



Andy Beshear
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

300 Sower Boulevard
Frankfort, Kentucky 406 01
Phone: (502) 564 -2150
Fax: 502 -564 -4245

Rebecca Goodman
SECRETARY

Anthony R. Hatton
COMMISSIONER

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: **Bluegrass Water UOC – Center Ridge Water District #2**

PWS ID Number: **KY0180509**

AI Number: **33825**

Contact Person/Title: **Joe Johnson – EHS Compliance Coordinator**

Mailing Address: **655 Maryville Centre Dr. Ste. 200, St. Louis, MO 63141**

Telephone: **314-380-9498** Email: **JJohnson@CSWRGroup.com**

System Type*: **Community PWS**

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

Source*: **Wells (2)** *Well(s) or Spring(s) and total number of each

AKGWA #(s): **0004-9095, 0006-4399**

County: **Calloway** ADD: **Purchase**

WWD Permit #: **1797** Permitted Amount (mgd): **0.03 MGD**

Population Served: **310**

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

WHPP Changes Summary: **See Sections 2, 4, and 8-11.**

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.

No Change. See Attachment 1 for Facility Map.

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.

A Water Withdrawal Permit was acquired in 2025. Please see attached Permit. Attachment #2

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.

Well #2 (0006-4399)

was previously used as an emergency backup source and is now approved to be used as a second source for the system. See Attachment #3 for Historical Well Inspections.

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:

Joe Johnson – EHS Compliance Coordinator

Team Members:

Jo Anna Brown – CSWR Vice President

Chris Carroll – Operations Area Manager

See Attachment #4 for Planning Team Tree of Management

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.

No Change. See Attachment #5 for WHPA Delineation Table.

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.

No Change. See Attachment #6 for WHPA map

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.

No Change. See Attachment #7 for CSI List & Map.

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:

Please see Attachment #8 for Management Strategies

Newly Proposed Management Strategies:

Please see Attachment #8 for Management Strategies

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: Nikki Chambers	(270) 305-2860
Murray – Calloway Fire and Rescue	(270) 753-4112

Calloway Co. Sheriff's Office	(270) 753-2151
Calloway Health Dept.	(270) 753-3381
Local Emergency Dispatch KY Environmental Response Team	(502) 564-2380

State and Federal Assistance	Phone Number
Kentucky DOW (Frankfort)	(502) 564-3410
Kentucky DOW Associated Field Office (FO) Paducah	(270) 898-8468
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
Bluegrass Water UOC Customer Service	(866) 752-8982
Click here to enter text.	PHONE NUMBER
Click here to enter text.	PHONE NUMBER

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 would threaten the health or life of the public, use the following procedure. Provide JoAnna Brown, Joe Johnson, and Chris Carroll a summary of the issue including time of onset, if the KyDOW was notified, and if the County Health Department was notified. CSWR Customer Communications Department will draft public notifications and directions for customers which will be provided to customers on the Bluegrass Water UOC website, facebook, by email, and/or by direct handout via the operator. CSWR will coordinate with Joe Johnson to communicate with appropriate regulatory authority as needed. If additional notification is needed use the local newspaper as directed.

Potential Future Problems:

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

The most common scenario that could threaten the water supply is bacteriological and/or chemical contamination from a leaking septic system.

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.

Bacteriological contamination is mitigated by disinfecting the water system. If there were indicators of bacteriological contamination in the drinking water the facility would be placed on a boil water advisory until the problem is eliminated. If chemical contamination (such as nitrate/nitrite) is discovered in the water the facility would be placed on a do not drink advisory until the source of contamination was discovered and eliminated. If a long-term solution is needed, the facility would add centralized/localized treatment to eliminate the issue. As needed, water could be hauled in for use during these events.

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.

See Attachment #9 for Education Materials and Public Notices.

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

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

See Attachment #10 for Public Meeting 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: Joe Johnson Date: 09/03/26

Printed Name/Title: Joe Johnson - EHS Compliance Coordinator

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:

