DHS HAL of 0.2 µg/L.

Thiamethoxam was also detected at two wells within the region (Figure 23). Neither of the detections exceeded the DHS HAL of 120 µg/L.

Figure 21: Map of Central Sands Region Clothianidin Detections

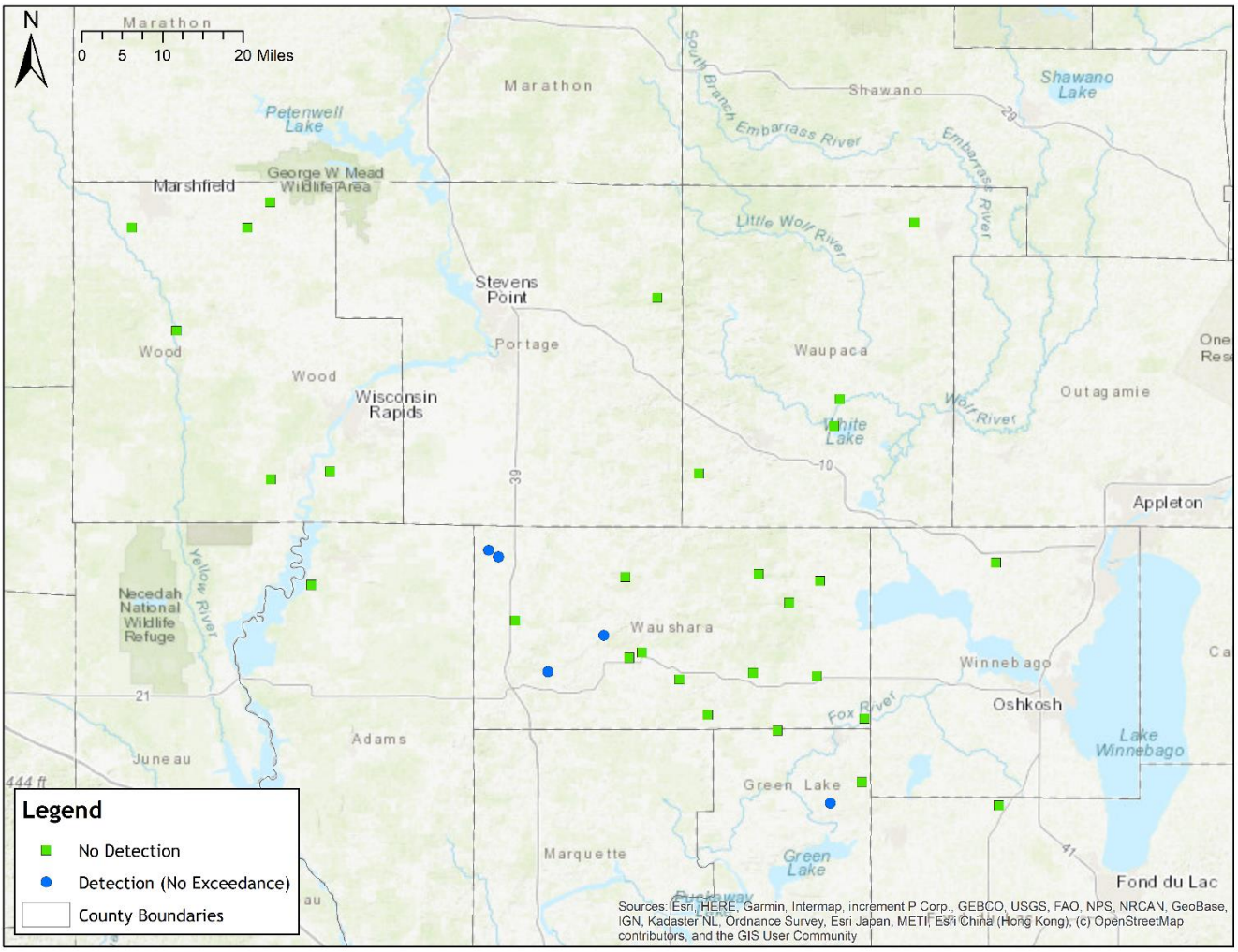


Figure 22: Map of Central Sands Region Imidacloprid Detections

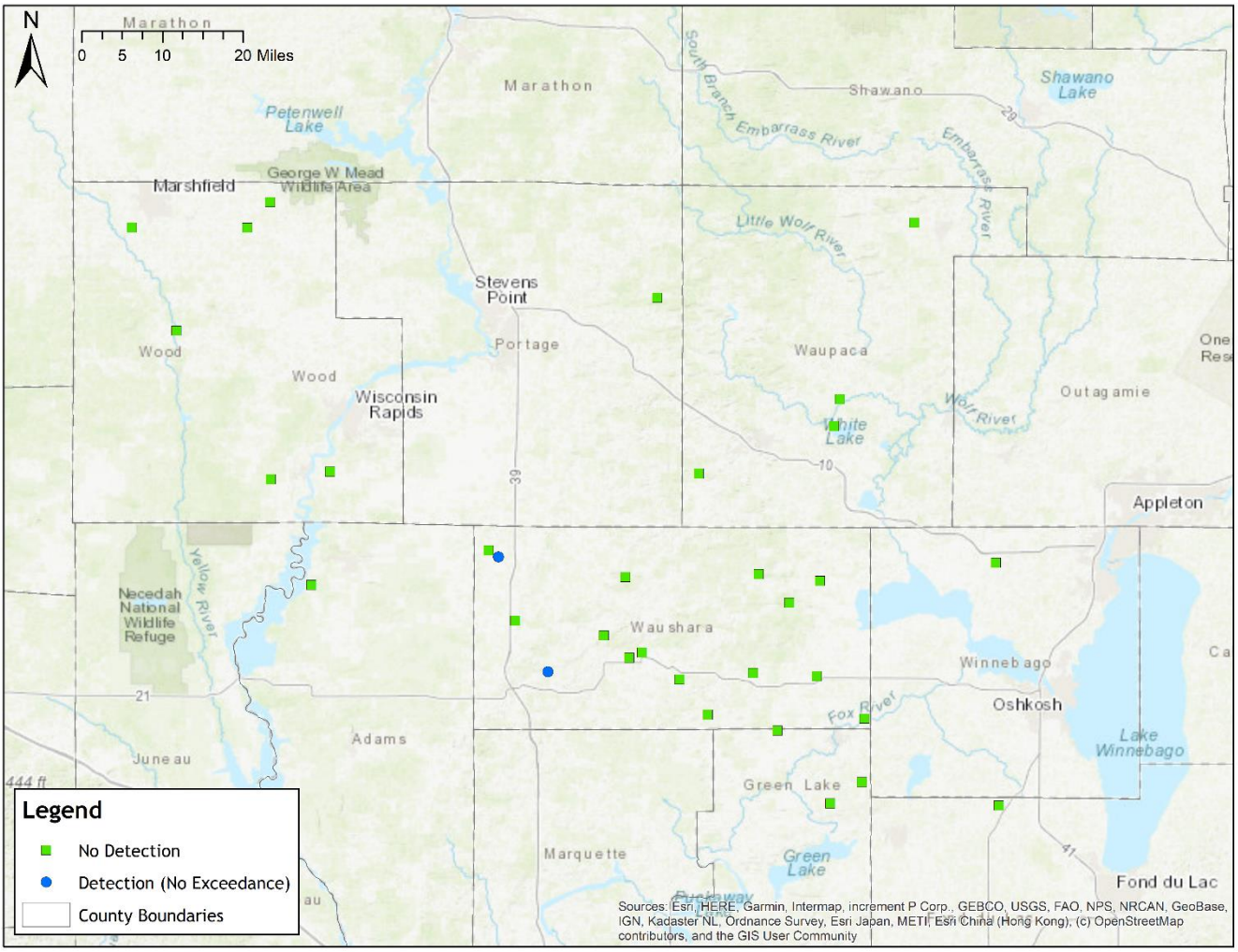
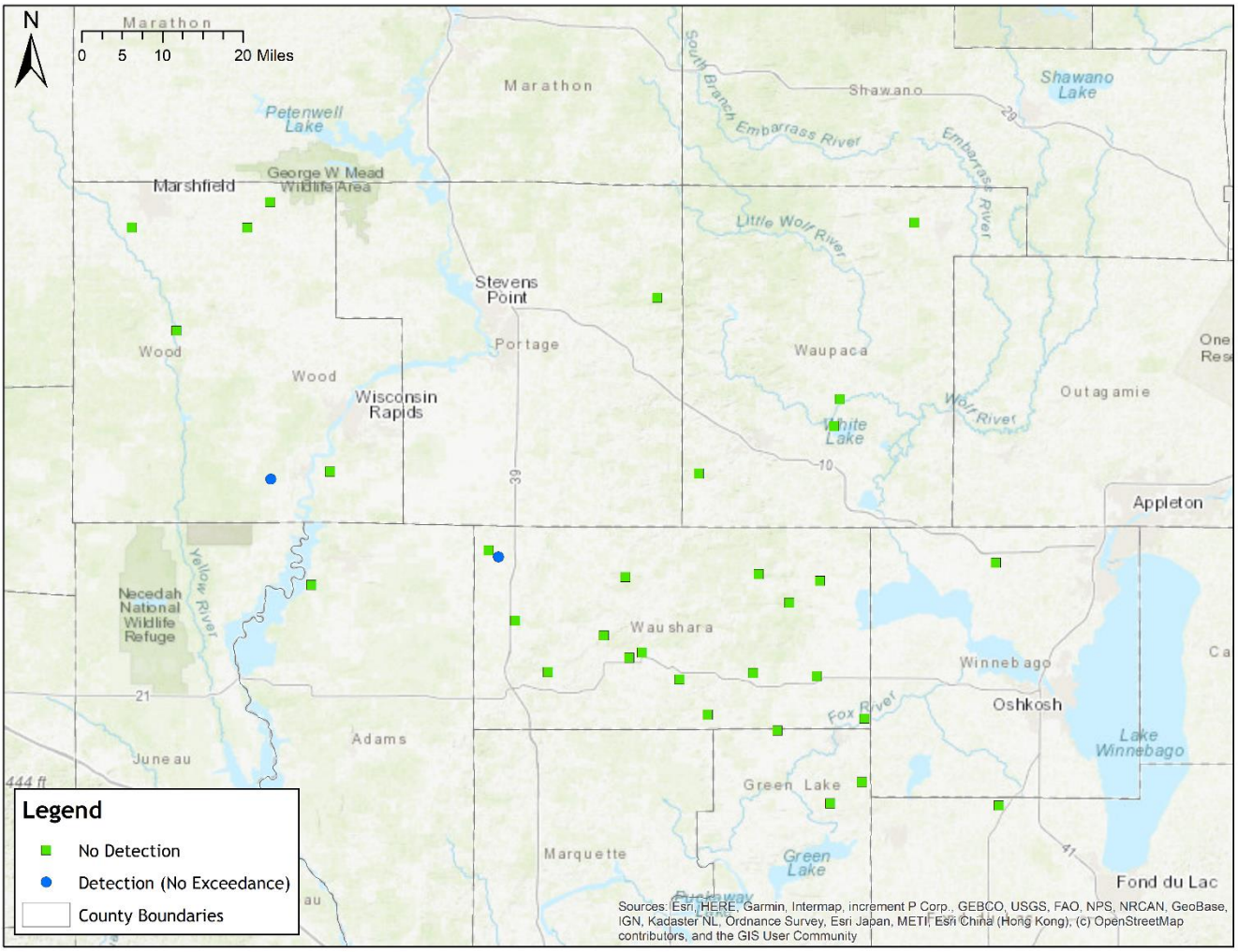


