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ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

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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: **Carrollton Utilities**

PWS ID Number: **KY0210067**

AI Number: **696**

Contact Person/Title: **Franklin Thieman/Chief Water Treatment Plant Operator**

Mailing Address: **302 6th Street, Carrollton, KY 41008**

Telephone: **502-732-7055** Email: **fthieman@cuky.us**

System Type*: **Community**

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

Source*: **Field of 4 wells***Well(s) or Spring(s) and total number of each

AKGWA #(s): **00046117/Well A, 0002-0670/Well B, 0000-4033/Well C, 0006-7996/Well D**

County: **Carroll** ADD: **NKADD**

WWD Permit #: **0129** Permitted Amount (mgd): **0.850-1.0**

Population Served: **Residential: 6851; Wholesale: 1580**

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

WHPP Changes Summary: **Carrollton Utilities withdraws its source water from unconsolidated sand, gravel, silt, and clay deposits of the Ohio River Alluvium via four (4) wells drilled at 103.5, 107.5, 110, and 118 feet deep. Over the last 5 years average monthly water withdrawals were 0.763 MGD (2020-2024) under Permit #0361. The WHPA delineation includes approximately 977 acres of mostly developed land use and cultivated crops. The contaminant source inventory indicates seventeen potential types of contaminant sources including predominantly auto repair/auto body shops and cultivated crops. The overall susceptibility rating is medium. Carrollton Utilities 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. Carrollton Utilities 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 1.5 MGD Carrollton Utilities Water Treatment Plant is still located at 302 6th St, Carrollton, KY 41008

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 over the last 5 years (2020-2024) are 0.763 MGD, with daily maximum withdrawals averaging 0.878. The 2001 Phase I WHPP reported average withdrawals of 0.800 MGD. Carrollton Utilities was first issued a water withdrawal permit in 1966, which was revised in 1982 for 0.800 MGD. The last revision was in 2014 for a range of 0.850 to 1.0 MGD. So, over more than twenty years water withdrawals have remained

relatively consistent due to the stability of population of Carroll County and projections estimate a slight decrease in population through 2050.

Carrollton Utilities wellfield is located within the limits of the City of Carrollton 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.

Carrollton Utilities has a cooperative agreement with U.S. Geological Survey (USGS) to monitor groundwater levels of the alluvial aquifer and report elevations during the first week every November from 0000-4033/Well C. In 2015, Carrollton Utilities installed green sand filters and adjusted their treatment process due to the presence of iron and manganese from the groundwater wells and has been involved in treating and monitoring for Trichloroethylene (TCE) via monitoring wells within the City of Carrollton.

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). Carrollton Utilities 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 active delineated wellfield for Carrollton Utilities has not been modified since the last update. The wellfield is composed of four wells including Well B/ 00020670 which was constructed in 1964 to 103.5 feet deep, Well C/00004033 which was constructed in 1987 to 110 feet deep, Well A/00046117 which was constructed in 2002 to 107.5 feet deep and Well

D/00067996 which was constructed in 2015 to 118 feet. Well B/ 00020670 is currently inactive and the other three groundwater wells produce on a rotational basis.

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:

Franklin Thieman/Chief Water Treatment Plant Operator

Team Members:

Terry Roach/General Manager

Derrick Willis/ Operations Manager

Travis Arney/Water Treatment Plant Operator

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.

The current WHPA for Carrollton Utilities has not revised for this update and encompasses approximately 977 acres of mostly developed and agricultural land use. Please refer to the table below for the WHPA delineation:

Zone	Time of Travel (TOT)	Acres
1	180-day	30.62
2	10-year	254.52
3	Hydrologic boundary	976.85

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 Map. The wellfield is further 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: 10-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. Carrollton Utilities currently withdraws from a wellfield that has a delineated protection area of approximately 977 acres of mostly developed and agricultural land use. The contaminant source inventory indicates seventeen potential types of contaminant sources including predominantly auto repair/auto body shops and cultivated crops. The overall susceptibility rating 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:

Carrollton Utilities 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. Carrollton Utilities 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, Carrollton Utilities was the recipient of a Source Water Protection Assistance Program (SWPAP) grant in 2014 which was used to fund the H2O below documentary (<https://www.youtube.com/watch?v=hhzWK5PqRBQ>).