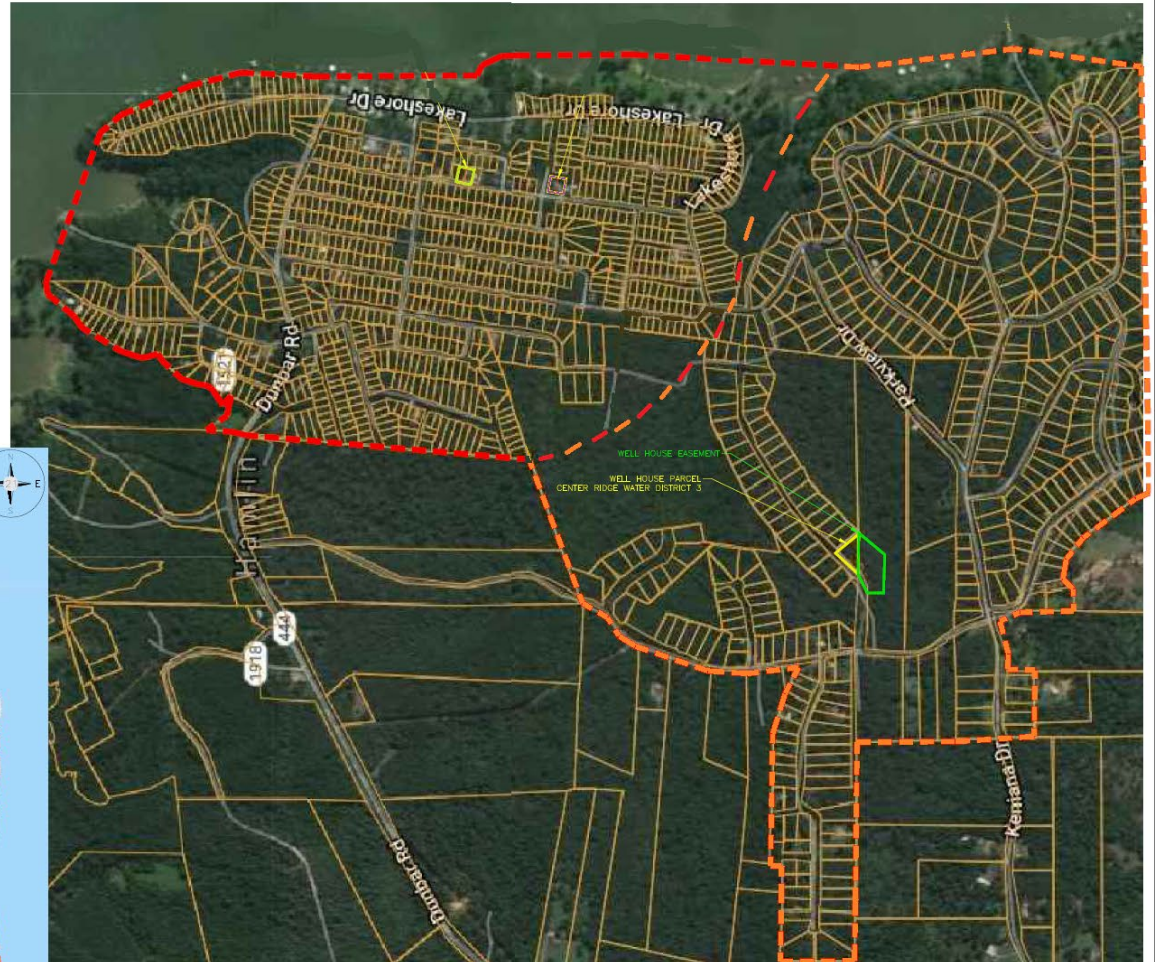
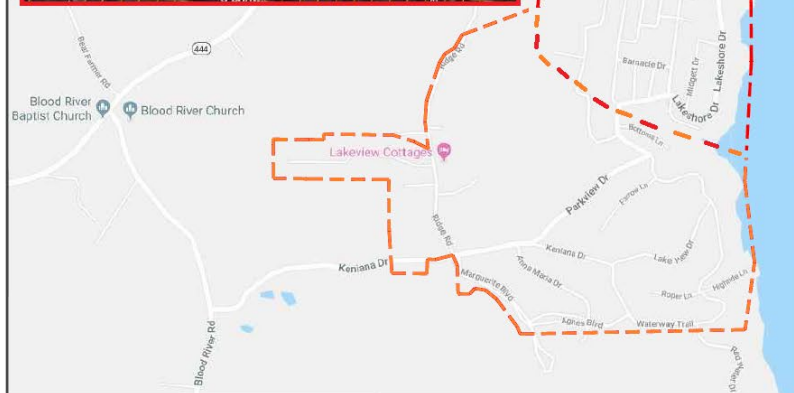
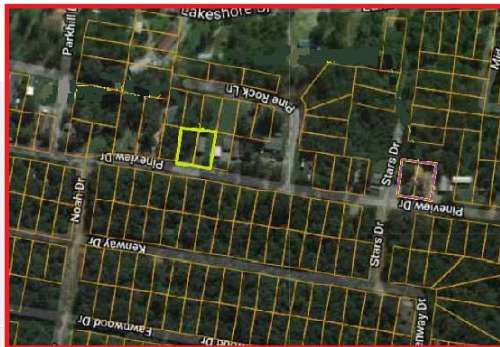
Kentucky Division of Water
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Frankfort, Kentucky 40601
or Dale.Booth@ky.gov

Attachment 1 Service Area of Center Ridge Water District #2



Legend

- CRWD #2 Service area
- Well #1
- Well #2
- CRWD #3 Service area
- Well #1 & #2
- Easement



Utility Note Disclaimer:

The utilities shown hereon are depicted based on the original design plans provided by the system manager. 21 Design Group, Inc. performed no field verification of the layout and are unable to determine the exact location at this time. The location represents approximate location only and should not be construed as being 100% accurate. It is shown to provide general layout of the system only and should not be used to interpret encroachments.

DATE	02/04/20
BY	ET
CHECKED	ET
DATE	02/04/20
BY	ET
CHECKED	ET
DATE	02/04/20





Andy Beshear
GOVERNOR

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Rebecca W. Goodman
SECRETARY

Anthony R. Hatton
COMMISSIONER

October 20, 2025

Joe Johnson
Center Ridge Water District 2
1630 Des Peres Rd Ste 140
Des Peres, MO 63131

RE: Standard Water Withdrawal Permit
AI #: 33825
Activity ID: APE20240001
Pair of Wells Well 1 (AKGWA #: 0004-9095), and Well 2
(AKGWA #: 0006-4399)
Calloway County, Kentucky
Water Withdrawal Permit No.: #1797

Joe Johnson:

Thank you for your application for a new water withdrawal permit #1797. This letter accompanies permit #1797 which authorizes withdrawals from a pair of wells, Well 1 (AKGWA: 0004-9095) and Well 2 (0006-4399) in Calloway County with geographic coordinates: Well 1 (36.5925, -88.06875) and Well 2 (36.594170, -88.068312).

In accordance with this permit, water withdrawals are limited to the following rates from the specified location:

Jan. <=0.03 million gallons per day (MGD)	April <=0.03 million gallons per day (MGD)	July <=0.03 million gallons per day (MGD)	Oct. <=0.03 million gallons per day (MGD)
Feb. <=0.03 million gallons per day (MGD)	May <=0.03 million gallons per day (MGD)	Aug. <=0.03 million gallons per day (MGD)	Nov. <=0.03 million gallons per day (MGD)
March <=0.03 million gallons per day (MGD)	June <=0.03 million gallons per day (MGD)	Sept. <=0.03 million gallons per day (MGD)	Dec. <=0.03 million gallons per day (MGD)

Please refer to the enclosed permit which outlines all requirements, conditions and parameters associated with this withdrawal.

Issuance of this permit does not release the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet, or other state, federal, or local agencies. This permit represents a limited right of use and does not vest ownership nor an absolute right to withdraw or use the water.

Please feel free to contact Ryan Parks at 502-782-4039 or Ryan.Parks@ky.gov or Rita Hockensmith at 502-782-6975 or Rita.Hockensmith@ky.gov for any assistance.

Sincerely,


Joanna Ashford, Manager
Watershed Management Branch

Permit to Withdraw Public Water
Center Ridge Water District 2
Facility Requirements
Permit Number: 1797
Activity ID No.:APE20240001

Page 1 of 4

Limitation Requirements:

Condition No.	Item ID	Parameter	Condition
L-1	GACT1 (1797 Well)	Withdrawal	Water Withdrawal <= 0.03 million gallons per day (MGD) Daily maximum (MX) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: All Year. Statistical basis: Daily maximum (MX).

Monitoring Requirements:

Condition No.	Item ID	Parameter	Condition
M-1	GACT1 (1797 Well)	Withdrawal	The permittee shall report Water Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3, KRS 151.160] This requirement is applicable during the following months: All Year. Statistical basis: Daily maximum (MX).

