

Section H:
Evaluating Beneficial Use:
Public Drinking Water Supply

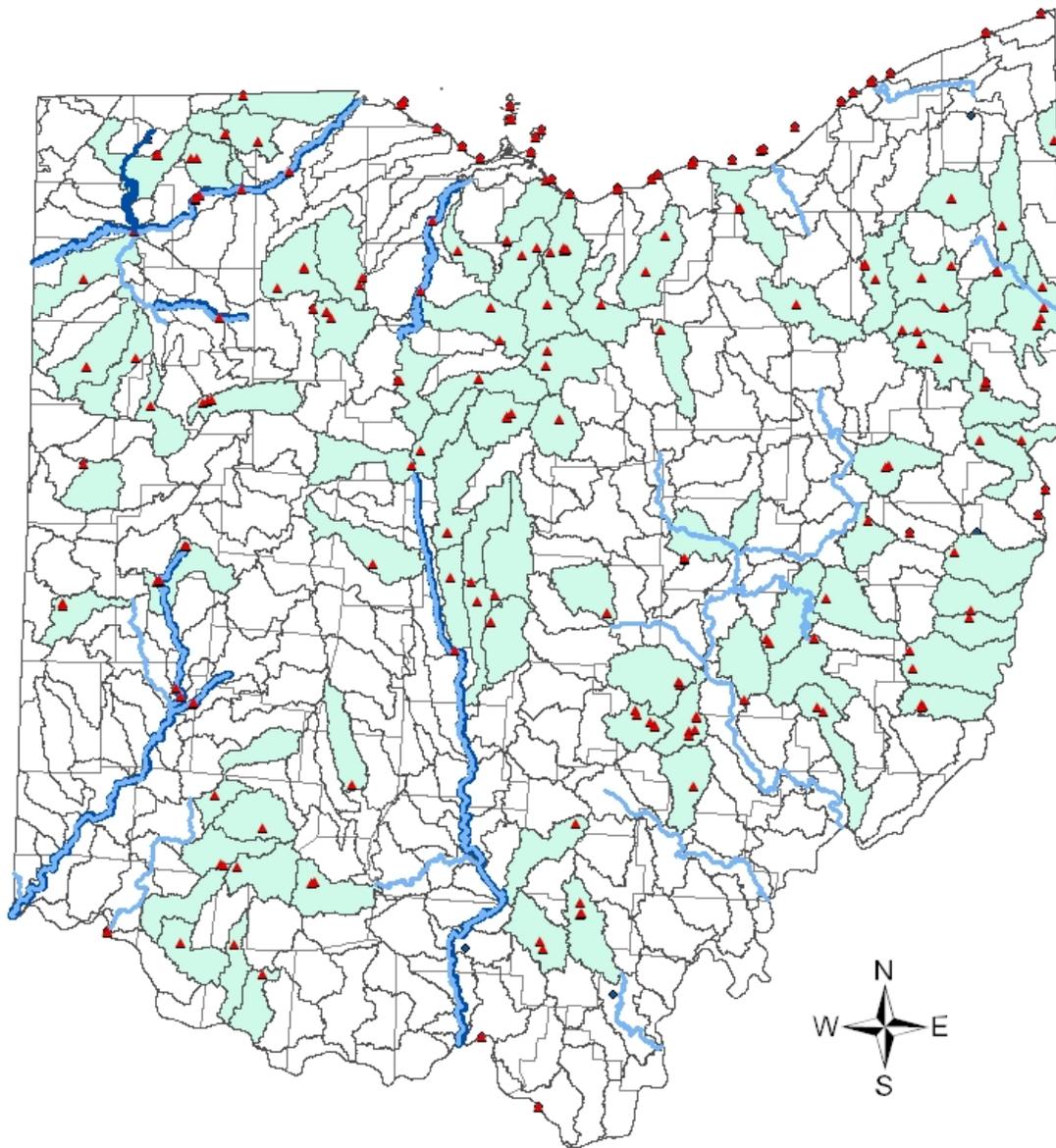
2008 Ohio Integrated Report

H1. Background

This year marks the first time formal assessments of the Public Drinking Water Supply (PDWS) Beneficial Use are included in the Integrated Water Quality Report. Ohio's rationale, approach and complete draft assessment methodology were presented in the 2006 Integrated Report for public review. This program provides the State an opportunity to strengthen the connection between Clean Water Act and Safe Drinking Water Act (SDWA) activities by employing the authority of the CWA to meet SDWA objectives of source water protection and reduced risk to human health.

Assessments included in this cycle are based primarily on treated water quality data and to a limited extent other source water quality data available from Ohio EPA and external sources. Assessments for each public water system were completed for the nitrate and pesticide indicators (focused on atrazine). A database was developed to manage all relevant public water system treatment information, intake locations, number of reservoirs and type, water quality data, and assessment determinations. Assessments were completed for stream sources and on-stream impounded reservoir sources with active drinking water intakes. Upground reservoirs were not evaluated at this time and will be addressed later in conjunction with Ohio's Inland Lakes Program. Figure H-1 identifies Ohio watershed assessment units that contain at least one active surface water drinking water intake.

