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KENTUCKY DIVISION OF WATER
WELLHEAD PROTECTION PLAN
5-YEAR UPDATE FORM

Update Requirements:

This form should be used for the 5-year update submittal requirements of the Kentucky Wellhead Protection Program (WHPP) in compliance with 401 KAR 4:220 and SDWA Section 1428. Once the form is complete, please sign and send to:

Kentucky Division of Water
Watershed Management Branch
Attention: Dale Booth
300 Sower Boulevard, 3rd Floor
Frankfort, Kentucky 40601 or dale.booth@ky.gov

For assistance, contact Dale Booth at (502) 782-6895 or dale.booth@ky.gov

System Information:

PWS Name: **Carroll County Water District #1**

PWS ID Number: **KY0210066**

AI Number: **694**

Contact Person/Title: **Obe Cox/Manager**

Mailing Address: **205 Main Cross Street, Ghent, KY 41045**

Telephone: **502-347-9500**

Email: **ocox@carrollcountywater.com**

System Type*: **Community**

*Community; Non-Transient/Non-Community; Transient/Non-Community

Source*: **2 Wellfields: Wellfield #1: Field of 5 Wells (Ghent) & Wellfield #2: Field of 2 Wells (Gallatin)**

*Well(s) or Spring(s) and total number of each

AKGWA #(s): **Wellfield #1 (Well #1/00007131; Well #2/ 00007132; Well #3/00007133; Well #4/00007134 & Well #5/00051579) & Wellfield #2 (Well #7/00037319 & Well #8/00044599)**

County: **Carroll**

ADD: **NKADD**

WWD Permit #: **Permit #0107 for Wellfield #1 (Ghent WTP) & Permit #1421 for Wellfield #2 (Gallatin WTP)**

Permitted Amount (mgd): **Permit #0107 (0.750-1.0 MGD) & Permit #1421 (0.450-0.500 MGD)**

Population Served: **Residential: 5934; Wholesale: 393**

Overall Susceptibility Rating*: **Medium** *High, Medium or Low

WHPP Changes Summary: **Carroll County Water District #1 withdraws its source water from unconsolidated sand, gravel, silt, and clay deposits of the Ohio River Alluvium via two separate wellfields composed of 7 total wells constructed to approximately 120 feet deep. Over the last 5 years average monthly water withdrawals for the Ghent Wellfield were 0.744 MGD (2020-2024) under Permit #0107. The Ghent WHPA includes approximately 313 acres of mostly developed land use and cultivated crops. Over the last 5 years average monthly water withdrawals for the Gallatin Wellfield were 0.216 MGD (2020-2024) under Permit #1421. The Gallatin WHPA includes approximately 504 acres of mostly developed land use and cultivated crops. The contaminant source inventory indicates eleven potential types of contaminant sources within the Ghent WHPA including predominantly gas stations and other wells. The contaminant source inventory indicates five potential types of contaminant sources within the Gallatin WHPA including predominantly industrial sites. The overall susceptibility rating for both wellfields is medium. Carroll County Water District #1 management strategies include education and outreach via Consumer Confidence Reports (CCR) and the development of Groundwater Protection Plans (GPPs) and Agriculture Water Quality Plans for all activities that have the potential to pollute groundwater. Carroll County Water District #1 is currently sampling for per- and poly-fluoroalkyl substances (PFAS).**

Update Form Instructions:

Please complete each section that applies to any system or WHPP updates and submit the supporting documentation. Please indicate if a section is not applicable to this update. **Sections 4 and 6 through 11 are required for every 5-year update.**

Please sign certification on the last page upon completion.

Section Updates:

Section 1: Treatment Plant

If the treatment plant location has changed then provide a new location map below. This can be a county roadmap or a GIS-produced map. Please use the area below to provide relevant details, or to indicate that no change has occurred.

The 1.4 MGD Ghent Water Treatment Plant (WTP) is still located at 506 Main St, Ghent, KY 41045 & the 0.730 MGD Gallatin WTP is still located off U.S. Highway 42 approximately 4-miles east of Ghent across from Nucor Steel Gallatin along the Ohio River.

Section 2: Water Withdrawal and Water Quality

If there have been changes in water withdrawal rates or water quality since the last submittal, provide a discussion of the relevant details in the space below (include new Water Withdrawal Permit Number if applicable). Include supporting documentation as an attachment.