Record-Keeping Requirements:

Withdrawal:

Condition No.	Item ID	Condition
R-1	GACT1 (1797 Well)	The permittee shall perform Withdrawal recordkeeping by reporting Water Withdrawals daily on forms supplied by the Cabinet. [401 KAR 4:010 Section 3, KRS 151.160]

Permit to Withdraw Public Water
Center Ridge Water District 2
Facility Requirements
Permit Number: 1797
Activity ID No.:APE20240001

Page 2 of 4

Submittal/Action Requirements:

Condition No.	Item ID	Condition
S-1	GACT1 (1797 Well)	The permittee shall submit water withdrawal reporting forms : Due monthly, by the 15th of the month. [401 KAR 4:010 Section 3, KRS 151.160]

Permit to Withdraw Public Water
Center Ridge Water District 2
Facility Requirements
Permit Number: 1797
Activity ID No.:APE20240001

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Narrative Requirements:

Condition No.	Item ID	Condition
T-1	GACT1 (1797 Well)	The Energy and Environment Cabinet authorizes the permittee to withdraw Public Water of the Commonwealth [KRS 151.120]. This permit has been issued under provisions of KRS Chapter 151.125, 151.140, 151.150, 151.160 and 151.170 and regulations 401 KAR 4:010, 401 KAR 4:031, and 401 KAR 4:200. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet, or other state, federal, or local agencies. Withdrawals are limited to the requirements, conditions and parameters outlined in this permit. This permit represents a limited right of use and does not vest ownership nor an absolute right to withdraw or use the water. Permits for the withdrawal, transfer, or diversion of public water may be amended upon application to the cabinet by the permittee, or by the cabinet when reports indicate that the permittee is using a substantially different amount than permitted. In times of drought or emergency, the Cabinet may temporarily alter the conditions of the permit. Any violation of the permit and statutes or regulations is subject to penalties and other applicable provisions of law. [KRS 151.]
T-2	GACT1 (1797 Well)	Monitoring equipment shall be calibrated annually according to the manufacturer's recommendations and a record kept to include date of calibration, calculations for percent error, and adjustments made either to the equipment or to the use of the data obtained from the equipment. Records shall be maintained and updated annually and shall be made available upon request for review by the Cabinet. [401 KAR 4:010 Section 3]
T-3	GACT1 (1797 Well)	Permits for the withdrawal, transfer, or diversion of public water may be amended at any time upon application to the cabinet by the permittee, or by the cabinet when the reports indicate that the permittee is using a substantially different amount than permitted. [KRS 151.170]
T-4	GACT1 (1797 Well)	The location of this authorized withdrawal is from a pair of wells Well 1 (AKGWA #: 0004-9095) and Well 2 (AKGWA #: 0006-4399) in Calloway County, with coordinates as follows: Well 1 (36.5925, -88.06875) and Well 2 (36.594170, -88.068312). If there is any change in the location of the withdrawal site, you shall contact the Division and request a revision. [KRS 151.170]
T-5	GACT1 (1797 Well)	The permittee shall notify the Division whenever a Drought Management Phase is declared, beginning with the Advisory phase. [401 KAR 4:010 Section 3]
T-6	GACT1 (1797 Well)	As approved, the permittee shall monitor water withdrawals with Badger meter that is 4 years old. If the monitoring method or meter is changed, the Division shall be notified. [401 KAR 4:010 Section 3]

Permit to Withdraw Public Water
Center Ridge Water District 2
Facility Requirements
Permit Number: 1797
Activity ID No.:APE20240001

Narrative Requirements:

Condition No.	Item ID	Condition
T-7	GACT1 (1797 Well)	Withdrawals shall not adversely impact water quality, or aquatic habitat or community. [KRS 151.170, 401 KAR 10:031, Section 4(c), 401 KAR 4:010, Section 3(a)] If adverse impacts on previously permitted or other lawful users are determined by the Cabinet, withdrawals shall be modified or cease. [401 KAR 4:200 Section 3]

Permit to Withdraw Public Water

Center Ridge Water District 2

Subject Item Inventory

Permit Number: 1797

Activity ID No.: APE20240001

Subject Item Inventory:

ID	Designation	Description
AIOO33825		
STRC2	Well 1	/GWMN: Cool Water Works Inc /GWB: 0004-9095/

Subject Item Groups:

ID	Description	Components
GACT1	GROUND - /GWMN: Cool Water Works Inc /GWB: 0004-9095/	STRC2 /GWMN: Cool Water Works Inc /GWB: 0004-9095/

KEY

ACTV = Activity

AREA = Area

COMB = Combustion

FINA = Financial

PERS = Personnel

PSTA = PSTEAF Fund

STRC = Structure

AIOO = Agency Interest

CERT = Certificate

EQPT = Equipment

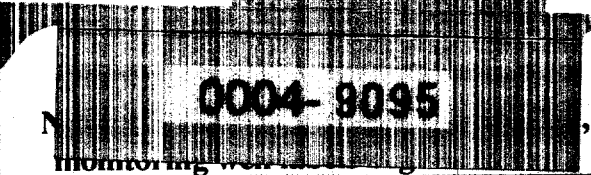
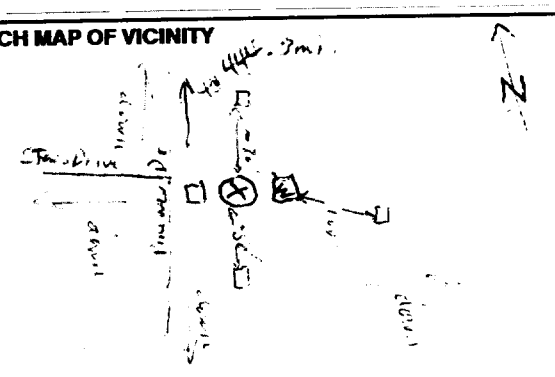
MNPT = Monitoring Point