Ohio is in the process of adopting additional water quality criteria for protection of the PDWS beneficial use and will expand assessments as criteria become finalized within the next several years. For the next assessment cycle, the methodology will be updated and additional information regarding current treatment processes, algae control measures, and source water treatment costs may be added to the database. Watersheds with known or suspected elevated pesticides may be targeted for additional atrazine monitoring to complete assessment of the pesticide indicator. Ohio intends to evaluate the current PDWS assessment methodology prior to the 2010 IR and incorporate necessary changes identified during this initial round of assessments.



Public Drinking Water Supply Use

- ▲ Active PWS Intake
- LRAU
- LRAU w/PWS Intake(s)
- HUC-11
- HUC-11 w/PWS Intake(s)

0 20 40 80 Miles

Figure H-1. Ohio watershed assessment units that contain at least one active surface water drinking water intake.

H2. Evaluation Method

The 2008 PDWS use impairment list was developed using public water system compliance monitoring treated data and ambient water quality data from 2002 through mid-2007. Key external data sources include Heidelberg College Ohio Tributary Monitoring Program (OTMP) data (2002-2006) and Syngenta Crop Protection, Inc. Atrazine Monitoring Program (AMP) data (2004-2006). Treated water quality data were obtained from the SDWIS (Safe Drinking Water Information System) database, which contains all SDWA compliance data submitted to the Division of Drinking and Ground Waters (DDAGW) by Ohio public water systems and their certified laboratories. OTMP data were used for only two assessments and the Syngenta AMP data were applicable for only nine assessments.

Treated water quality data could only be used for the assessments if the water system did not blend with ground water, selectively pump from the stream source to an upground reservoir to avoid contamination or use a nitrate or pesticide removal treatment process. A significant number of water systems use activated carbon during the water treatment process, which precludes use of the treated pesticide data for PDWS assessments and lead to a significant number of assessments completed with nitrate data only.

Water quality data for each indicator were compared to the numeric chemical water quality criteria for the protection of human health (OAC 3745-1-33 and 34). Criteria were applied per the methodology as annual average concentrations except for nitrate. At elevated levels, nitrate can cause acute health effects and the SDWA finished water standard applies as a maximum concentration not to be exceeded. Consequently, the water quality criteria for nitrate will be applied as a maximum value. Annual time-weighted mean pesticide concentrations were calculated by taking the annual average of the quarterly averages and comparing to the water quality criteria. The only exception to this was the Heidelberg College OTMP data where a much smaller sampling time window was used to weight each sample.

An impairment determination was assessed for each indicator at each PDWS zone and then combined for an overall status (Full Support, Impaired, or Not Assessed, Insufficient Data) for each PDWS zone. For assessment units with multiple PDWS zones, the individual assessments were combined and the lowest attainment status applied for the entire assessment unit. In order to be considered "Full Support," sufficient data were required for at least the nitrate indicator and for each PDWS intake zone within the assessment unit. Data were also assessed to identify waters which meet "Watch List" conditions. These are waters in Full Support or with insufficient data that exhibit elevated levels of contaminants and will be targeted for additional sampling. Table H-1 identifies impaired and "watch list" water quality conditions.

Table H-1. Public drinking water supply impairment determination.

Applies to in-stream ambient and treated water quality data for the most recent five year period.

Indicator	Impaired Conditions
Nitrate	<input type="checkbox"/> Two or more excursions ¹ above the WQ criteria within the 5 year period
Pesticides	<input type="checkbox"/> Annual average exceeds WQ criteria
Other Contaminants	<input type="checkbox"/> Annual average exceeds WQ criteria
<i>Cryptosporidium</i> ²	<input type="checkbox"/> Annual average exceeds WQ criterion (1.0 oocysts/L)
Indicator	Full Attainment Conditions
Nitrate	<input type="checkbox"/> No more than one excursion ¹ above the WQ criteria within the 5 year period
Pesticides	<input type="checkbox"/> Annual average does not exceed the WQ criteria
Other Contaminants	<input type="checkbox"/> Annual average does not exceed the WQ criteria
<i>Cryptosporidium</i>	<input type="checkbox"/> Annual average does not exceed the WQ criterion
Indicator	“Watch List” Conditions <i>Source waters targeted for additional monitoring and assessment</i>
Nitrate	<input type="checkbox"/> Maximum instantaneous value > 8 mg/L (80% of WQ criterion)
Pesticides	<input type="checkbox"/> Running quarterly average ≥ WQ criteria <input type="checkbox"/> Maximum instantaneous value ≥ 4x WQ criteria
Other Contaminants	<input type="checkbox"/> Maximum instantaneous value ≥ WQ criteria
<i>Cryptosporidium</i>	<input type="checkbox"/> Annual average ≥ 0.075 oocysts/L

¹ Excursions must be at least 30 days apart in order to capture separate or extended source water quality events.

² Impaired conditions for *Cryptosporidium* are based on proposed water quality criteria which Ohio EPA intends to develop.