Daily average water withdrawals for the Ghent WTP over the last 5 years (2020-2024) are 0.744 MGD, with daily maximum withdrawals averaging 0.816 MGD. Daily average water withdrawals for the Gallatin WTP over the last 5 years (2020-2024) are 0.216 MGD, with daily maximum withdrawals averaging 0.315 MGD. The 2000 Phase I WHPP reported average withdrawals of 0.750 MGD. Carroll County Water District #1 was first issued a water withdrawal permit for the Ghent wellfield in 1966 which was expanded in 1998 and was last revised in 2007. The Gallatin wellfield was developed in the late 1990s and last issued a water withdrawal permit in 2003. So, water production for almost the last twenty years water withdrawals have increased with the addition of the Gallatin wellfield and plant. The population of Carroll County is projected to slightly decrease through 2050, however due to the large manufacturing customer base production is unlikely to decrease over the next few years.

Carroll County Water District #1 has two wellfields which are located within the limits of the Ghent and along the Ohio River in Carroll County, Kentucky. The groundwater wells are drilled into the Ohio River Alluvium of Quaternary Age. The alluvial aquifer near Carrollton, Kentucky, lies in a valley eroded by glacial meltwater that was later part filled with outwash sand and gravel deposits. The aquifer is unconfined, and ground water flows from the adjacent bedrock-valley wall toward the Ohio River and groundwater wells. The depth of the valley floor or bedrock surface from the present land surface ranges from 100 to 150 feet. The Pleistocene valley averages about 2.0 miles wide in the Carrollton area and broadens near the confluence of the Kentucky River and Ohio River. The alluvial aquifer at Carrollton consists of glacial-outwash deposits of Wisconsin Age underlain by shales and limestones of Ordovician Age. The glacial outwash is composed of medium to coarse-grained sand and silt. A layer of silt and clay covers the glacial outwash deposits throughout the area. The alluvial aquifer is recharged through infiltration from the Ohio River and smaller streams, flow from the bedrock-valley wall, and infiltration of precipitation and discharges from the alluvial aquifer by flow to the Ohio River and the groundwater wells. An investigation of the aquifer of the Carrollton aquifer was conducted from 1994 to 1997, and a final report was published in 1999.

Well #3/00007133 is sampled quarterly as part of the statewide Ambient Groundwater Monitoring Program which provides baseline groundwater data on aquifer characterization, ambient groundwater quality and nonpoint source pollution. Groundwater, including public

water supplies and private-sector wells and springs, are sampled quarterly, and analyzed for hundreds of parameters, including metals, nutrients, pesticides, and volatile organic compounds. Sampling began April 25, 1995. The Ohio River Alluvium physiographic region is showing significantly increasing trends for conductivity, barium, and potassium, significantly decreasing trend for orthophosphate, and detections of Atrazine (Report on the Condition of Ambient Groundwater in Kentucky 2018). Carroll County Water District #1 is currently sampling for per- and poly-fluoroalkyl substances (PFAS).

Section 3: Change or Modification to Groundwater Source

If the system has changed or modified the wells or springs being used, provide the following: 1) a description of changes/modifications; 2) copies of the relevant form(s) (Kentucky Water Well Record, Well Maintenance & Plugging Record, Well Inspection Form or Spring Inventory Record); and 3) any other information relating to well construction (i.e., installation logs, driller's logs, lithological or geophysical logs), below.

The delineated protection area for the Ghent wellfield has not been modified since the last update. The wellfield is composed of five active wells including Well #1/00007131; Well #2/00007132; Well #3/00007133; Well #4/00007134 which were constructed in 1965 to around 120 feet deep and Well #5/000051579. The Gallatin wellfield is composed of two active wells (Well #7/00037319 & Well#8/00044599) which were constructed in in 1995 and 1997, respectively, to 114 feet deep.

Section 4 (REQUIRED): Planning Team

Effective water supply protection requires community involvement and public awareness. Identify the planning team consisting of a leader and at least two team members, with their respective titles, below.

Leader:

Obe Cox, General Manager

Team Members:

Pat Stewart, KU/Ghent Fire Department

Phil Napier- Carroll County Water District #1 Operations Field Supervisor

Section 5: WHPA Delineation

If the system is revising a Wellhead Protection Area (WHPA) delineation, or if a new groundwater source has been added since the last submittal, provide a site-specific description of the local geology and aquifer. Include references for published literature. Provide a summary of any aquifer tests (i.e. pumping tests, slug tests, tracer tests), including data gathering and evaluation methods. Show calculations and supporting data for each WHPA delineated or revised. Include the detailed hydrogeologic report as an attachment.