Newly Proposed Management Strategies:

Carrollton Utilities 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
Plant Operator	502-732-7065
Carrollton Fire Department	502-732-7060
Carrollton Police Department	502- 732-6621
Local Emergency Dispatch	911
Non-Emergency Dispatch	502-732-6621

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
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 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. Carrollton Utilities currently has interconnections with Carroll County Water District #1 and Trimble County Water District #1.

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 Kentucky Rural Water Associations 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 Kentucky Rural Water Associations and a link to plan will be printed on customer bills for public notice. A copy will be provided in the attachments for documentation.

***Non-Community Water Systems are not required to have public meetings for 5-year updates, but must post a public notice in a conspicuous place. A public notice template is provided as a separate document. However, public input and associated documentation are encouraged. Please contact program staff if you have any questions.

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: Franklin W. Thieman II Date: 5-14-2025 Click here to enter text.

Printed Name/Title: Franklin Thieman/Chief Water Treatment Plant Operator

Assistance:

For any assistance, please contact Wellhead Protection Staff:

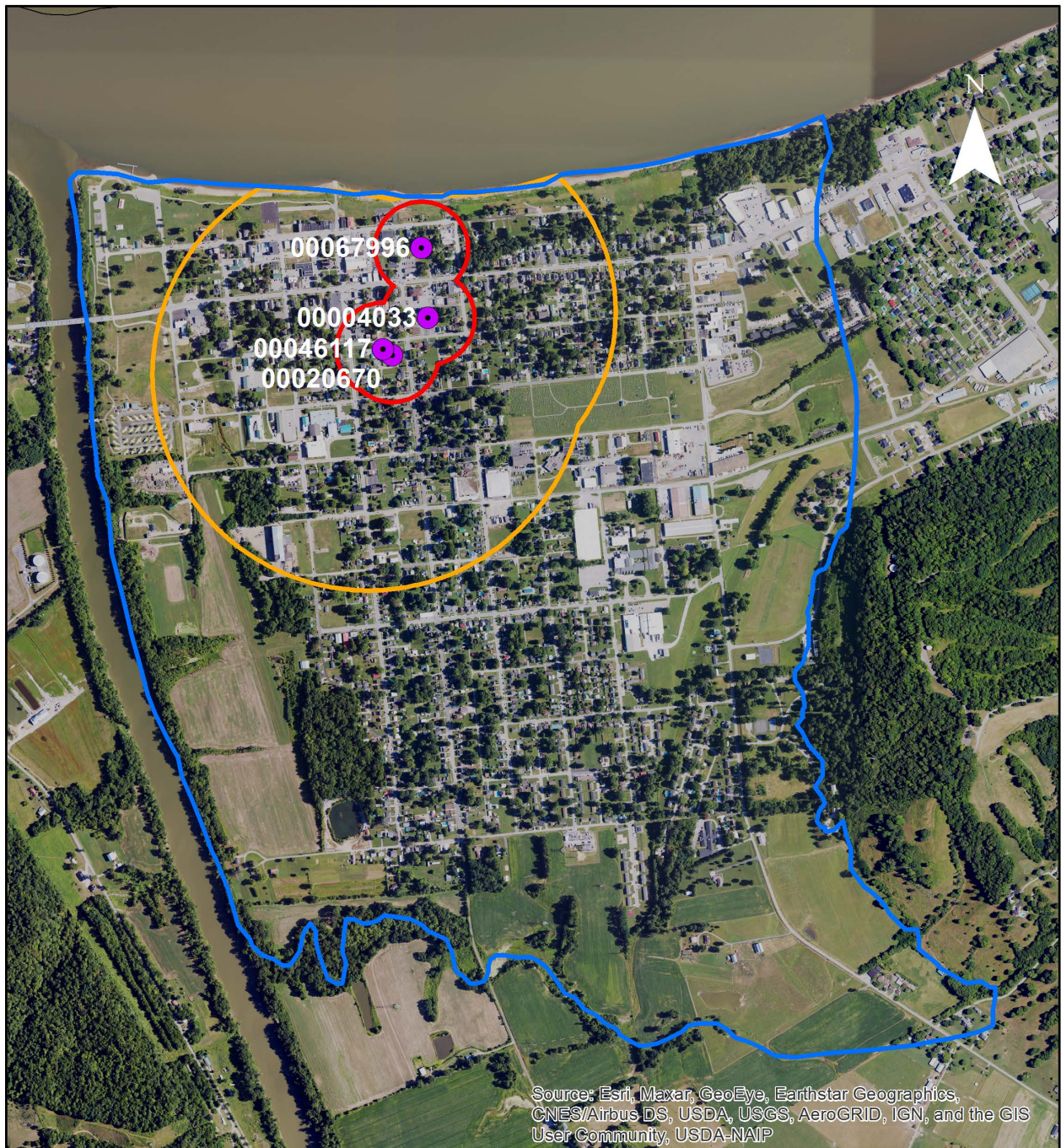
Dale Booth
(502) 782-6895
Dale.Booth@ky.gov