Figure 23: Map of Central Sands Region Thiamethoxam Detections



CONCLUSION AND RECOMMENDATIONS

Groundwater samples collected between October and November 2025 from 33 private potable wells across Adams, Fond du Lac, Green Lake, Portage, Waupaca, Waushara, Winnebago, and Wood counties. All samples were tested for nitrogen and 115 pesticide compounds. Nitrogen as nitrate plus nitrite was detected between 2 and 10 mg/L in 33.3% of the Central Sands Region wells sampled. Three samples (9.1%) exceeded the 10 mg/L ES for nitrogen as nitrate plus nitrite. DATCP provided well owners with information about water treatment options for private well systems when exceedances occurred and recommended that well owners perform annual testing. No strong linear relationships were found between nitrogen concentrations and well construction characteristics. Additional data would be needed to confirm these trends.

A total of 18 pesticide compounds were detected, but no pesticide concentrations exceeded any PAL or ES groundwater standards. Three neonicotinoid pesticides – clothianidin, imidacloprid, and thiamethoxam – were detected in the Central Sands Region in 2025. No detected concentrations for these neonicotinoid pesticides exceeded any of their respective DHS HALs.

Of the three regions where samples were collected during the Targeted Sampling Program in 2025, the Central Sands Region generally had the highest number of pesticide compounds detected, but fewer groundwater standard exceedances.

DATCP will consider resampling wells where pesticide compounds of interest (atrazine, atrazine metabolites, and clothianidin) were detected. Because no PAL, ES, or DHS HALs have been established for the pesticide compounds hydroxyatrazine, metribuzin DADK, or triclopyr, we are currently unable to assess the human health risk associated with the detection of these compounds. The levels of detection of other pesticides in this region does not raise noteworthy concerns regarding risks to human health.

Recommendations

The occurrence of nitrate and pesticides in groundwater is influenced by environmental factors including soil type, aquifer geology, depth to bedrock, depth to groundwater, and weather events. Other factors include land management practices near wells sampled in this study, such as crops grown, cultivation, agrichemicals used, tile drainage, and irrigation. Factors including well construction, casing depth, total depth, and proximity to agricultural fields may also influence potential impacts to groundwater quality. Identifying the extent to which these variables interact and contribute to the contaminants observed at each sample location presents challenges beyond the scope of this report. Regardless, information in this report may help others to make changes with local land management practices near private wells or influence agricultural chemical use decisions that benefit water quality.

DATCP will:

- Share samples results and this summary report with health departments and land conservation departments in the counties where sampling occurred.
- Share monitoring data and report findings with United States Environmental Protection Agency, Wisconsin Department of Natural Resources, and Wisconsin Department of Health Services to help identify pesticides of interest for national tracking purposes or state standards development.
- Share this report with Groundwater Coordinating Council (GCC) members and member agencies.
- Consider resampling these wells in future years to further evaluate trends in groundwater quality.

Acknowledgments

DATCP's Bureau of Agrichemical Management's (ACM) financial information includes the state fiscal year (FY) 2025 from July 1, 2024 through June 30, 2025. Federal grants operated from October 1, 2024 through September 30, 2025. The primary sources of revenue for ACM are industry fees for licenses, permits, registrations, and tonnage under the feed, fertilizer, soil and plant additive, lime, and pesticide programs. In addition, a cooperative agreement with the EPA provides some funding to cover annual pesticide program expenses. ACM recognizes these important partnerships with the industry and the federal government and works hard to maximize the use of this funding for the benefit of the industry, consumers, and the environment.

The raw data required to reproduce the above findings are available upon request. For any questions and clarifications, please do not hesitate to contact us at DATCPGW@wisconsin.gov or at (608) 224-4503.

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Appendix A

The acronyms and terminology included on this list are generic definitions intended to help understand the Targeted Sampling Program. Some of these terms are more specifically defined in various regulations.