Carroll County Water District #1 has two separate wellfields and two associated WHPAs which have not been revised for this update. The Ghent WHPA is composed of approximately 313 acres of mainly open to high intensity land use with smaller percentages of cultivated crops and pasture/hay. The Gallatin WHPA is composed of approximately 504 acres of mainly high intensity land use mixed with, cultivated crops, pasture/hay and deciduous forest. So, Carroll County Water District #1 has a total of approximately 817 total acres of wellhead protection area to manage. Please refer to the table below for the WHPA delineation:

Ghent WHPA:

Zone	Time of Travel (TOT)	Acres
1	180-day	30.79
2	5-year	223.39
3	Hydrologic boundary	312.72

Gallatin WHPA:

Zone	Time of Travel (TOT)	Acres
1	180-day	14.83
2	5-year	81.85
3	Hydrologic boundary	503.89

Section 6 (REQUIRED): WHPA Map

Provide a WHPA map that shows each groundwater source labeled with the appropriate AKGWA #, all protection zones identified and the Contaminant Source Inventory (CSI) point locations. If no changes have occurred since the last submittal, then a copy of the most recent WHPA/CSI map can be resubmitted. To view the most recent delineations for your system, please visit the [Source Water Protection Viewer](#). Please contact program staff for assistance.

See attached WHPA Maps. The wellfields are farther delineated into three (3) zones based on time of travel (TOT) and the hydrological boundary for potential contaminants, including:

Zone 1: 180-day time of travel

Zone 2: 5-year time of travel

Zone 3: Hydrologic boundary

Section 7 (REQUIRED): Contaminant Source Inventory

Provide an updated CSI in table format. This can be created using the spreadsheet template provided, and copied into the space below. If no changes occurred since the last update, the table can be pulled from previous WHPP documents. Each contaminant source listed should have a Contaminant Source ID # that corresponds to the WHPA map in Section 6. The CSI table must show the susceptibility determination ranking for each contaminant source. Include a brief narrative discussion of the overall system susceptibility. For more information on

potential sources of contamination, please visit the DOW's [Web Tools for SWP Planning website](#). Please contact program staff for assistance.

See attached CSI. Carroll County Water District #1 currently withdraws from a wellfield that has a delineated protection area of approximately 817 acres of mostly developed and agricultural land use. The contaminant source inventory indicates seventeen potential types across both wellfields including predominantly gas stations and industrial sites. The overall susceptibility rating for both wellfields is medium.

Section 8 (REQUIRED): Management Strategies

Provide a discussion of the previous and newly proposed management strategies to prevent source water contamination. This discussion must include the previous management strategies that were implemented as well as the goals that were met. Next, include any NEWLY proposed management strategies, associated goals, implementation plans and the party responsible for implementation. For information about wellhead protection strategies please visit the DOW's [Source Water Protection Strategies website](#).

Previous Management Strategy Update:

Carroll County Water District #1 pursues public education and outreach to manage the WHPA including using the Consumer Confidence Report (CCR) and the development of Groundwater Protection Plans (GPPs) and Kentucky Agriculture Water Quality Act Plans for all activities that have the potential to pollute groundwater. In addition, Water Supply Protection signs have been placed along the roadways along Zone 3 of the WHPA. Carroll County Water District #1 is involved in monitoring activities outlined in this plan and is involved in many community outreach and education events which are important management tools for protection of the wellfield. Additionally, Carroll County Water District #1, Well #3/00007133 has been sampled quarterly as part of the statewide Ambient Groundwater Monitoring Program since 1995.

Newly Proposed Management Strategies:

Carroll County Water District #1 will continue to pursue public education and outreach activities to manage the WHPA including using the CCR and the development of GPPs and Agriculture Water Quality Plans.

Section 9 (REQUIRED): Contingency and WHP Planning

Provide a description of Contingency and WHP Planning. Complete the Emergency Response Phone List, Procedures for Public Notification, identification of Potential Future Problems and the procedures to establish Alternative Water Supplies. This section must also address how often the WHPP will be reviewed and updated.

Emergency Response Phone List

Fill in all Blanks and Phone Numbers with appropriate information.