PORT = Transport

STOR = Storage

TRMT = Treatment

KENTUCKY WELL INSPECTION FORM

(1) AKGWA NUMBER 0004-9095		Attach Well Record 	
(2) OWNER/FACILITY INFORMATION Well Owner's Name: <u>Marty Fultrell</u> <u>Cool Water Works</u> Last First MI Mailing Address: <u>405 South Fourth Street</u> City: <u>MURRAY</u> State: <u>KY</u> Zip: <u>42071</u> Well Address (if different) <u>400 PINEVIEW DRIVE</u> City: <u>HAMLIN</u> State: <u>KY</u> Zip: <u></u> Phone: <u>(502) 753-7668</u>		(3) WELL RECORD LABEL LOCATION: ☐ well casing ☐ pressure tank ☐ water pipe ☒ well cap ☐ electric box ☐ not labeled ☐ pump ☐ other	
(4) WELL LOCATION USGS Quadrangle Name <u>HAMLIN</u> Latitude <u>36° 35' 33"</u> Longitude <u>88° 04' 07.5"</u> County <u>Callaway</u>	(5) PHYSIOGRAPHIC OR HYDROLOGIC REGION ☐ Blue Grass ☐ Ohio River Alluvium ☐ E. Coal Field ☐ W. Coal Field ☐ Miss. Plateau ☒ Jackson Purchase <u>Miss. Embayment</u>		
(6) DRILLER INFORMATION Who Constructed Well? ☐ unknown Address: _____ City: _____ State: _____ Zip: _____ Date Well Completed: _____ Month Day Year ☐ unknown		(13) WELL USE (check all that apply) ☐ domestic ☐ livestock ☐ not used ☒ public ☐ irrigation ☐ abandoned ☐ industrial ☐ monitoring ☐ other PWSID# <u>0180509</u> Water Withdrawal Permit # _____	(18) ELEVATION <u>500</u> ft. AMSL From ☐ ground surface ☐ top of casing By ☒ map ☐ survey ☐ report ☐ GPS
(7) GENERAL Type of Construction: ☒ drilled/augered ☐ excavate & backfill ☐ hand dug/blasted Depth of Well: _____ ft. ☐ measured ☐ reported ☐ unknown Static Water Level, ft. below surface: ☐ measured ☐ reported ☐ not measured ☒ can't be measured Well Yield: ☐ gpm ☐ gph ☐ gpd ☐ measured ☐ estimated ☒ unknown	(9) WELLHEAD Is Well Located in a Pit? ☐ yes ☒ no ☐ unknown Wellhead (casing top): ☒ well cap ☐ sanitary seal ☐ flush mount ☐ locking cap ☐ open ☐ unknown Casing Above Ground Level? ☒ yes ☐ no ☐ unknown _____ inches above ground. Discharge Pipe Below Surface? ☐ yes ☐ no ☒ unknown Pitless Adapter Used? ☐ yes ☐ no ☒ unknown	(14) WELL SERVICE Number of People Served: <u>409</u> Number of Service Connections: <u>124</u> Any Quantity Problems? ☐ yes ☐ no Any Quality Problems? ☐ yes ☐ no If "yes", describe in COMMENTS section, below.	(19) TREATMENT SYSTEM ☐ none ☐ water softener ☐ ultraviolet ☒ chlorination ☐ aeration ☐ charcoal filter ☐ sand filter ☐ iron treatment ☐ fluoridation ☐ other Treatment Bypass Available? ☐ yes ☒ no
(8) SURFACE ANNULAR MATERIAL: ☐ clay ☐ drill cuttings ☐ cement ☒ unknown ☐ open ☐ sand ☐ gravel ☐ concrete pad	(10) PUMP DETAILS Date Installed: _____ Month Day Year ☐ unknown Pump Type: ☐ submersible ☐ bailer ☐ turbine ☐ jet ☐ hand pump ☐ none ☐ other ☒ unknown Intake Level: _____ ft. below surface Electric Connection: ☐ 2 wire ☒ 3 wire ☐ unknown	(15) COMPLIANCE TO STANDARDS Construction in Compliance with KY Standards? ☐ yes ☐ no ☒ unknown ☐ pre-law If "no", describe in COMMENTS section, below.	(20) OPTIONAL USE Will Owner Allow State Access? ☒ yes ☐ no ☐ unknown Extent of Monitoring Allowed: ☐ collect sample ☐ measure SWL ☐ pump well ☐ complete access ☒ notification required ☐ other (describe below) Monitoring Feasibility: _____
(11) WELL CONSTRUCTION DETAILS Feet Below Surface From To Casing Inside Dia. (in.) Casing Type Casing Wall Thickness (in.) <u>PVC</u>		(17) INSPECTION INFORMATION Date of Inspection: <u>12</u> <u>17</u> <u>97</u> Month Day Year Water Quality Sample Taken: ☐ yes ☒ no Reason for Inspection: ☐ general survey ☐ specific complaint investigation ☐ spill or incident response ☐ contamination site investigation ☐ enforcement ☐ general water quality analysis ☐ ambient groundwater monitoring ☒ other <u>wellhead protection program</u> Program Name and Facility ID#: _____ Alternate Well ID#: _____	
(12) SKETCH MAP OF VICINITY 		(21) COMMENTS: <u>W/ Jan Devers</u> <u>0.3 mi from Pineview Rd</u> <u>0.8 mi from Hwy 44</u>	
(22) INSPECTOR IDENTIFICATION Name: <u>ELLISON</u> <u>ERNE</u> <u>A</u> Last First MI Agency: ☒ DOW ☐ DWM ☐ CHR ☐ KGS ☐ other Signature of Inspector:  Date: <u>12/17/97</u>		Inspector ID# _____	

Distribution: White copy to DOW, pink copy to Inspecting Agency, yellow copy to Owner.

Printed with State Funds.

DEP 4051
Revised 3/1/1993

KENTUCKY WATER WELL INSPECTION FORM

(1) AROWA NUMBER:

0006-4399

(2) GENERAL INFORMATION:

Well Owner's Name: Center Ridge Water District #2

Mailing Address: 69 Marguerite Blvd

City: New Concord State: KY Zip: 42076

Phone: 270-293-6228

(3) WELL RECORD LABEL LOCATION:

() No Permit () well casing () other

(4) WELL LOCATION:

USGS Quadrangle Name: Hamlin

County: Calloway

Elevation: ft () map () altimeter () other

Latitude: 36.594170 Longitude: -88.068312

Physiographic or Hydrologic Region:

() Blue Grass () Ohio River Alluvium () E. Coal Field
() Miss. Bluffs () Jackson Purchase () W. Coal Field

(5) WELL CHARACTERISTICS:

Is this a hand dug well? () yes (X) no () unknown

Was constructed well? () yes (X) no () unknown

Address:

City: State: Zip:

Date well was completed: () unknown

Total depth: 168 ft () measured (X) reported () unknown

Does the casing extend above the ground? () yes () no () unknown

Casing Type(s)	Inside Diameter (in)	Feet From Surface	To	Casing Well Thickness
PVC	4"			