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



● Water Wells (PWS)

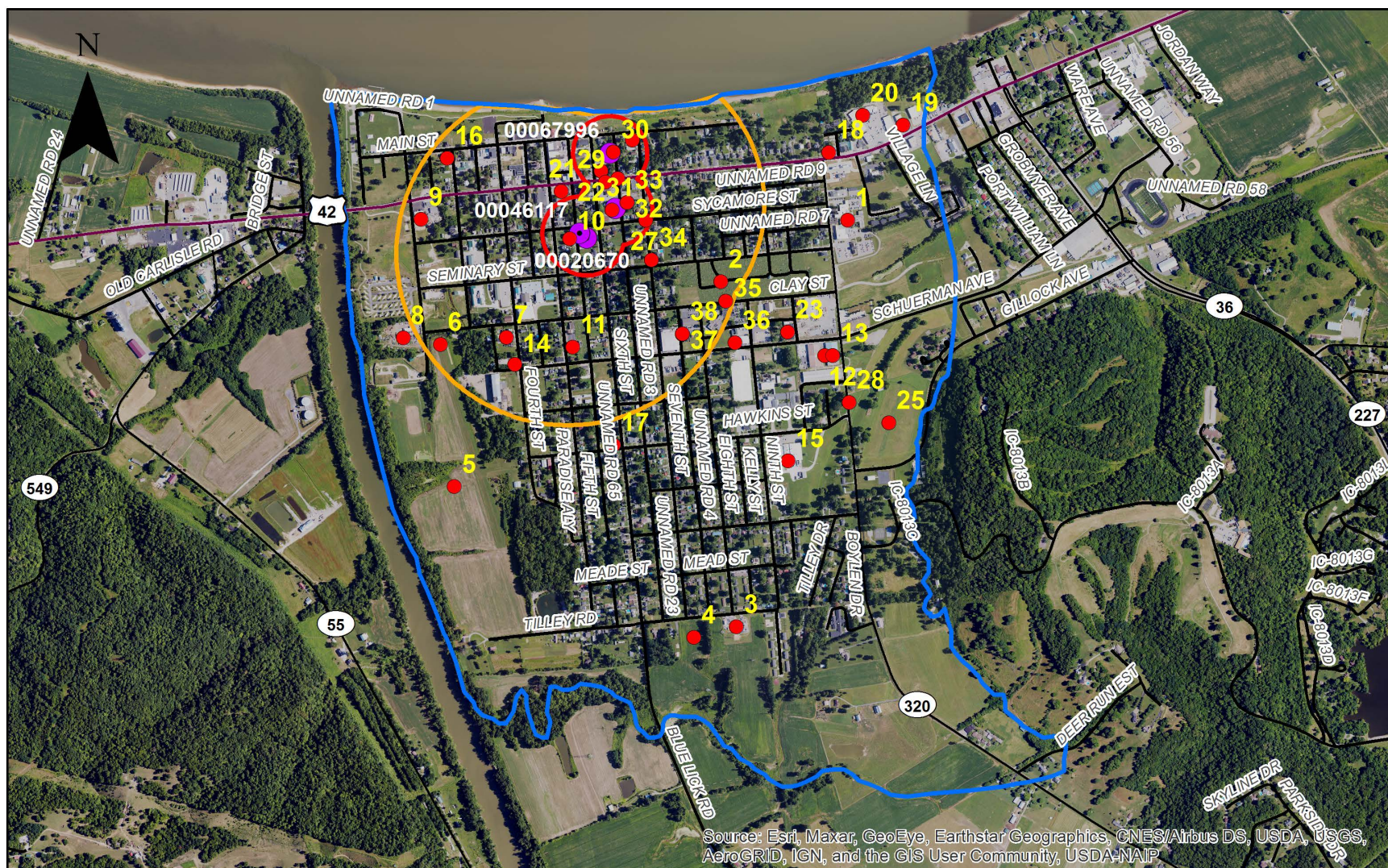
DOW Wellhead Protection Zones

WHPA

- Zone 1: 180 day time of travel for potential contaminants
- Zone 2: 10 year time of travel
- Zone 3: Hydrologic boundary