Local Emergency Response	Phone Number
Phil Napier or Marvin O'Neal	502-347-9500
Ghent Fire Station	502-732-0946
Carroll County Sheriff	502-732-7010
Carroll County Emergency Management	502-662-2865/ 502-662-1860
Emergency Dispatch	911

State and Federal Assistance	Phone Number
Kentucky DOW (Frankfort)	502-564-3410
Kentucky DOW Associated Field Office (FO) Florence Regional Office	859-525-4923
Kentucky Environmental Response Team 24 hour response line	502-564-2380 800-928-2380
Kentucky State Fire Marshall	502-573-0382

Any Other Pertinent Contacts	Any Other Pertinent Numbers
Carroll County Health Department	502-732-6641
Northern KY Area Development District	859-283-1885
Kentucky Rural Water Association	270-843-2291

Procedures for Public Notification:

In the event of a water system emergency that would threaten the health or life of the public, use the following procedure. Prepare and broadcast an advisory, including directions for the public. Describe the public notification process and provide contacts for those media outlets. If the system uses methods other than traditional media please list them.

In the event of a water system emergency that could threaten public health, the district would notify its customers via Facebook and an automated call list and could also include local television and/or radio.

Newspaper, Television, and Radio Stations	Phone Numbers
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Carrollton News-Democrat	502-732-4261
WIKI-FM Carrollton 95.3	812-273-3139

Potential Future Problems:

Describe the *most likely* scenarios that could threaten the water supply.

Due to the developed nature of land use within the WHPA, the impacts of commercial or industrial activities including spills or accidents on the roads, railroads, and agricultural practices are the most likely threat to the wellfield.

Alternative Water Supply (Short and Long Term):

Describe the short term and long-term water supply alternatives that address each of the potential future problems identified above. List all current interconnections with other water systems. Discuss the capacity of each potential alternative water supply to sustain normal operations.

Over the short-term, issuing boiled water advisories or providing bottled water to customers. Over the long-term different treatment technologies/processes could be employed, constructing new wells, and/or purchasing water from other systems. Carroll County Water District #1 currently has an interconnection with Carrollton Utilities and Gallatin County Water District.

Schedule for Update and Review:

The Wellhead Protection Plan will be reviewed regularly and updated every five years as required by regulation.

Section 10 (REQUIRED): Copies of Public Notices and Education Materials

Provide copies of wellhead protection public notices and education materials distributed.

A copy of this plan will be posted on the Carroll County Water District #1 webpage and a link to plan will be printed on customer bills for public notice. A copy will be provided in the attachments for documentation.

Section 11 (REQUIRED): Public Meeting Documentation ***

Provide the record of WHPP public meeting attendance, minutes and comments.

A copy of this plan will be posted on the Carroll County Water District #1 webpage and a link to plan will be printed on customer bills for public notice. A copy will be provided in the attachments for documentation.

Certification Signature (TO BE COMPLETED BY PLANNING REPRESENTATIVE):

"I certify that this document and all attachments were prepared under my direction or supervision. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete."

Signature: ObeD.Cox 10/24/2025 Date: [Click here to enter text.](#)

Printed Name/Title: Obe Cox/Manager

Assistance:

For any assistance, please contact Wellhead Protection Staff:

Dale Booth
(502) 782-6895
Dale.Booth@ky.gov

Allan Shingleton
(502) 782-6907
Allan.Shingleton@ky.gov

Please sign and return completed form to:

Kentucky Division of Water
Watershed Management Branch
Attention: Chip Zimmer
300 Sower Boulevard, 3rd Floor
Frankfort, Kentucky 40601
or Dale.Booth@ky.gov