Is the well located in a pit? () yes (X) no () unknown

Is the water discharge pipe below ground surface? () yes (X) no () unknown

Is a pitless adapter used? () yes () no () unknown

Well yield: () gpm () gph () gpd () unknown

Surface annular material: () clay () sand () cement () unknown

() other: () gravel () open annulus () unknown

Well head (casing top): () well cap (X) sanitary seal () open

Pump type: () jet (X) submersible () hand pump () turbine

() none () bucket bucket () other

Level #1 pump intake: ft () unknown

Age of pump: yrs () unknown

Electric connection for pump: () 2 wire, 110V (X) 3 wire, 220V () unknown

Static water level: ft below surface () measured () reported

Unknown: () can be measured (X) not measured

Does the owner have any log or record concerning this well? () yes () no If yes, specify

(7) WELL USE:

() domestic (X) public () irrigation
() industrial () livestock () monitoring
() unused () other

PWSID #: KY0180509 (Plant B)

Water Withdrawal Permit #:

(8) WELL SERVICE:

Number of people served: 392

Number of service connections: 132

Any quantity problems? () yes (X) no

Any quality problems? () yes (X) no

Describe:

(9) COMPLIANCE TO STANDARDS:

Is this well in compliance with state water well construction standards? (X) yes () no () unknown

If no, describe deficiencies:

(10) TYPE OF TREATMENT SYSTEM:

() none
() water softener
() ultra violet
(X) chlorination
() aeration
() charcoal filter
() sand filter
() iron inhibitor
() other

Is a treatment bypass available? (X) yes () no

Describe water quality problem requiring treatment: Regulatory requirement

(11) INSPECTION INFORMATION:

Date of inspection: 4/11/13

Check one: () original inspection () re-inspection

Was a water quality sample taken as part of this inspection? () yes () no

Reason for inspection (check all that are applicable):

() general water quality analysis requested
() specific complaint investigation
() general survey
() ambient groundwater monitoring
(X) other Routine Inspection

Specify:

Permit-Program Name

Other ID #:

Other ID #:

Well inventory #:

(12) OPTIONAL USE:

Will well owner allow state monitoring? (X) yes () no () unknown

Extent of monitoring allowed: (X) collect sample (X) measure static water level

(X) pump well (X) remove well cap () other

Monitoring feasibility: Good

(13) COMMENTS:

This PWS well is for back up plant B and has not been used in recent years.

AI 33825

(14) INSPECTOR IDENTIFICATION:

Name: Topolski Rob R 886

Agency: () CWR (X) DOW () DWM () KGS () SOAP

() Other

Signature of Inspector: Rob Topolski

Date: 4/11/13

Number of Attached pages: 2 of 2

(16) SKETCH MAP:

Sketch map showing Lake, Lakeshore Drive, Pineview Drive, and Primary Well. Includes handwritten notes: 0006-4399, X, 0004-9095.

Attachment 4

WHPP Drinking Water Planning Team

Leader:

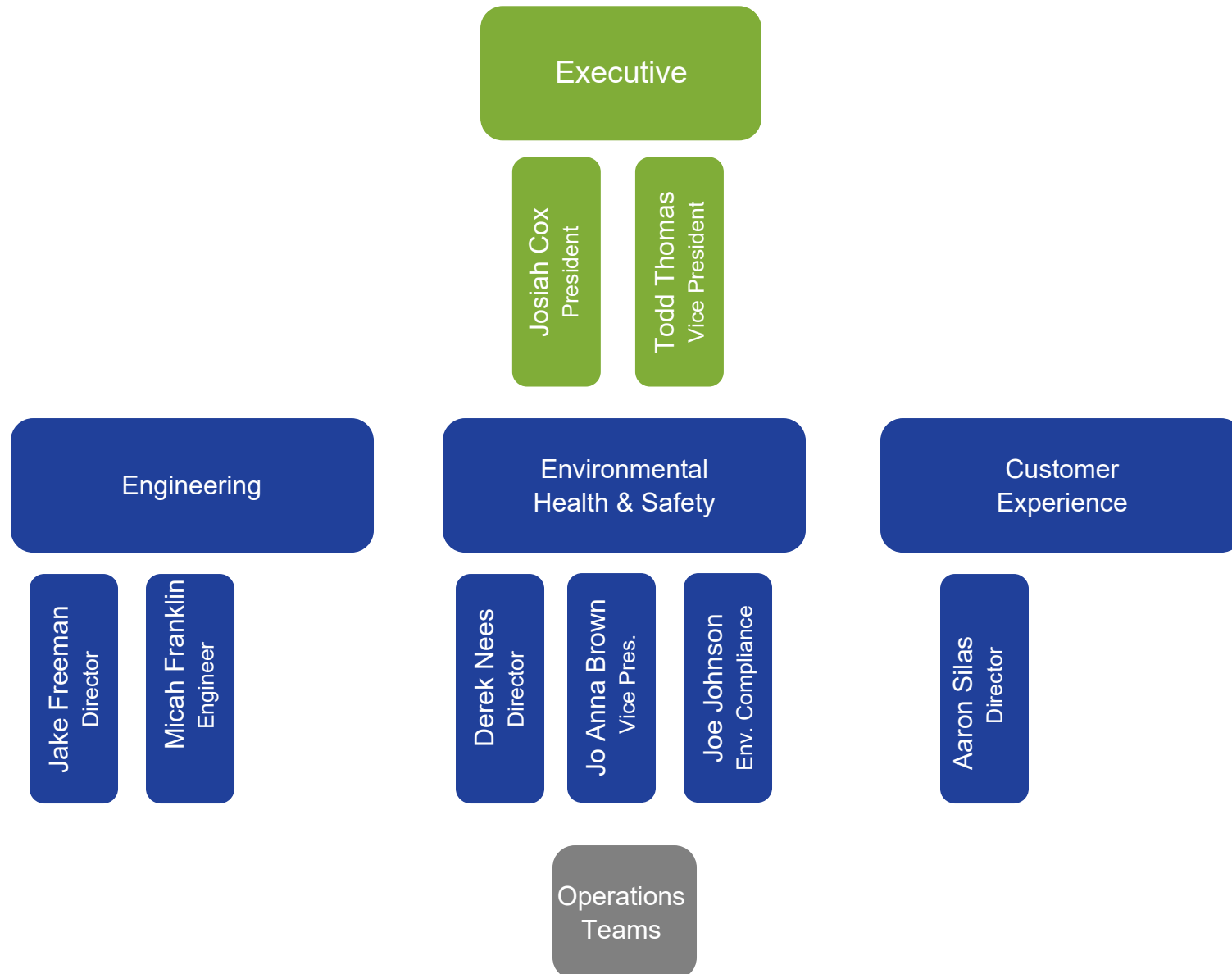
Joe Johnson, CSWR – EHS Compliance Coordinator
Oversees facility compliance with State and Federal Regulations/Statutes.