ACRONYMS

µg/L _____ Micrograms per liter (a liquid equivalent of ppb)
ACM _____ Bureau of Agrichemical Management
BLS _____ Bureau of Laboratory Services
DA _____ Desamino
DADK _____ Desaminodiketo
DATCP _____ Wisconsin Department of Agriculture, Trade and Consumer Protection
DHS _____ Wisconsin Department of Health Services
DNR _____ Wisconsin Department of Natural Resources
EPA _____ United States Environmental Protection Agency
ES _____ Enforcement Standard
ESA _____ Ethane Sulfonic Acid
GC _____ Gas Chromatography
GCC _____ Wisconsin Groundwater Coordinating Council
HAL _____ Health Advisory Level
ISO _____ International Organization for Standardization
LC _____ Liquid Chromatography
mg/L _____ Milligrams per liter (a liquid equivalent of ppm)
MS _____ Mass Spectroscopy
N _____ Nitrogen
ND _____ No Detect concentrations are less than laboratory reporting limits
OA _____ Oxalic Acid
PAL _____ Preventive Action Limit
TCR _____ Total Chlorinated Residues
USDA _____ U.S. Department of Agriculture
WGNHS _____ Wisconsin Geological and Natural History Survey
Wis. Admin. Code _____ Wisconsin Administrative Code
WUWN _____ Wisconsin Unique Well Number

DEFINITIONS

Analyte - A chemical substance that has a defined Chemical Abstract Service (CAS) number

Atrazine Prohibition Area - An area where atrazine use is currently prohibited under Administrative Code ATCP 30

Compound - A substance formed by the chemical union of two or more ingredients

Detection - When an analyte has a concentration that can be quantified (i.e., a concentration greater than the Laboratory Reporting Limit)

Enforcement Standard (ES) - The Enforcement Standard (ES) is set to ensure that the concentration of a compound in groundwater does not exceed a specific level that could harm human health or the environment. If the ES for a certain compound in groundwater is exceeded, intervention from the appropriate authority is required

Herbicide - A pesticide used to kill or inhibit the growth of plants, weeds, or grasses

Insecticide - A pesticide used to kill or inhibit the growth of insects

Metabolite or Residual compound or Breakdown product - A chemical substance left behind by a parent compound that has degraded through natural chemical breakdown and/or been metabolized by bacteria

Neonicotinoids - Insecticides that target the neurological systems of insects. The neonicotinoid family includes acetamiprid, clothianidin, dinotefuran, imidacloprid, nitenpyram, nithiazine, thiacloprid, and thiamethoxam

NR140 - Wisconsin administrative code that establishes groundwater quality standards and required responses when the standards are exceeded

Pesticide - Substance used to kill, repel, or control certain forms of plant or animal life that are considered pests. The pesticide category includes herbicides, insecticides, rodenticides, fungicides, and bactericides

Preventive Action Limit (PAL) - The Preventive Action Limit (PAL) is a percentage of the Enforcement Standard (ES); 10% of the ES for carcinogenic, mutagenic, or teratogenic properties, and 20% of the ES for the remaining substances. The intention of the PAL is for it to act as a trigger for intervention before a pollutant becomes a serious risk to public health or the environment

Reporting limit - The minimum analyte concentration that can be reliably quantified and reported by the laboratory

Total chlorinated residues (TCR) of atrazine - Sum of atrazine and atrazine metabolites (de-ethyl atrazine, de-isopropyl atrazine, and diamino atrazine)

Appendix B

Table 3: 2025 Targeted Sampling Program Summary of Pesticide Detections and Exceedances