0 0.125 0.25 0.5 Miles

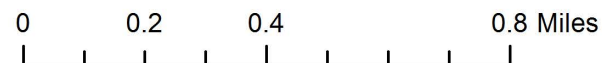
Section 7: Contaminant Source Inventory



- Potential Contaminants
- Water Wells (PWS)

WHPA

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



Contaminant Source Inventory and Susceptibility Analysis for

Carrollton Utilities/KY0210067

Instructions (section may be deleted on submission):

Use the following table to list and rank potential contaminants identified during the contaminant source inventory.

Include Lat/Lon or addresses when possible. Enter the WHPA in which the contaminant occurs.

Multiple, similar sources that are clustered can be listed once with the Quantity identified.

The Proximity Ranking is based on the WHPA in which the contaminant is located (WHPA 1=3; WHPA 2=2; WHPA 3=1).

Contaminant Value is on a 1-3 scale, based upon its potential threat; consult the Contaminant Source Types_Values guide.

Hydrologic Sensitivity: The physical, chemical, geological, hydrological, and biological characteristics of the area over which, or through which, the contaminants move to the aquifer have various capabilities to detain or attenuate contaminant releases. Consult the Hydrologic Sensitivity tab.

The spreadsheet will use the values entered to calculate the Numeric Rating for each contaminant source.

○ $\text{Numeric Rating} = (\text{Proximity Value} \times 2) + (\text{Contaminant Value} \times 3) + (\text{Hydrologic Sensitivity Value})$

This will determine the Susceptibility Ranking: Numeric Rating less than 10 = Low; 10-15 = Medium; greater than 15 = High.

Please contact SWP/WHPP staff if you have any questions.

Contact:

Dale Booth; Dale.booth@ky.gov; 502-782-6895

Ryan Parks; Ryan.parks@ky.gov; 502-7824039

CSI Map ID #	Site 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		Hospitals*	C-21	Carroll Co. Memorial Hospital	309 11th St. Carrollton, KY 41008	38.6800	-85.1686	1	3	1	2	2	10	MED	
2		Cemeteries*	C-8	Odd Fellows Cemetery	912 Seminary Street, Carrollton, KY 41008	38.6782	-85.1734	1	2	2	2	2	12	MED	
3		Power Plants	I-19	KU Substation	Mason Street, Carrollton, KY 41008	38.6680	-85.1729	1	3	1	2	2	10	MED	
4		Pasture (Livestock)*	A-14	Pasture/ Hay	610 Mason Street, Carrollton, KY 41008	38.6677	-85.1745	1	3	1	2	2	10	MED	
5		Airport/ Heliport/ Abandoned Airfield	C-1	Unpaved Airstrip/ Machinery	800 4th street, Carrollton, KY 41008	38.6722	-85.1835	1	3	1	2	1	9	LOW	Crawdaddy Landing, private airstrip, not in use
6		Wood Preserving/ Treating	I-20	Lancay Quality Woods	600 4th Street, Carrollton, KY 41008	38.6764	-85.1840	1	2	2	2	2	12	MED	
7		Auto Repair Shops/ Body Shops	C-2	Gene & Sons Garage	504 4th Street, Carrollton, KY 41008	38.6766	-85.1815	1	2	2	3	2	15	MED	
8		Auto Repair Shops/ Body Shops	C-2	Baker's Auto Salvage	100 Clay Street, Carrollton, KY 41008	38.6766	-85.1854	1	3	1	3	2	13	MED	