Team:

Jo Anna Brown, CSWR – Vice President
Oversees all facility operations for Bluegrass Water UOC. Directs team to carry out operation tasks.

Christopher Carroll, Bluegrass Water UOC – Operational Area Manager
Oversees communications between operators and customers.

Nikki Chambers, Bluegrass Water UOC – Operator (Primary)
Oversees facility operations.



Attachment 5

WHPA Delineation Information

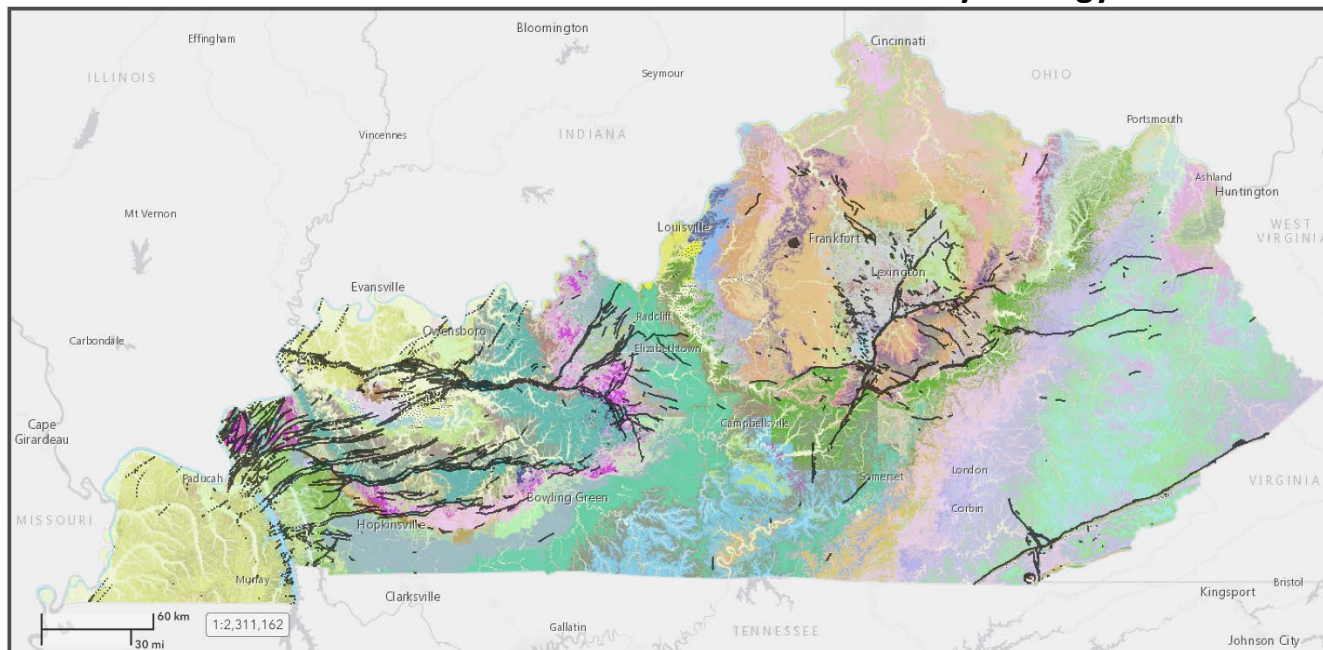
There was no pump testing or slug testing done to determine aquifer characteristics. Well construction records were absent. The information available was not sufficient to run a groundwater modeling program.

Center Ridge Water District #2 (previously named Cool Water Works) is situated directly over a northeast-southwest trending fault system.

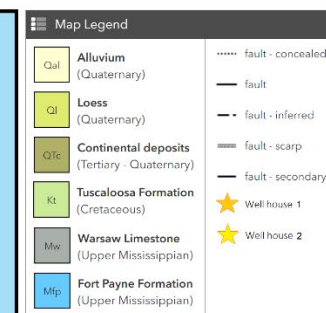
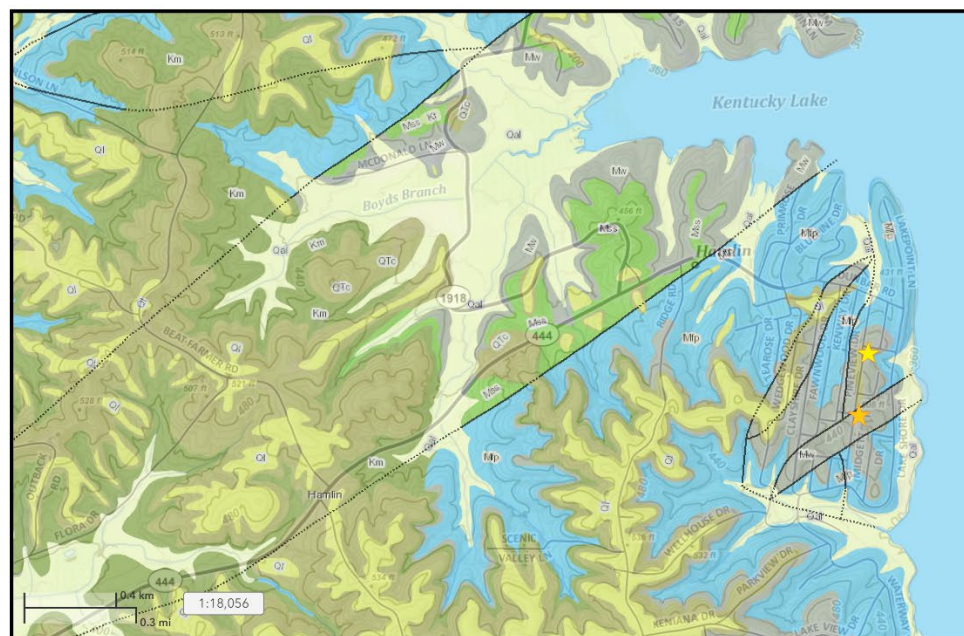
Due to the nature of the fault system, it was decided that an arbitrary fixed radius method could not be used. Therefore, a conservative delineation was employed which encompasses the entire fault system in the WHPA zone 1. WHPA zones 2 and 3 were determined to be the hydrologic boundary of the watershed where the Cool Water Works well is located, as seen on the delineation map (Attachment #6).