2025 Targeted Sampling Program Results					Wisconsin Admin. Code Chapter NR 140		Wisconsin Department of Health Services
Pesticide Name	Pesticide Class	Number of detects	Reporting Limit (µg/L)	Concentration Range (µg/L)	Preventive Action Limit (µg/L)	Enforcement Standards (µg/L)	Health Advisory Level (µg/L)
2,4,5-T	Herbicide	ND	0.05	---	---	---	---
2,4,5-TP	Herbicide	ND	0.05	---	5	50	---
2,4-D	Herbicide	ND	0.05	---	7	70	---
2,4-DB	Herbicide	ND	1	---	---	---	---
2,4-DP	Herbicide	ND	0.05	---	---	---	---
4-HYDROXYCHLOROTHALONIL	Fungicide metabolite	ND	3.2	---	---	---	---
ACETAMIPRID	Insecticide	ND	0.01	---	---	---	---
ACETOCHLOR	Herbicide	ND	0.05	---	0.7	7	---
ACETOCHLOR ESA	Herbicide metabolite	8	0.05	0.0927 - 0.679	46	230	---
ACETOCHLOR OA	Herbicide metabolite	ND	0.3	---	46	230	---
ACIFLUORFEN	Herbicide	ND	0.05	---	---	---	---
ALACHLOR	Herbicide	ND	0.05	---	0.2	2	---
ALACHLOR ESA	Herbicide metabolite	25	0.05	0.051 - 2.97	4	20	---
ALACHLOR OA or OXA	Metabolite	ND	0.25	---	---	---	---
ALDICARB SULFONE	Insecticide	ND	0.05	---	---	---	---
ALDICARB SULFOXIDE	Insecticide	ND	0.071	---	---	---	---
AMINOPYRALID	Herbicide	ND	0.15	---	---	---	---
ATRAZINE	Herbicide	3	0.05	0.0629 - 0.137	0.3	3	---
DE-ETHYL ATRAZINE	Herbicide metabolite	24	0.05	0.05 - 0.234	0.3	3	---
DEISOPROPYL ATRAZINE	Herbicide metabolite	3	0.05	0.0569 - 0.0946	0.3	3	---
DIAMINO ATRAZINE	Herbicide metabolite	4	0.15	0.248 - 0.605	0.3	3	---
ATRAZINE (TCR)	Sum of atrazine and atrazine metabolites	25	---	0.05 - 0.8873	0.3	3	---
HYDROXYATRAZINE	Herbicide metabolite (not included in Atrazine TCR)	1	0.05	0.108	---	---	---
AZOXYSTROBIN	Fungicide	ND	0.05	---	---	---	---
BENFLURALIN	Herbicide	ND	0.05	---	---	---	---
BENTAZON	Herbicide	1	0.05	0.101	60	300	---
BICYCLOPYRONE	Herbicide	ND	0.05	---	---	---	---
BIFENTHRIN	Insecticide	ND	0.005	---	---	---	---
BOSCALID	Fungicide	ND	0.05	---	---	---	---
BROMACIL	Herbicide	ND	0.05	---	---	---	---
CARBARYL	Insecticide	ND	0.05	---	4	40	---
CARBOFURAN	Insecticide	ND	0.05	---	8	40	---
CHLORAMBEN	Herbicide	ND	0.32	---	30	150	---
CHLORANTRANILIPROLE	Insecticide	1	0.05	0.198	---	---	16,000
CHLOROTHALONIL	Fungicide	ND	0.1	---	---	---	---
CHLORPYRIFOS	Insecticide	ND	0.05	---	0.4	2	---
CHLORPYRIFOS OXYGEN ANALOG	Insecticide metabolite	ND	0.05	---	---	---	---
CLOMAZONE	Herbicide	ND	0.05	---	---	---	---
CLOPYRALID	Herbicide	ND	0.1	---	---	---	---

2025 Targeted Sampling Program Results					Wisconsin Admin. Code Chapter NR 140		Wisconsin Department of Health Services
Pesticide Name	Pesticide Class	Number of detects	Reporting Limit (µg/L)	Concentration Range (µg/L)	Preventive Action Limit (µg/L)	Enforcement Standards (µg/L)	Health Advisory Level (µg/L)
CLOTHIANIDIN	Insecticide	11	0.01	0.01 - 1.25	---	---	1,000
CYANTRANILIPROLE	Insecticide	ND	0.05	---	---	---	16,000
CYCLANILIPROLE	Insecticide	ND	0.2	---	---	---	---
CYFLUTHRIN	Insecticide	ND	0.05	---	---	---	---
CYPERMETHRIN	Insecticide	ND	0.1	---	---	---	---
CYPROSULFAMIDE	Safener	ND	0.05	---	---	---	---
DACTHAL	Herbicide	ND	0.05	---	14	70	---
DACTHAL DI-ACID	Herbicide metabolite	ND	0.5	---	---	---	70
DACTHAL MONO-ACID	Herbicide metabolite	ND	0.5	---	---	---	70
DACTHAL TOTAL	Sum of dacthal and dacthal metabolites	ND	0.5	---	---	---	70
DESTHIO PROTHIOCONAZOLE	Fungicide metabolite	ND	0.05	---	---	---	---
DIAZINON	Insecticide	ND	0.05	---	---	---	---
DIAZINON OXYGEN ANALOG	Insecticide metabolite	ND	0.05	---	---	---	---
DICAMBA	Herbicide	ND	0.25	---	60	300	---
DICHLOBENIL	Herbicide	ND	0.05	---	---	---	---
DIMETHENAMID	Herbicide	ND	0.05	---	5	50	---
DIMETHENAMID ESA	Herbicide metabolite	2	0.05	0.0556 - 0.13	---	---	---
DIMETHENAMID OA	Herbicide metabolite	ND	0.05	---	---	---	---
DIMETHOATE	Insecticide	ND	0.05	---	0.4	2	---
DINOTEFURAN	Insecticide	ND	0.01	---	---	---	---
DIURON	Herbicide	ND	0.05	---	---	---	---
EPTC	Herbicide	ND	0.05	---	50	250	---
ESFENVALERATE	Insecticide	ND	0.025	---	---	---	---
ETHALFLURALIN	Herbicide	ND	0.05	---	---	---	---
ETHOFUMESATE	Herbicide	ND	0.05	---	---	---	---
FLUMETSULAM	Herbicide	ND	0.05	---	---	---	10,000
FLUPYRADIFURONE	Insecticide	ND	0.05	---	---	---	---
FLUROXYPYR	Herbicide	ND	0.05	---	---	---	---
FOMESAFEN	Herbicide	ND	0.05	---	---	---	25
HALOSULFURON METHYL	Herbicide	ND	0.05	---	---	---	---
HEXAZINONE	Herbicide	1	0.05	0.165	---	---	400
IMAZAMOX	Herbicide	ND	0.05	---	---	---	---
IMAZAPIC	Herbicide	ND	0.05	---	---	---	---
IMAZAPYR	Herbicide	1	0.05	0.157	---	---	---
IMAZETHAPYR	Herbicide	ND	0.05	---	---	---	---
IMIDACLOPRID	Insecticide	2	0.01	0.0194 - 0.0313	---	---	0.2
ISOXAFLUTOLE	Herbicide	ND	0.05	---	---	---	3
ISOXAFLUTOLE DKN	Herbicide metabolite	ND	0.05	---	---	---	3
ISOXAFLUTOLE TOTAL	Sum of isoxaflutole (IFT) and IFT DKN	ND	0.05	---	---	---	3
LAMBDA-CYHALOTHRIN	Insecticide	ND	0.02	---	---	---	---
LINURON	Herbicide	ND	0.05	---	---	---	---
MALATHION	Insecticide	ND	0.05	---	---	---	---
MCPA	Herbicide	ND	0.05	---	---	---	---
MCPB	Herbicide	ND	0.1	---	---	---	---
MCPP	Herbicide	ND	0.05	---	---	---	---
MESOTRIONE	Herbicide	ND	0.1	---	---	---	---
METALAXYL	Fungicide	1	0.05	0.202	---	---	800
METHYL PARATHION	Insecticide	ND	0.05	---	---	---	---