Section 6: WHPA Map

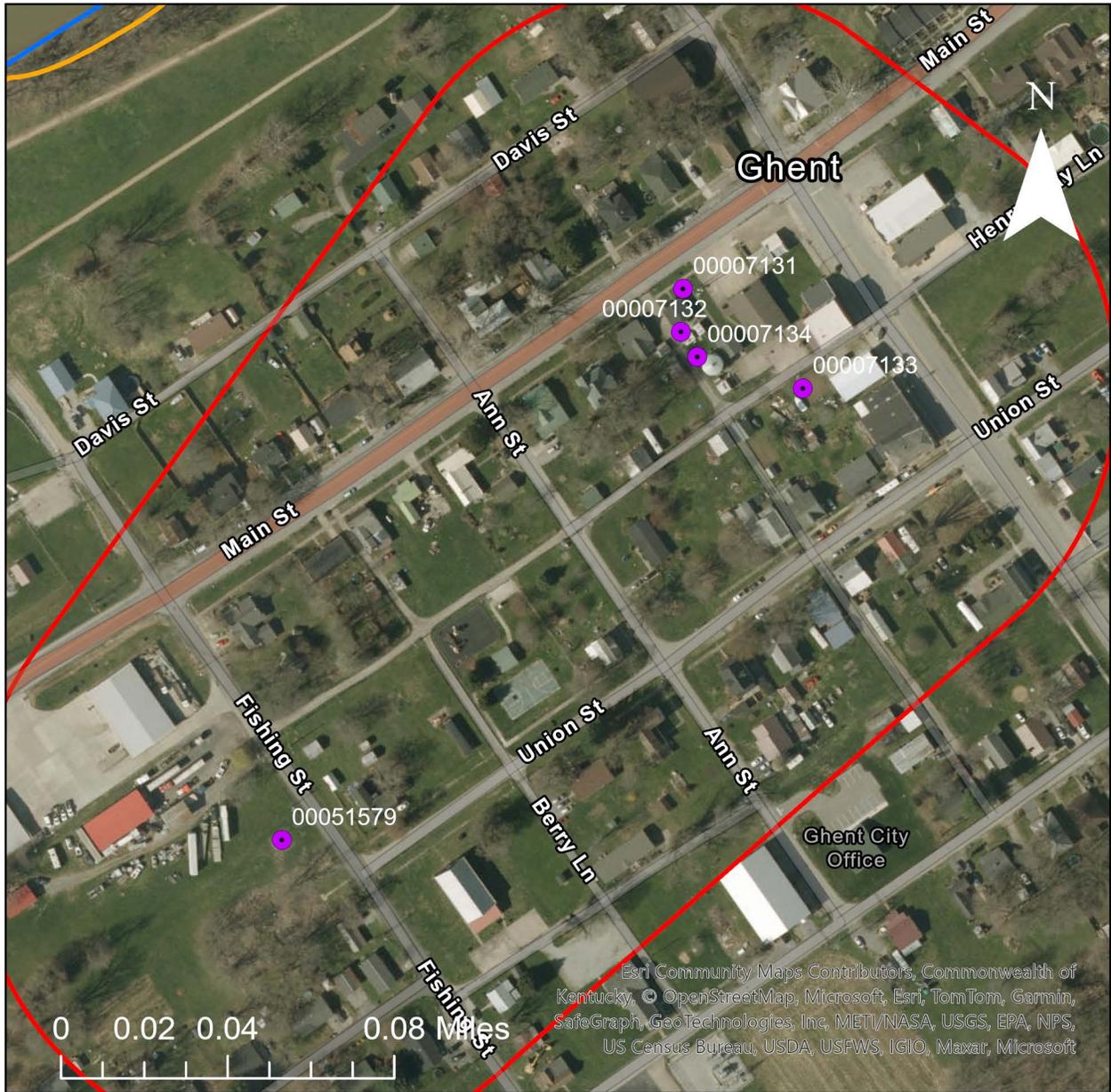


WHPA Map

● Water Wells (PWS)