WQ Criteria - Water Quality Criteria defined in OAC Chapter 3745-1 established to protect in-stream water quality for the PWS beneficial use (Human health - Drinking Water)

Most of the nitrate assessments were completed with sufficient samples and well over the recommended minimum sample counts described in the PDWS Assessment Methodology. Much lower sample counts for pesticides were available and several assessments were completed with only eight samples. Use of less than 10 samples was allowed if the samples were collected from at least two separate years, the samples were all within the critical spring runoff period, and all results were well below the water quality criteria. Exception to the ten sample minimum was allowed if the PDWS zone was in an area with little or no atrazine application, all samples were well below the criteria, and available samples were collected during the key seasonal period when occurrence is most likely.

For the 2008 assessment cycle, only the nitrate and pesticide indicators were evaluated in-depth. Other contaminants monitored by the public water systems for SDWA compliance and reported in the SDWIS database were also reviewed but no in-stream raw water data were evaluated for these contaminants. *Cryptosporidium* data from SDWA compliance monitoring were not available for this assessment cycle, but will be included by the 2010 cycle.

H3. Results

Using the PDWS assessment methodology and available water quality data, results for the PDWS Beneficial Use are presented here for all watershed, large river, and Lake Erie assessment units where the PDWS use applies. Applicable water quality data were evaluated to determine an impairment status for each key indicator at each PDWS zone. In order to be considered “assessed,” sufficient data were required for only the nitrate indicator. There are a

total of 120 public water systems with 126 treatment plants using surface water (excluding Ohio River intakes) in 94 separate assessment units. A summary of the nitrate and pesticide indicators for each public water system are presented in Section H4 and Table H-2 provides supporting information for each of the eight PDWS waters listed as impaired waters.

Nitrate Indicator. Sufficient data were available to complete 66 (52.4%) of the 126 PDWS assessments for the nitrate indicator using data primarily from Ohio EPA's compliance database and also from the Ohio Tributary monitoring program. Six (4.8%) of the PDWS waters were identified as impaired and 60 (47.6%) were in full support. Five of the impaired zones were in the Maumee large river assessment unit (LRAU) and the other was in the Sandusky LRAU. All of the 15 waters placed on watch list (single detection >8 mg/L) for nitrate were located in the northwestern and central parts of the state (Figure H-2).

Pesticide Indicator. Sufficient data were available to complete 35 (27.8%) of the 126 PDWS assessments for the pesticide indicator using data from Ohio EPA's compliance database (treated water), Ohio EPA water quality surveys, Ohio Tributary Monitoring Program, and Syngenta Crop Protection, Inc.'s Atrazine Monitoring Program. Two of the pesticide assessments resulted in impaired status while the remaining 33 were in full support. The two areas of impairment for pesticides caused by elevated atrazine were in the southwestern portion of the state in Brown County (Mt. Orab PWS, Sterling Run) and in Miami County (Piqua PWS, Swift Run). A total of 13 waters were placed on the pesticide watch list because of elevated atrazine (single exceedence of 4 times the water quality criteria (WQC) or quarterly average > WQC). These areas of elevated atrazine coincide with the predominantly agricultural land use in western and northwestern Ohio (Figure H-3).