2025 Targeted Sampling Program Results					Wisconsin Admin. Code Chapter NR 140		Wisconsin Department of Health Services
Pesticide Name	Pesticide Class	Number of detects	Reporting Limit (µg/L)	Concentration Range (µg/L)	Preventive Action Limit (µg/L)	Enforcement Standards (µg/L)	Health Advisory Level (µg/L)
METOLACHLOR	Herbicide	1	0.05	0.109	10	100	---
METOLACHLOR ESA	Herbicide metabolite	47	0.05	0.0526 - 4.36	260	1300	---
METOLACHLOR OA or OXA	Herbicide metabolite	3	0.27	0.513 - 2.84	260	1300	---
METRIBUZIN	Herbicide	1	0.05	3.5	14	70	---
METRIBUZIN DA	Herbicide metabolite	ND	0.1	---	---	---	---
METRIBUZIN DADK	Herbicide metabolite	1	0.12	0.85	---	---	---
METSULFURON-METHYL	Herbicide	ND	0.05	---	---	---	---
NICOSULFURON	Herbicide	ND	0.05	---	---	---	---
NORFLURAZON	Herbicide	ND	0.05	---	---	---	---
OXADIAZON	Herbicide	ND	0.05	---	---	---	---
PENDIMETHALIN	Herbicide	ND	0.05	---	---	---	---
PERMETHRIN	Insecticide	ND	0.03	---	---	---	---
PICLORAM	Herbicide	ND	0.05	---	100	500	---
PROMETONE	Herbicide	ND	0.05	---	20	100	---
PROMETRYN	Herbicide	ND	0.05	---	---	---	---
PROPICONAZOLE	Fungicide	ND	0.05	---	---	---	---
PYROXASULFONE	Herbicide	ND	0.05	---	---	---	---
PYROXASULFONE M-1	Herbicide metabolite	ND	0.05	---	---	---	---
SAFLUFENACIL	Herbicide	ND	0.05	---	---	---	460
SIMAZINE	Herbicide	ND	0.05	---	0.4	4	---
SULFENTRAZONE	Herbicide	ND	0.05	---	---	---	1,000
SULFENTRAZONE-3-CARBOXYLIC ACID	Herbicide metabolite	ND	0.1	---	---	---	---
SULFOMETURON-METHYL	Herbicide	ND	0.05	---	---	---	---
TEBUCONAZOLE	Fungicide	ND	0.05	---			
TEBUPIRIMPHOS	Insecticide	ND	0.05	---	---	---	---
TEMBOTRIONE	Herbicide	ND	0.1	---	---	---	---
THIACLOPRID	Insecticide	ND	0.01	---	---	---	---
THIAMETHOXAM	Insecticide	2	0.01	0.0397 - 0.11	---	---	120
THIENCARBAZONE-METHYL	Herbicide	ND	0.05	---	---	---	10,000
TRICLOPYR	Herbicide	1	0.05	0.142 - 0.374	---	---	---
TRIFLURALIN	Herbicide	ND	0.05	---	0.75	7.5	---

Legend:

--- In columns Wisconsin Admin. Code Chapter NR 140 or Wisconsin Department of Health Services indicates that no standards or health advisory is established for that compound. In column Concentration Range indicates that the concentration was found below Reporting Limits.

ND = Not detected at a concentration greater than the reporting laboratory limit.

µg/L = Micrograms per liter or parts per billion.

TCR = Total Chlorinated Residues for Atrazine. Reflects an additive quantity of atrazine and its three metabolites (de-ethyl, de-isopropyl and di-amino atrazine).