Unfortunately, this type of delineation of the WHPA is not the most accurate method to use in determining protection areas. However, due to the limited information available, the type of aquifer in use, and the cost of obtaining data, the conservative delineation is the best available method for determining the wellhead protection area.

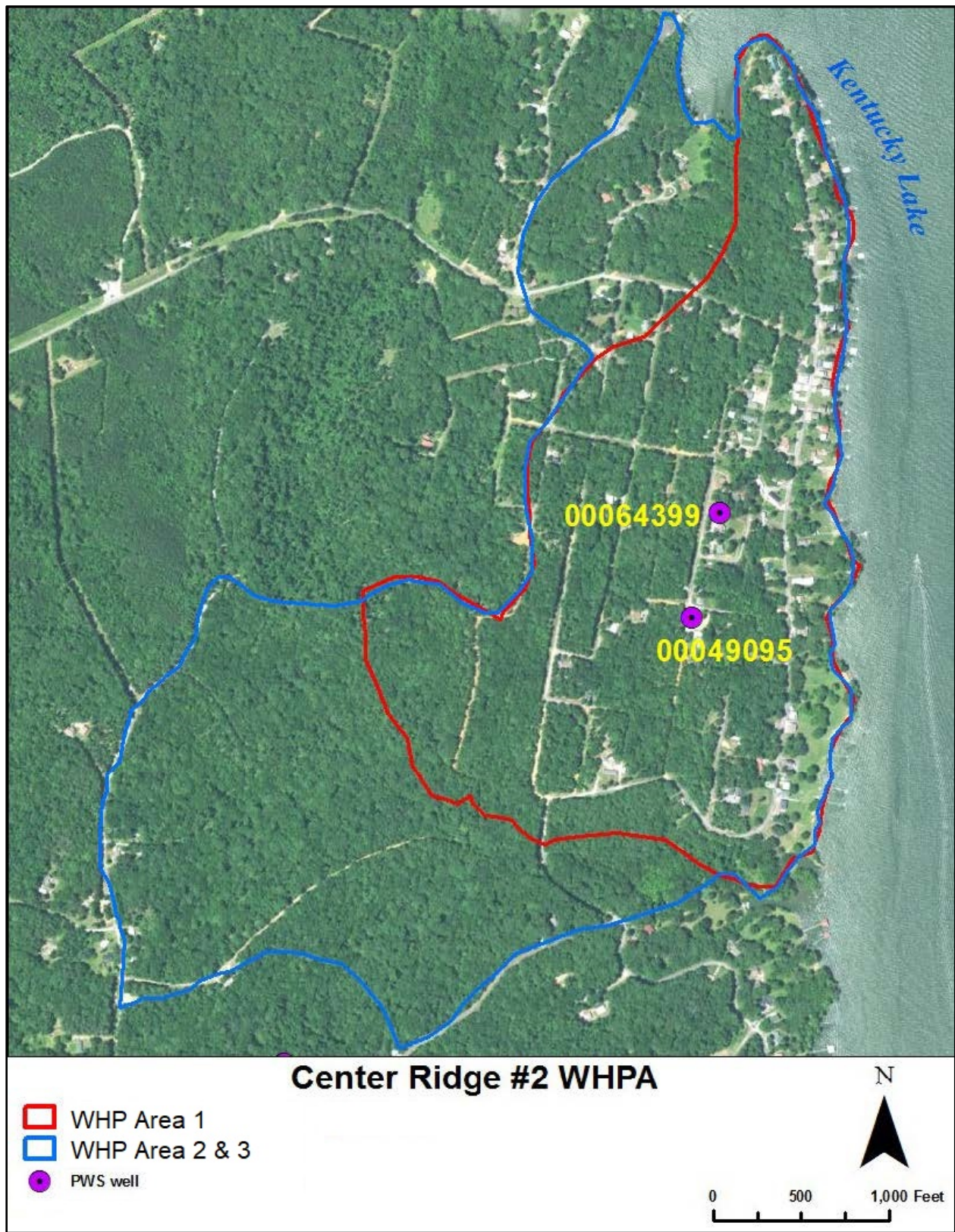
Kentucky Geology



Center Ridge Water District #2 Geology



Attachment 6
Delineation Map



Attachment 7

Contaminant Source Inventory Summary & Map

Center Ridge Water District #2 withdraws water from the fractured limestone of the Fort Payne Formation. The surrounding area is primarily rural in nature. The susceptibility analysis suggests the aquifer's susceptibility to contamination to be a medium risk. This is influenced by the nature of the aquifer, which has a medium sensitivity value, as well as the number of potential contaminates located in the protection area. The wellhead protection area delineation was completed by the Kentucky Division of Water and approved in 2000.

A total of 124 potential sources of contamination are located within the entire wellhead protection area. All of potential contaminant sources are classified as medium risk. These would include 97 septic tanks located within WHPA-1, and 27 septic tanks in WHPA-2. Therefore, since the majority of potential contaminant sources pose a high risk, the aquifer has been determined to have a high risk.



- Water Wells (PWS)
- Potential Contaminants

WHPA

- Zone 1: 180 day time of travel for a potential contaminant
- Zone 2 & 3: 10 year time of travel/Hydrologic boundary

Contaminant Source Inventory and Susceptibility Analysis for

Center Ridge Water District/KY0180509

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		Residential Septic	R-4	Septic Tanks WHPA 1	Lakeshore Drive, Hamlin, KY	36.595	-88.07	97	1	3	2	4	16	HIGH	
2		Residential Septic	R-4	Septic Tanks WHPA 2	Lakeshore Drive, Hamlin, KY	36.588	-88.08	27	2	2	2	4	14	MED	

CSI Totals	Low	
	Med	27
	High	97

Overall Susceptibility Ranking	High
--------------------------------	------

For more information about Contaminant Source Inventory methods, visit the DOW Source Water Protection website to view the Kentucky Source Water Protection Planning Guidance (<https://eec.ky.gov/Environmental-Protection/Water/Protection/Documents/KSWPP-ProgramGuidance.pdf>)

Attachment 8

Previous Management Strategy and Newly Proposed Management Strategies

The purpose behind managing a wellhead protection area is to minimize the impact of land uses that threaten the quality and quantity of the public's drinking water supply. The underlying theme is simply to prevent pollution. Preventing pollution is the key to keeping groundwater supplies safe and to protect public health. Once a drinking water supply becomes contaminated, the community is faced with the difficult and costly task of installing additional treatment facilities or locating an alternate source.