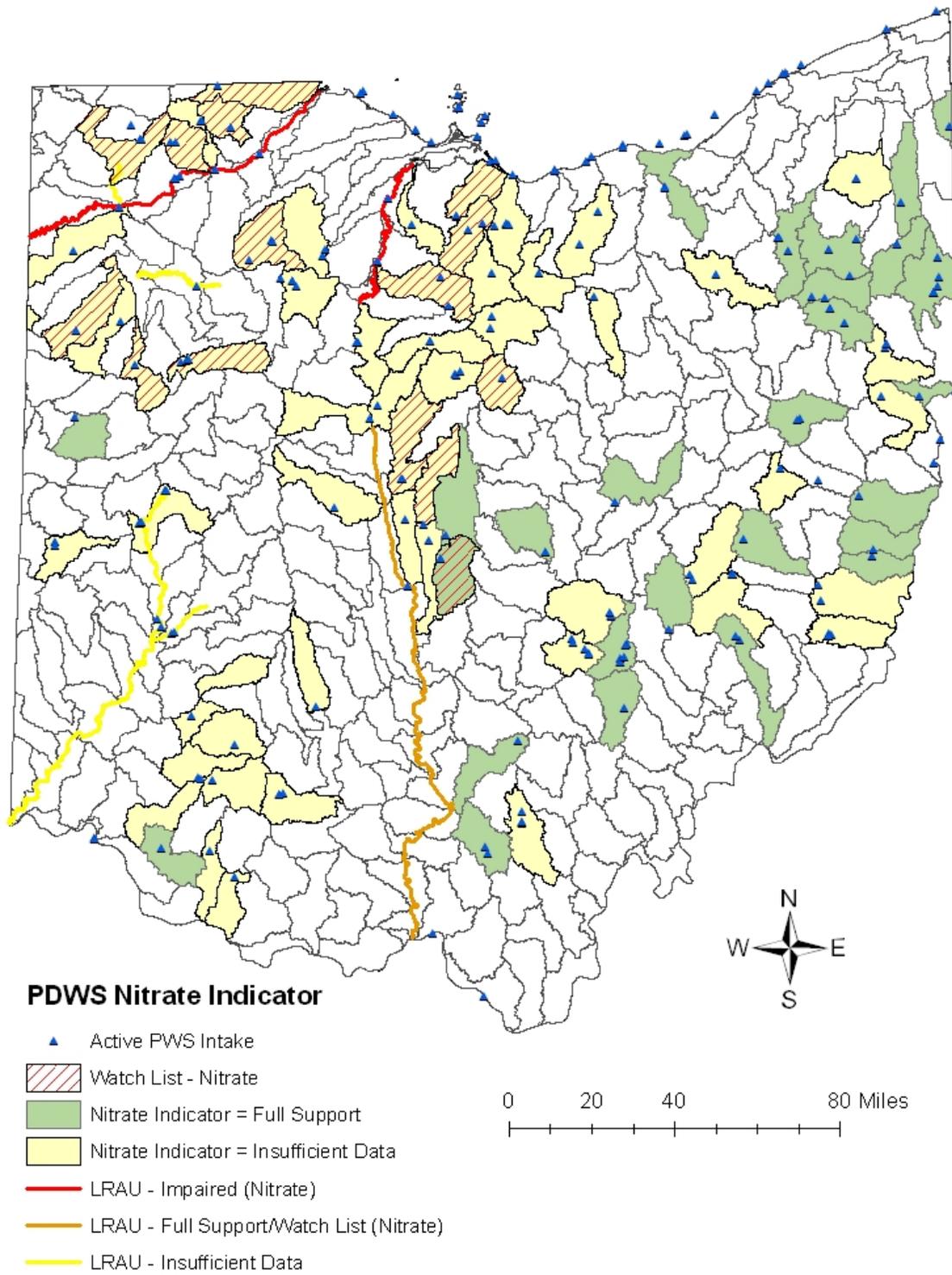


Figure H-2. Assessment units with nitrate indicator results.

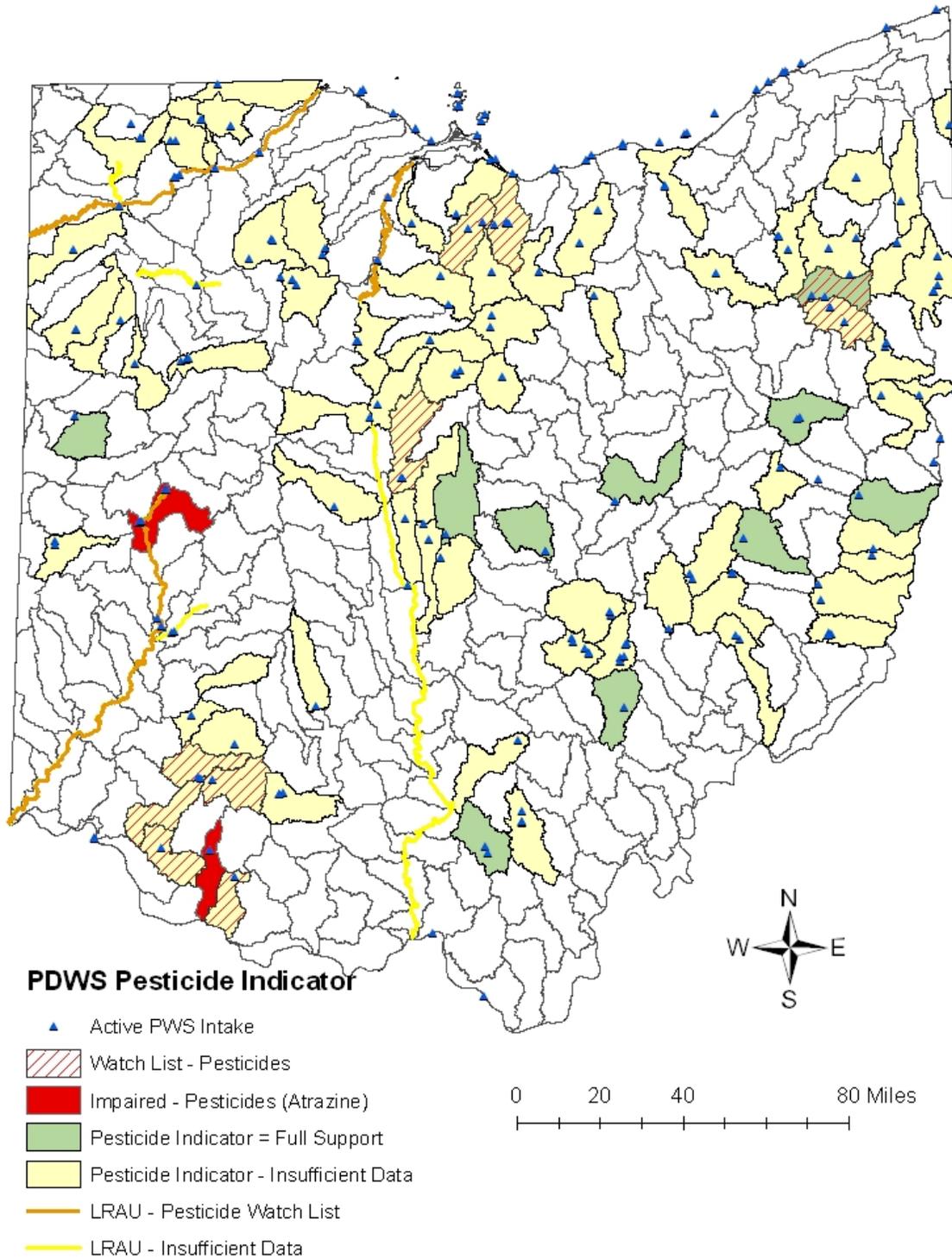


Figure H-3. Assessment units with pesticide indicator results.