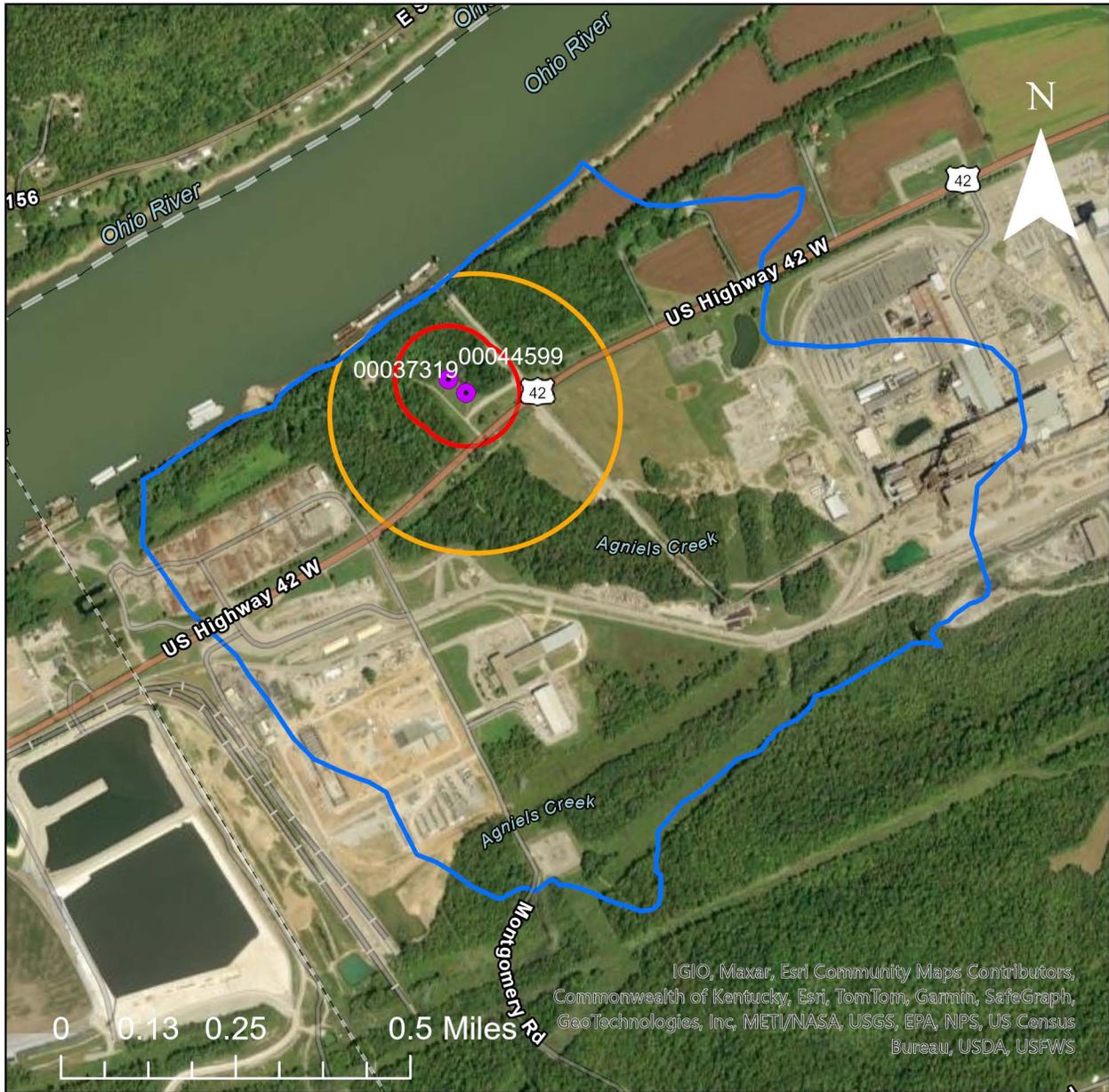
WHPA

- Zone 1: 180 Day time of travel
- Zone 2: 10 year time of travel
- Zone 3: Hydrologic Boundary



WHPA Map

- Water Wells (PWS)
- WHPA**
- ▭ Zone 1: 180 Day time of travel
 - ▭ Zone 2: 10 year time of travel
 - ▭ Zone 3: Hydrologic Boundary



WHPA Map

- Water Wells (PWS)

WHPA

- Zone 1: 180 Day time of travel
- Zone 2: 10 year time of travel
- Zone 3: Hydrologic Boundary