Indicates no detection(s) in excess of laboratory reporting limits

Indicates detection(s) in excess of laboratory reporting limits, but not in excess of respective Wis. Admin. Code ch. NR 140 PAL

Indicates detection(s) greater than the respective Wis. Admin. Code ch. NR 140 PAL

Indicates detection(s) greater than the respective Wis. Admin. Code ch. NR 140 ES

Appendix C

Table 4: 2025 Targeted Sampling Program Analytical Results for South Central Region

WUWN	Acetochlor ESA	Alachlor ESA	Atrazine TCR	Clothianidin	De-ethyl Atrazine	Deisopropyl Atrazine	Diamino Atrazine	Imazapyr	Metolachlor ESA	Nitrogen as Nitrate plus Nitrite	Number of Individual Compounds Detected
8BK898	ND	ND	ND	ND	ND	ND	ND	ND	0.688	ND	1
8EP861	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.69	1
ABT393	ND	0.051	0.3276	ND	0.0796	ND	0.248	ND	ND	3.35	4
DA564	ND	ND	ND	ND	ND	ND	ND	ND	0.498	7.61	2
FB282	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.24	1
FW351	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.17	1
KW483	ND	ND	0.0636	0.0229	0.0636	ND	ND	ND	2.03	5.9	4
MO526	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
NJ328	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
OE543	ND	ND	ND	ND	ND	ND	ND	ND	0.847	9.49	2
PW562	ND	ND	ND	0.01	ND	ND	ND	0.157	0.57	14.9	4
PW563	ND	0.26	0.0762	ND	0.0762	ND	ND	ND	0.0597	1.91	4
PW564	ND	1.06	0.8873	ND	0.234	0.0633	0.59	ND	0.215	5.99	6
PW565	0.107	0.248	0.6246	0.0519	0.11	0.0946	0.42	ND	0.943	12.4	8
PW566	ND	ND	ND	ND	ND	ND	ND	ND	0.0872	3.13	2
PW567	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.08	1
PW568	ND	0.0951	0.05	ND	0.05	ND	ND	ND	0.569	4.13	4
PW569	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
PW570	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
PW751	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
PW752	ND	ND	0.741	ND	0.136	ND	0.605	ND	0.182	5.68	4
PW753	ND	ND	0.139	ND	0.139	ND	ND	ND	ND	2.26	2
PW754	ND	ND	0.0528	0.0303	0.0528	ND	ND	ND	0.59	4.55	4
PW755	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
PW756	ND	ND	ND	ND	ND	ND	ND	ND	0.375	ND	1
RY408	ND	0.0912	ND	ND	ND	ND	ND	ND	ND	ND	1
TS018	ND	ND	ND	0.0135	ND	ND	ND	ND	0.918	4.83	3
XI939	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.04	1
YG013	ND	2.97	ND	ND	ND	ND	ND	ND	ND	ND	1

Legend:

Indicates concentration less than laboratory reporting limit

Indicates concentration greater than laboratory reporting limit but less than respective Wis. Admin. Code ch. NR 140 PAL

Indicates concentration greater than respective Wis. Admin. Code ch. NR 140 PAL.

Indicates concentration greater than respective Wis. Admin. Code ch. NR 140 ES.

ND = Not detected at a concentration greater than the laboratory reporting limit.

Concentrations are reported in µg/L with the exception of Nitrogen concentrations reported in mg/L.

TCR = Total Chlorinated Residues for Atrazine. Reflects an additive quantity of atrazine and its three metabolites (de-ethyl, deisopropyl, and diamino atrazine).

Table 5: 2025 Targeted Sampling Program Analytical Results for Western Region

WUWN	Acetochlor ESA	Alachlor ESA	Atrazine	Atrazine TCR	Clothianidin	De-ethyl Atrazine	Deisopropyl Atrazine	Dimethenamid ESA	Metolachlor ESA	Metolachlor OA	Nitrogen as Nitrate plus Nitrite	Triclopyr	Number of Individual Compounds Detected
8FT580	ND	ND	ND	ND	ND	ND	ND	ND	0.122	ND	2.95	ND	2
8FU267	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
8FU666	0.0588	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
8MX225	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.36	ND	1
ABP110	ND	0.0617	ND	ND	ND	ND	ND	ND	0.0894	ND	7.18	ND	3
DE350	ND	0.0906	ND	0.136	ND	0.136	ND	ND	ND	ND	6.99	ND	3
DN841	ND	ND	ND	0.0569	ND	ND	0.0569	ND	0.0526	ND	6.8	ND	3
IB580	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.611	ND	1
KT708	ND	ND	ND	0.101	ND	0.101	ND	ND	0.728	ND	5.99	ND	3
NE952	ND	0.0598	ND	0.0777	ND	0.0777	ND	ND	0.44	ND	6.96	0.142	5
PV781	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	4.3	ND	2
PV782	0.473	0.248	ND	0.0518	ND	0.0518	ND	0.13	0.847	ND	13.5	ND	6
PV783	ND	ND	0.137	0.284	ND	0.147	ND	ND	0.0632	ND	0.975	ND	4
PV784	ND	0.0606	ND	ND	ND	ND	ND	ND	0.278	ND	4.26	ND	3
PV785	ND	ND	ND	ND	ND	ND	ND	ND	0.193	ND	8.21	ND	2
PV786	0.201	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.81	ND	2
PV787	ND	0.259	ND	0.0848	ND	0.0848	ND	ND	0.063	ND	9.57	ND	4
PV788	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.52	ND	1
PV789	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.81	ND	1
PV790	ND	ND	ND	ND	ND	ND	ND	ND	0.0659	ND	7.87	ND	2
PV791	ND	1.73	ND	ND	ND	ND	ND	0.0556	0.656	0.513	ND	ND	4
PV792	ND	0.142	ND	ND	ND	ND	ND	ND	0.0858	ND	ND	ND	2
PV793	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.61	ND	1
PW757	ND	ND	ND	0.0878	ND	0.0878	ND	ND	ND	ND	6.24	ND	2
PW758	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.07	ND	1
PW759	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.28	ND	1
PW760	0.679	ND	ND	0.22	ND	0.22	ND	ND	0.426	ND	7.2	ND	4
QZ729	0.193	0.151	0.0629	0.1849	ND	0.122	ND	ND	0.943	ND	8.13	ND	6
RL882	ND	ND	ND	0.0938	0.0149	0.0938	ND	ND	0.249	ND	6.86	ND	4
RM578	ND	0.0651	ND	0.0514	ND	0.0514	ND	ND	1.05	ND	7.7	ND	4
SG379	ND	0.0872	ND	0.129	ND	0.129	ND	ND	0.948	ND	6.15	ND	4
SZ721	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
TO662	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
UD381	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.08	ND	1
WV201	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
WV445	ND	ND	ND	ND	ND	ND	ND	ND	0.053	ND	2.07	ND	2
ZY535	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.92	ND	1
ZZ230	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0