Table H-2. Waters designated as impaired for PDWS beneficial use.

Assessment Unit	Cause of Impairment	Summary of Key Water Quality Data
4100009-001 Maumee River Mainstem (LRAU)	<i>Nitrate</i> Five PWS had more than one excursion above the nitrate WQC during the 5 year period. Four PWS had <u>finished</u> nitrate levels above the WQC and received SDWA violations.	<p>* The City of Defiance exceeded the nitrate WQC in finished water during 3 events (12/24/02-1/28/03; 6/17/03-6/19/03; and 5/15/06-5/16/06).</p> <p>*The City of Napoleon exceeded the nitrate WQC in finished water during two events (11/26/02-12/12/02; and 11/29/05).</p> <p>* The Campbell Soup PWS exceeded the nitrate WQC in finished water during 3 events (12/23/02-2/5/03; 3/24/03-3/25/03; and 5/15/06-5/16/06).</p> <p>* The Village of McClure exceeded the nitrate WQC in finished water during 4 events (12/12/02-2/4/03; 3/24/03-4/14/03; 6/17/03-6/18/03; and 11/30/05).</p> <p>* The City of Bowling Green raw source water (as indicated by Ohio Tributary Monitoring Program data collected upstream in Waterville, OH) exceeded the nitrate WQC during 9 events.</p>
4100011-001 Sandusky River Mainstem (LRAU)	<i>Nitrate</i> One PWS had more than one excursion above the nitrate WQC during the 5 year period in both raw and finished water. This PWS also received SDWA violations.	<p>* The City of Fremont exceeded the nitrate WQC in finished water during 4 events (12/12/02-1/31/03; 3/25/03-4/14/03; 6/18/03-6/20/03; and 5/16/06-6/2/06) and in the raw source water (as indicated by Ohio Tributary Monitoring Program data collected just upstream of Fremont) during 10 events.</p>
5080001-070 Great Miami River (dnstrm Tawawa Creek to mouth)	<i>Pesticides</i> One PWS had the pesticide atrazine in source water where the annual average exceeded the WQC.	<p>* The City of Piqua uses several surface water sources and participates in Syngenta Crop Protection's AMP¹. Swift Run Lake (impounded section of Swift Run) is one of the three drinking water sources and the atrazine annual average² in 2005 was 5.03 µg/L, above the WQC (3 µg/L).</p>
5090201-100 White Oak Creek (North Fork/East Fork to mouth)	<i>Pesticides</i> One PWS had the pesticide atrazine in source water where the annual average exceeded the WQC.	<p>* The Village of Mt. Orab draws surface water from Sterling Run and participates in Syngenta Crop Protection's AMP¹. The annual average² exceeded the WQC in 2005 (7.92 µg/L) and 2006 (10.18 µg/L), 7.92 µg/L and 2006=10.18 µg/L. Single maximum atrazine detection in 2006 was 227 µg/L.</p>

¹ The January 2003 Atrazine Interim Reregistration Eligibility Decision and subsequent Memorandum of Agreement between U.S. EPA and the atrazine registrants, including Syngenta Crop Protection, Inc., initiated an atrazine monitoring program at select community water systems.

² Annual average calculated as average of the quarterly means for calendar year.

H4. Supplemental Information

The following table provides a summary of PDWS assessment results for the nitrate and pesticide indicators and is organized alphabetically by PWS name. Types of available water quality data are identified for each assessment and show where Ohio EPA survey, Ohio Tributary Monitoring Program, or Syngenta Crop Protection, Inc. ("other ambient") data were applied. Information is also provided about whether the water system utilizes treatment beyond conventional (TBC), has the ability to selectively pump (SP) from their stream sources to avoid poor source water events, and/or has the capacity to blend surface water with ground water to dilute surface water contaminants (GW). These factors affect applicability of the finished treated water quality data to assess in-stream water quality.

Table H-3. PDWS beneficial use assessment results by water system.

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Akron	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Cuyahoga	Lake Rockwell (Cuyahoga River RM 62.0 to 57.97)
Alliance	OEPA survey, Other ambient, Treated	Full Support	Full Support, Watch List	Yes	No	No	Mahoning	Deer Creek @RM 0.54 (Reservoir), Walborn Reservoir and Mahoning River @RM 83.55
Archbold	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	Yes	Yes	No	Tiffin	Tiffin River @RM 47.54 and Brush Creek @RM 17.64
Ashtabula – Ohio American Water	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Central Basin
Attica	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Sandusky	Honey Creek @ RM 28.35

TBC=treatment beyond conventional; SP=selective pumping from stream source; GW=blends surface water with ground water source