Section 7: Contaminant Source Inventory

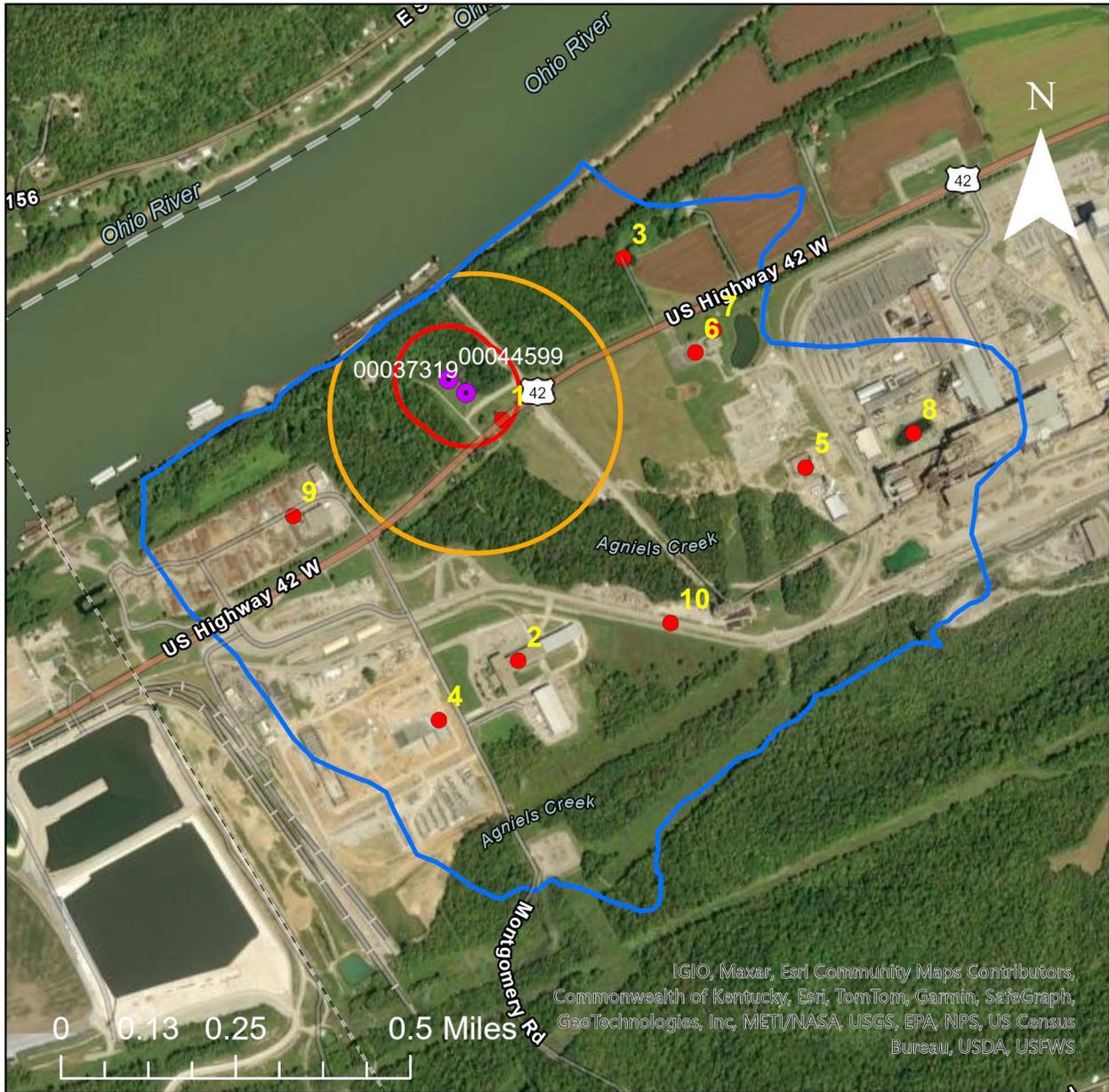


Contaminant Source Inventory

- Potential Contaminants
- Water Wells (PWS)

WHPA

- Zone 1: 180 Day time of travel
- Zone 2: 10 year time of travel
- Zone 3: Hydrologic Boundary



Contaminant Source Inventory

- Potential Contaminants
- Water Wells (PWS)

WHPA

- Zone 1: 180 Day time of travel
- Zone 2: 10 year time of travel
- Zone 3: Hydrologic Boundary

Contaminant Source Inventory and Susceptibility Analysis for Carroll Co. Water District #1: Ghent Wellfield (KY0210066)