9		Pesticide/ Fertilizer/ Petroleum Storage & Transfer Areas	A-15	Former T & T Collision Center, now fertilizer retailer	203 2nd Street, Carrollton, KY 41008	38.6801	-85.1847	1	2	2	3	2	15	MED	
10		Dry Cleaners	C-10	Carrollton Cleaners 250 gal. AST	508 Sycamore Street, Carrollton, KY 41008	38.6795	-85.1791	1	1	3	3	2	17	HIGH	
11		Cemeteries*	C-8	St. John's Cemetery	507 5th Street, Carrollton, KY 41008	38.6763	-85.1790	1	2	2	2	2	12	MED	
12		Auto Repair Shops/ Body Shops	C-2	Leathermans Garage	1022 Polk Street, Carrollton, KY 41008	38.6760	-85.1695	1	3	1	3	2	13	MED	
13		Auto Repair Shops/ Body Shops	C-2	Sheltons Blessed Assurance Autos	Corner of 11th and, 1022 Polk St, Carrollton, KY 41008	38.6760	-85.1692	1	3	1	3	2	13	MED	
14		Auto Repair Shops/ Body Shops	C-2	Triple J's Towing and Recovery	516 4th St, Carrollton, KY 41008	38.6758	-85.1812			1	3	2	13	MED	
15		Other Commercial Sources	C-27	Abzaac US	904 Hawkins Street, Carrollton, KY 41008	38.6729	-85.1709	1	3	1	2	2	10	MED	Abzaac US changed names
16		Laundromats	C-23	Suds and Duds Coin Laundry	208 Main Street, Carrollton, KY 41008	38.6819	-85.1837	1	3	1	2	2	10	MED	Highland not main st
17		Laundromats	C-23	Bill&Shirley's Laundromat	716 6th St, Carrollton, KY 41008	38.6734	-85.1775	1	3	1	2	2	10	MED	
18		Gas stations (existing & abandoned/ historic)	C-16	Swiftly Gas Station	1103 Highland Avenue, Carrollton, KY 41008	38.6820	-85.1693	1	3	1	3	2	13	MED	

19		Auto Repair Shops/ Body Shops	C-2	KY Motor Service	1303 Highland Avenue, Carrollton, KY 41008	38.6828	-85.1665	1	3	1	3	2	13	MED	
20		Barber and Beauty Shops	C-3	Cutting Edge Hair Salon	1209 Highland Avenue, Carrollton, KY 41008	38.6831	-85.1680	1	3	1	1	2	7	LOW	
21		Gas stations (existing & abandoned/ historic)	C-16	Speedway Gas Station	504 Highland Avenue, Carrollton, KY 41008	38.6809	-85.1794	1	2	2	3	2	15	MED	
22		Barber and Beauty Shops	C-3	Tammy's Hair Salon	603 Highland Avenue, Carrollton, KY 41008	38.6815	-85.1779	1	1	3	1	2	11	MED	
23		Metal finishing/Plating	I-9	Carrollton Sheet Metal	915 Polk Street, Carrollton, KY 41008	38.6767	-85.1709	1	2	2	2	2	12	MED	
24		Power Plants	I-19	KU Electrical Storage	7th Street, Carrollton, KY 41008	38.6824	-85.1767	1	1	3	2	2	14	MED	
25		Crops : Corn, Soybean, Wheat	A-5	Cultivated Crops	807 11th Street, Carrollton, KY 41008	38.6740	-85.1671	1	3	1	3	2	13	MED	
26		Municipal Sewer Lines	M-8	lifts stations & sewer lines?	All Zones	38.68127	-85.17726	1	1	3	2	2	14	MED	
27		Major Roadways	M-7	hwy 42/highland	All Zones	38.68004	-85.17622	1	1	3	3	2	17	HIGH	
28		Major Roadways	M-7	hwy 320	Zone 3	38.6746	-85.16859	1	3	1	3	2	13	MED	
29		Other Wells	G-10	80019437		38.68117	-85.17773	1	1	3	3	2	17	HIGH	
30		Other Wells	G-10	80076101		38.68205	-85.17743	1	1	3	3	2	17	HIGH	
31		Other Wells	G-10	80076102		38.68034	-85.17749	1	1	3	3	2	17	HIGH	
32		Other Wells	G-10	80076103		38.68056	-85.17692	1	1	3	3	2	17	HIGH	
33		Other Wells	G-10	80076104		38.68056	-85.17692	1	1	3	3	2	17	HIGH	
34		Other Wells	G-10	80076105		38.67885	-85.17602	1	2	2	3	2	15	MED	
35		Other Wells	G-10	80076106		38.67763	-85.17322	1	2	2	3	2	15	MED	
36		Other Wells	G-10	80076107		38.6764	-85.17289	1	3	1	3	2	13	MED	

37		Other Wells	G-10	80076108		38.67666	-85.17487	1	2	2	3	2	15	MED	
38		Other Wells	G-10	80076109		38.67666	-85.17487	1	2	2	3	2	15	MED	

CSI Totals	Low	2
	Med	29
	High	7

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