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Avon Lake	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Central Basin
Barberton	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	No	Yes	Tuscarawarus	Wolf Creek @RM 5.12 (Reservoir)
Barnesville	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	No	No	Upper Ohio-Wheeling	Unnamed trib (North Fork RM 10.0) @RM 0.55 (Res #1 and #3), Slope Creek @RM 1.85 Slope Ck Res)
Bellevue	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	No	Yes	No	Huron-Vermilion and Sandusky	Frink Run @RM 4.83 (Huron) and Snyders ditch @RMs 5.0 and 5.5 (Sandusky)
Berea	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Black/Rocky River	E. Branch Rocky River @RM 5.06, Baldwin Creek @RM 0.48, upstream boundaries of Rocky River reservation (RM 15.15) to West Branch
Blanchester	Other ambient, Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data, Watch List	Yes	Yes	No	Little Miami	Whitacre Run, Stonelick Creek, West Fork of E. Fork of Little Miami River
Bowling Green	Other ambient, OTMP, Treated	Impaired	Full Support, Watch List	Yes	Yes	No	Lower Maumee	Maumee River @ RM 23.16
Bucyrus	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Sandusky	Sandusky River @ RM 115.45
Burr Oak Regional	Treated	Full Support	Full Support	No	No	No	Hocking	East Branch Sunday Creek @RM 0.23

TBC=treatment beyond conventional; SP=selective pumping from stream source; GW=blends surface water with ground water source

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Cadiz	Treated	Full Support	Full Support	No	No	Yes	Upper Ohio-Wheeling and Tuscarawas	Unnamed trib (Liming Creek RM 1.90) @RM 0.35 (Tappan Lake)
Caldwell	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Little Muskingum-Middle Island	Wolf Run @RM 0.7 (Wolf Run Lake) , Dog Run @RM 1.35 (Caldwell Lake)
Cambridge	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Wills Creek	Wills Creek, Cambridge Reservoir
Camp Patmos	Treated	Full Support	Not assessed, Insufficient Data	No	No	No	Lake Erie	Lake Erie Islands Shoreline
Campbell	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Mahoning	Yellow Creek @RM 2.0 (Lake Hamilton), Dry Run @RM 2.86 (Lake McKelvey)
Campbell Soup	Treated	Impaired	Not assessed, Insufficient Data	Yes	No	No	Lower Maumee	Maumee River @ RM 45.88 and 47.10
Carrol Water & Sewer	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Western Basin
Celina	Treated	Full Support	Full Support	Yes	No	No	Upper Wabash	Grand Lake St. Marys
Cinnamon Lake	Other ambient, Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Mohican	Muddy Fork (Cinnamon Lake - impounded)
Clermont County	Other ambient, Treated	Full Support	Full Support, Watch List	No	No	No	Little Miami	Harsha Lake - Impounded E. Fork LMR

TBC=treatment beyond conventional; SP=selective pumping from stream source; GW=blends surface water with ground water source

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Cleveland – Baldwin Plant	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Central Basin
Cleveland – Crown Plant	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Central Basin
Cleveland – Morgan Plant	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Central Basin
Cleveland – Nottingham Plant	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Central Basin
Clyde	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Sandusky	Beaver Creek @RM 2.88
Columbus - Dublin Rd. Plant	Treated	Full Support, Watch List	Not assessed, Insufficient Data	Yes	No	No	Upper Scioto	Scioto River at O'Shaughnessy dam (RM 148.8) to Dublin Road WTP dam, Olentangy River @RM 0.2
Columbus-Hap Cremean Plant	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Upper Scioto	Big Walnut Creek @ RM 32.64
Conneaut	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Central Basin
Crooksville	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Muskingum	Dry Run @RM 2.23 (Resv 1 and 2), Black Fork @RM 4.69 (Resv. 3,4,5)
Dayton - Miami Plant	None	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	No	Yes	Mad River	Mad River @RMs 5.2 and 5.6

TBC=treatment beyond conventional; SP=selective pumping from stream source; GW=blends surface water with ground water source

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Dayton - Ottawa Plant	None	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	No	Yes	Great Miami River	Great Miami River @RM 90.3 and 86.6
Defiance	Other ambient, Treated	Impaired	Full Support, Watch List	Yes	Yes	No	Lower Maumee	Maumee River @ RM 65.84
Delaware	Other ambient, Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data, Watch List	Yes	No	Yes	Upper Scioto	Olentangy River @RMs 31.23 and 31.02
DelCo-Alum Creek	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	Yes	Yes	No	Upper Scioto	Alum Creek Reservoir and Alum Creek @RM 26.74
DelCo-Olentangy	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	Yes	Upper Scioto	Olentangy River @ RM 18.19
Delphos	None	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	Yes	Auglaize	Little Auglaize @RM 23.40
Delta	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Lower Maumee	Bad Creek @ RM 17
Echoing Hills	Treated	Full Support	Full Support	No	No	No	Walhonding	Reservoir 1 and 2
Elyria	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Central Basin
Erie Industrial Park	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Western Basin

TBC=treatment beyond conventional; SP=selective pumping from stream source; GW=blends surface water with ground water source