CSI Map ID #	Contaminant Source Type	CS CODE	Name	Address	Lat	Lon	Quantity	Zone	Proximity Value	Contaminant Value	Hydrologic Sensitivity	Numeric Rating	Susceptibility Ranking	Contaminant Notes
1	Machine/ Metalworking shops	I-8	Ghent Machine & Tool	400 Liberty Street, Ghent, KY 41045	38.735189	-85.060492	1	2	2	2	2	12	MED	
2	Power Plants	I-19	Substation	400 Liberty Street, Ghent, KY 41045	38.735291	-85.060119	1	2	2	2	2	12	MED	
3	Cemeteries*	C-8	Ghent Consolidated Cemetery	411 Main Cross St, Ghent, KY 41045	38.73424	-85.057155	1	2	2	2	2	12	MED	
4	Aboveground Storage Tank	R-1	Home heating oil tank	511 Main Cross Street, Ghent, KY 41045	38.735511	-85.057324	1	2	2	3	2	15	MED	
5	Gas stations (existing & abandoned/ historic)	C-16	Marathon Gas Station	109 Main St, Ghent, KY 41045	38.7357082	-85.065416	1	2	2	3	2	15	MED	
6	Gas stations (existing & abandoned/ historic)	C-16	500 gal. AST	109 Main St, Ghent, KY 41045	38.7357082	-85.065416	1	2	2	3	2	15	MED	
7	Gas stations (existing & abandoned/ historic)	C-16	Valero Gas Station	201 Main Street, Ghent, KY 41045	38.7360325	-85.06467	1	2	2	1	2	9	LOW	USTs; temp closed
8	Wastewater Treatment Plant*	M-15	Sewer treatment plant	City of Ghent, 508 Main Street, Ghent, KY 41045	38.737002	-85.063304	1	2	2	3	2	15	MED	
9	Major Roadways	M-7	Highway 42		38.737747	-85.060966	1	1	3	3	2	17	HIGH	

10	Major Roadways	M-7	Highway 47		38.737442	-85.058917	1	1	3	3	2	17	HIGH	
11	Railroad Lines	C-32	CSX Railroad		38.732716	-85.055952	1	3	1	3	2	13	MED	
12	Domestic Wells	G-7	Domestic Well	702 Liberty Street, Ghent, KY 41045	38.736934	-85.056189	1	2	2	1	2	9	LOW	
13	Domestic Wells	G-7	Domestic Well	606 Union Street, Ghent, KY 41045	38.737374	-85.058561	1	1	3	1	2	11	MED	
14	Crops : Corn, Soybean, Wheat	A-5	Cultivated Crops		38.738622	-85.052841	1	2	2	2	2	12	MED	
15	Other Wells	G-10	Monitoring Well	AKGWA # 80019436	38.735896	-85.062173	1	1	3	3	2	17	HIGH	
16	Other Wells	G-10	Monitoring Well	AKGWA # 80030999	38.733857	-85.06167	1	2	2	3	2	15	MED	
17	Other Wells	G-10	Monitoring Well	AKGWA # 80031000	38.734645	-85.05994	1	2	2	3	2	15	MED	

CSI Totals	Low	2
	Med	12
	High	3

Overall Susceptibility Ranking	MED
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Contaminant Source Inventory and Susceptibility Analysis for Carroll Co. Water District #1: Gallatin Wellfield (KY0210066)

CSI Map ID #	Contaminant Source Type	CS CODE	Name	Address	Lat	Lon	Quantity	Zone	Proximity Value	Contaminant Value	Hydrologic Sensitivity	Numeric Rating	Susceptibility Ranking	Contaminant Notes
1	Major Roadways	M-7	Highway 42		38.759784	-85.008284	1	2	2	3	2	15	MED	
2	Other Industrial Sources	I-16	Feralloy		38.754775	-85.007914	1	3	1	3	2	13	MED	Steel Distributor
3	Row Crops : Corn, Soybean, Wheat	A-5	Crops		38.763118	-85.005048	1	3	1	3	2	13	MED	
4	Other Industrial Sources	I-16	NTP-Gallatin	160 Montgomery Rd, Ghent, KY 41045	38.7535576	-85.010032	1	3	1	3	2	13	MED	Steel Distributor
5	Other Industrial Sources	I-16	Air Liquid Metal Corp.		38.758742	-85.000262	1	3	1	3	2	13	MED	
6	Other Wells	G-10	Monitoring well		38.761148	-85.003154	1	3	1	3	2	13	MED	
7	Other Wells	G-10	Monitoring well		38.761608	-85.002668	1	3	1	3	2	13	MED	
8	Other Industrial Sources	I-16	Nucor Steel Gallatin		38.759433	-84.997395	1	3	1	3	2	13	MED	
9	Other Industrial Sources	I-16	Nucor Terminal		38.757819	-85.013845	1	3	1	3	2	13	MED	
10	Railroad Lines	C-32	CSX railroad		38.755535	-85.003875	1	3	1	3	2	13	MED	

CSI Totals	Low	0
	Med	10
	High	0

Overall Susceptibility Ranking	MED
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Section 10 & 11: Public Notice Documentation