Legend:

Indicates concentration less than laboratory reporting limit

Indicates concentration greater than laboratory reporting limit but less than respective Wis. Admin. Code ch. NR 140 PAL

Indicates concentration greater than respective Wis. Admin. Code ch. NR 140 PAL.

Indicates concentration greater than respective Wis. Admin. Code ch. NR 140 ES.

ND = Not detected at a concentration greater than the reporting laboratory limit

Concentrations are reported in µg/L with the exception of nitrate plus nitrite concentrations reported in mg/L

TCR = Total Chlorinated Residues for Atrazine. Reflects an additive quantity of atrazine and its three metabolites (de-ethyl, de-isopropyl and di-amino atrazine)

Table 6: 2025 Targeted Sampling Program Analytical Results for Central Sands Region

WUWN	Acetochlor ESA	Alachlor ESA	Atrazine	Atrazine TCR	Bentazon	Chlorantraniliprole	Clothianidin	De-ethyl Atrazine	Hexazinone	Hydroxyatrazine	Imidacloprid	Metalaxyl	Metolachlor	Metolachlor ESA	Metolachlor OA	Metribuzin	Metribuzin DADK	Nitrogen as Nitrate plus Nitrite	Thiamethoxam	Triclopyr	Number of Individual Compounds Detected
8HQ262	0.598	0.0783	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.85	ND	ND	ND	8.13	ND	ND	4
8NQ526	ND	1.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.56	ND	ND	ND	ND	ND	ND	2
ACI112	ND	0.0798	ND	0.182	ND	ND	0.0669	0.182	ND	ND	0.0194	ND	ND	1.58	0.892	ND	ND	8.43	ND	ND	7
GJ497	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
HS900	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
IG983	ND	2.18	0.083	0.242	ND	ND	ND	0.159	ND	ND	ND	ND	ND	0.188	ND	ND	ND	12.5	ND	ND	5
KN376	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.37	ND	ND	ND	4.15	ND	ND	2
KQ194	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
LJ643	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
MO163	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
OP060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.579	ND	ND	1
OU893	ND	ND	ND	0.0771	ND	ND	ND	0.0771	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.43	ND	ND	2
PV794	ND	0.393	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
PV795	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
PV796	0.0927	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0536	ND	ND	ND	5.07	ND	ND	3
PV797	ND	ND	ND	ND	ND	ND	ND	ND	0.165	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
PV798	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	0.0397	ND	2
PV799	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.45	ND	ND	1
PV800	ND	0.388	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0733	ND	ND	ND	ND	ND	ND	2
PV801	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.92	ND	ND	1
PV802	ND	0.263	ND	ND	0.101	0.198	1.25	ND	ND	0.108	0.0313	0.202	0.109	4.36	2.84	3.5	0.85	36.8	0.11	ND	14
PV803	0.479	ND	ND	ND	ND	ND	0.0112	ND	ND	ND	ND	ND	ND	0.0946	ND	ND	ND	8	ND	ND	4
PV804	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.64	ND	0.374	2
PV805	ND	ND	ND	ND	ND	ND	0.0142	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.87	ND	ND	2
PV806	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
PV807	ND	ND	ND	ND	ND	ND	0.118	ND	ND	ND	ND	ND	ND	0.0707	ND	ND	ND	10.5	ND	ND	3
PV808	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.554	ND	ND	ND	ND	ND	ND	1
PV809	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
PV810	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.978	ND	ND	ND	1.02	ND	ND	2
RN594	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
TA113	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.26	ND	ND	1
YK228	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.904	ND	ND	1
YL893	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.709	ND	ND	1

Legend:

Indicates concentration less than laboratory reporting limit

Indicates concentration greater than laboratory reporting limit but less than respective Wis. Admin. Code ch. NR 140 PAL

Indicates concentration greater than respective Wis. Admin. Code ch. NR 140 PAL.

Indicates concentration greater than respective Wis. Admin. Code ch. NR 140 ES.

ND = Not detected at a concentration greater than the reporting laboratory limit

Concentrations are reported in µg/L with the exception of nitrate plus nitrite concentrations reported in mg/L

TCR = Total Chlorinated Residues for Atrazine. Reflects an additive quantity of atrazine and its three metabolites (de-ethyl, de-isopropyl and di-amino atrazine)