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Fairport Harbor	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Central Basin
Findlay	OEPA survey, Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Blanchard River	Blanchard River @RM 58.72, 62.43, 65.20
Fostoria	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Portage	E. Branch Portage River @ RM 13.84 and 16.15
Fremont	OTMP, Treated	Impaired	Full Support, Watch List	Yes	No	No	Sandusky	Sandusky River @ RM 18.02
Galion	OEPA survey, Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Upper Scioto	Rocky Fork (Olentangy River RM 84.84)@RM 0.6
Greenville	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	No	Yes	Upper Great Miami	Greenville Creek @RM 22.3 and Mud Creek @RM 0.88
Hillsboro	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Paint Creek	Clear Creek (Rocky Fork) @RM 7.4
Huron	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Central Basin
Jackson	Treated	Full Support	Full Support	No	No	No	Lower Scioto	2 tribs to Little Salt Creek (Hammertown and Jisco Lakes)
Kelleys Island	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Islands Shoreline

TBC=treatment beyond conventional; SP=selective pumping from stream source; GW=blends surface water with ground water source

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Lake County - East	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Central Basin
Lake County - West	Treated	Full Support	Full Support	No	No	No	Lake Erie	lake Erie Central Basin
Lake Erie Utility Co.	Treated	Full Support	Not assessed, Insufficient Data	No	No	No	Lake Erie	Lake Erie Islands Shoreline
Lake of the Woods	Other ambient, Treated	Full Support	Full Support	Yes	No	No	Upper Scioto	Hoover Reservoir, Duncan Run @RM 0.68
Lima	Other ambient, Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	No	Yes	No	Auglaize	Auglaize River @RM 64.58 (Agerter Rd), Ottawa River @RM 42.60 (Roush Rd) and 43.45 (upstream of lowhead dam at Metzger Rd)
Lorain	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Central Basin
Mansfield	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	No	No	Yes	Mohican	Clear Fork River @RM 30.6 (Clear Fork Reservoir)
Marblehead	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Western Basin
Marion – Ohio American Water	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	No	Yes	Upper Scioto	Scioto River @RM 180.04 and Little Scioto River @RM 7.1
Marysville	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	No	Yes	Upper Scioto	Mill Creek @RM 19.45

TBC=treatment beyond conventional; SP=selective pumping from stream source; GW=blends surface water with ground water source

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Maysville	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Muskingum	Frazier's Run, Kent Run @RM 1.3
McClure	Other ambient, Treated	Impaired	Full Support, Watch List	Yes	No	No	Lower Maumee	Maumee River @ RM 35.91
McComb	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Portage	Rader Creek @RM 13.57
Mentor - Aqua Ohio	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Central Basin
Metamora	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	Yes	Yes	No	Ottawa-Stony	Unnamed tributary (Ten Mile Creek RM 16.92) @RM 1.25
Monroeville	Other ambient, Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data, Watch List	Yes	Yes	No	Huron-Vermilion	W. Branch Huron River @RM 8.52
Mt. Orab	Other ambient, Treated	Not assessed, Insufficient Data	Impaired	Yes	Yes	No	Ohio Brush-Whiteoak	Sterling Run @RM 6.47
MVSD	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Mahoning	Meander Creek @RM 2.96 (Meander Cr Reservoir), Berlin Lake, Mahoning River @ RM 69.18
MWCD-Atwood Park	Treated	Full Support	Full Support	No	No	No	Tuscararus	Indian Fork @RM 3.0 and 3.7 (Atwood Lake)
MWCD-Atwood Resort	Treated	Full Support	Full Support	No	No	No	Tuscararus	Indian Fork @RM 3.0 and 3.7 (Atwood Lake)

TBC=treatment beyond conventional; SP=selective pumping from stream source; GW=blends surface water with ground water source

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Napoleon	Other ambient, Treated	Impaired	Full Support, Watch List	Yes	Yes	No	Lower Maumee	Maumee River @ RM 47.13
New Concord	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Wills Creek	North Crooked Creek
New Lexington	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Hocking	Yeager Creek (Rush Creek RM 28.46) @RM 1.0; New Lexington Reservoir
New London – Plant 1	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Huron-Vermilion	Vermilion River @RM 52.24
New London – Plant 2	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Huron-Vermilion	Vermilion River @RM 52.24
New Washington	Other ambient, Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	No	Yes	Yes	Sandusky	Unnamed tributary (Brokenknife Creek RM 5.50) @RM 2.15
Newark	OEPA survey, Treated	Full Support	Full Support	Yes	No	No	Licking	North Fork Licking River @ RM 3.?
Newton Falls	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Mahoning	Mahoning River @RM 56.47
North Baltimore	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	No	Yes	No	Portage	Rocky Ford Creek @RM 10.66 and 11.10
Norwalk	Other ambient, Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data, Watch List	Yes	Yes	No	Huron-Vermilion	Norwalk Creek @RM 0.11 and 4.02

TBC=treatment beyond conventional; SP=selective pumping from stream source; GW=blends surface water with ground water source

PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Oberlin	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Black/Rocky River	West Branch Black River @RM 14.42
ODNR-Blue Rock S.P.	Treated	Full Support	Not assessed, Insufficient Data	No	No	No	Muskingum	Manns Fork Salt Creek @RM 6.77 (Cutler Lake)
ODNR-Hocking Hills S.P.	Treated	Full Support	Not assessed, Insufficient Data	No	No	No	Lower Scioto	Rose Lake
ODNR-Pymatuning S.P.	Treated	Full Support	Not assessed, Insufficient Data	No	No	No	Shenango	Shenango River @RM 68.40 (Pymatuning Reservoir)
ODNR-Salt Fork S.P.	Treated	Full Support	Full Support	No	No	No	Wills Creek	E. Branch Salt Fork Lake
ODNR-West Branch S.P.	Treated	Full Support	Not assessed, Insufficient Data	No	No	No	Mahoning	West Branch @RM 13.25 (W. Branch/Michael J. Kirwan Res)
Oregon	Treated	Full Support	Full Support, Watch List	No	No	No	Lake Erie	Lake Erie Western Basin
Ottawa	Other ambient, Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	Yes	Yes	No	Blanchard River	Blanchard River @RM 28.50
Ottawa Co. Regional	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Western Basin
Painesville	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Central Basin

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PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Paulding	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Auglaize	Flat Rock Creek @RM 14.13
Piqua	Other ambient, Treated	Not assessed, Insufficient Data	Impaired	No	Yes	No	Upper Great Miami	Great Miami River @RM 118.5 (LRAU), Piqua Hydraulic System (Swift Run Lake), Ernst Gravel Pit
Put-in-Bay	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Islands Shoreline
Ravenna	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Cuyahoga	Lake Hodgson (Breakneck Creek)
Salem	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	Yes	Upper Ohio	Cold Run @RM 4.96, Salem Reservoir, Unnamed Tributary (Cold Run RM 4.97) @RM 1.42
Salineville	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Upper Ohio	Riley Run @RM 2.83
Sandusky	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Western Basin
Sebring	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Mahoning	Mahoning River @RM 91.50
Shelby	Other ambient, Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	Yes	Mohican	Black Fork River @RMs 50.82, 53.88 and 54 and Marsh Run Creek @RM 0.05
Sidney	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	Yes	Upper Great Miami	Great Miami River @RM 130.2 (LRAU) and Tawana Creek @RM 0.14

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PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Somerset	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Hocking	Center Branch Rush Creek @RM 5.45, Unnamed Tributary (Somerset Creek RM 1.84) @RM 0.89
St. Clairsville	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Upper Ohio-Wheeling	Little McMahan Creek @RM 6.6 (St. Clairsville Reservoir), Jug Run @RM 3.18 (Provident Reservoir)
Struthers - Aqua Ohio	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Mahoning	Yellow Creek @RM 8.40 (Lake Evans), Burgess Run @RM 2.0 (Burgess Lake)
Swanton	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	Yes	Yes	Yes	Lower Maumee	Swan Creek @ RM 30.84
Tiffin – Ohio American Water	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	Yes	No	Yes	Sandusky	Sandusky River @RM 41.08
Toledo	Treated	Full Support	Full Support	No	No	No	Lake Erie	Lake Erie Western Basin
Twin City W&S	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Tuscarawarus	Stillwater Creek @RM 7.05
Upper Sandusky	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Sandusky	Sandusky River @RMs 82.9 and 83.15
Van Wert	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	No	Yes	No	Auglaize	Town Creek @RM 18.35
Vermilion	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Lake Erie	Lake Erie Central Basin

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PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Warren	Treated	Full Support	Not assessed, Insufficient Data	Yes	No	No	Mahoning	Mosquito Creek @RM 12.49 (Reservoir)
Washington Court House	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	Yes	Paint Creek	Paint Creek @RM 71.4
Wauseon	Treated	Not assessed, Insufficient Data, Watch List	Not assessed, Insufficient Data	Yes	Yes	No	Lower Maumee	Unnamed tributary segments immediately adjacent to Wauseon Reservoir
Waynoka Regional	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data, Watch List	No	Yes	No	Ohio Brush-Whiteoak	Sycamore Run @RM 0.97 (Reservoir), and Straight Creek Lake (Waynoka)
Wellington	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Black/Rocky River	Charlemont Creek @RM 2.97
Wellston	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Raccoon-Symmes	Little Raccoon Creek @RM 30, Lake Rupert, Alma Lake
Wellsville - Buckeye W.D.	Treated	Full Support	Full Support	No	No	No	Upper Ohio	Little Yellow Creek @ RM 4.20
West Farmington	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	No	Yes	No	Grand	Grand River @RM 89.12
Westerville	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Upper Scioto	Alum Creek @RM 21.20 (@lowhead dam)
Willard	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Huron-Vermilion	W. Branch Huron River @ RM 33.8

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PWS	Available Data	Nitrate Indicator	Pesticide Indicator	TBC	SP	GW	Watershed	Waterbodies with PDWS Use
Wilmington	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Little Miami	Ceasars Creek Lake, Cowan Creek @RM 11.7
Woodsfield	Treated	Not assessed, Insufficient Data	Not assessed, Insufficient Data	Yes	Yes	No	Little Muskingum-Middle Island	Sunfish Creek @ RM 25.50, Unnamed trib (Sunfish Creek RM 24.55) @RM 0.15 and 0.80

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