Virtually all man-made land use activities have the potential to degrade groundwater quality. There are numerous factors that control the impact of land uses upon groundwater. The two most prominent factors are the geology of the area and the type of land use. The geology controls the direction and rate that a contaminant can travel, whereas the land use dictates the quantity and toxicity of the contaminant. This means that a particular land use in a less sensitive geologic setting may never significantly impact groundwater quality, but the same land use in a geologically sensitive setting can render groundwater unusable for human consumption. This is why a management plan must be tailored to each public water system.

The overall strategy of the management plan is to minimize the impact of the threats identified in the contaminant source inventory through regulatory and/or non-regulatory means.

Management Strategies

The Center Ridge Water District #2 possesses no jurisdictional or regulatory authority; therefore, it will work within the framework of existing regulations to protect its groundwater. The District will write a groundwater protection plan to address the operation of a groundwater supply well and septic tanks.

As a public water supply, the District serves a community population of residential homes. Therefore, an intensive public education initiative will not be beneficial as the population is continually changing. The groundwater protection plan will serve as the primary management tool utilized by Center Ridge Water District #2.

Attachment 10
Public Education Material



**Generic Groundwater Protection Plan:
Residential Septic Systems**

HOMEOWNER'S SEPTIC SYSTEM GUIDE AND RECORD KEEPING FOLDER

The purpose of 401 KAR 5:037 and this groundwater protection plan is to prevent groundwater pollution. Understanding how your septic system works and following good operation and maintenance practices are the keys to preventing groundwater pollution.

This folder provides you with that information. By carefully reading it and following the guidelines, you will not only protect groundwater, but also should receive many years of trouble-free service from your system.

Keeping records will enable you to better protect and maintain your septic system. In case you sell your house, your records will show a prospective buyer that your system has been properly maintained.

FOR YOUR RECORDS

1. Maintenance Log: Date, what was done and reason for the maintenance (Example: measure sludge and scum layers, pump the tank).
2. Inspection Log: Date, what you observed upon walking over the septic system (Example: any unpleasant odors, soggy soil, lush green grass over the lateral lines, surfacing wastewater).
3. Site Drawing: Show accurately the layout of the system on your lot. Include exact distances of each portion of the system from at least two (2) fixed reference points (corner of house, garage, large trees, property line markers).
4. Any permits or receipts.
5. Residential Address _____

[illegible]

	Septic tank - drainfield
	Septic tank – constructed wetland - drainfield
	Septic tank – leaching chambers

	Septic tank - drainfield		Septic tank – low pressure pipe
	Septic tank – constructed wetland - drainfield		Septic tank – sewage lagoon - drainfield
	Septic tank – leaching chambers		Septic tank – gravelless pipe

System Inspection Log

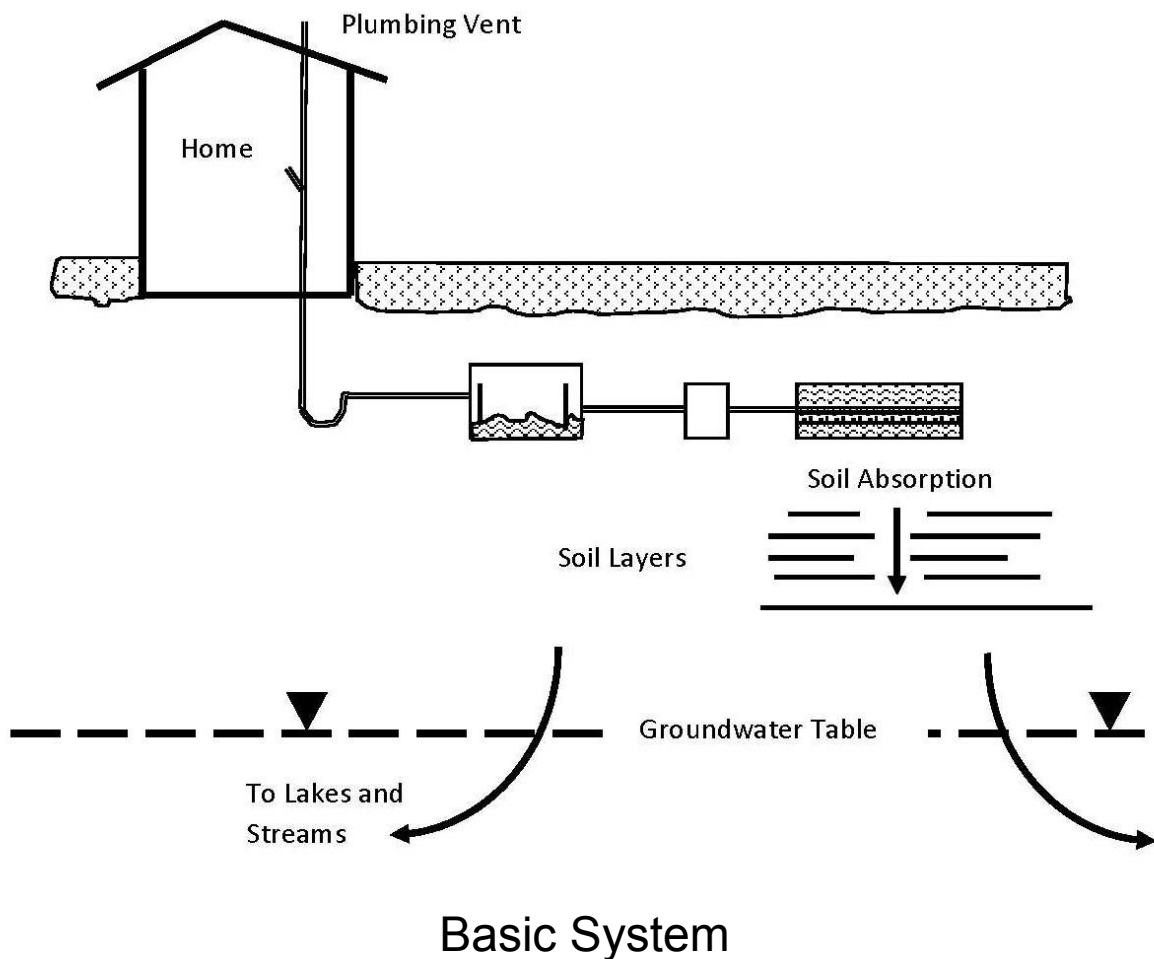
Date	Description

System Maintenance Log

Date	Description

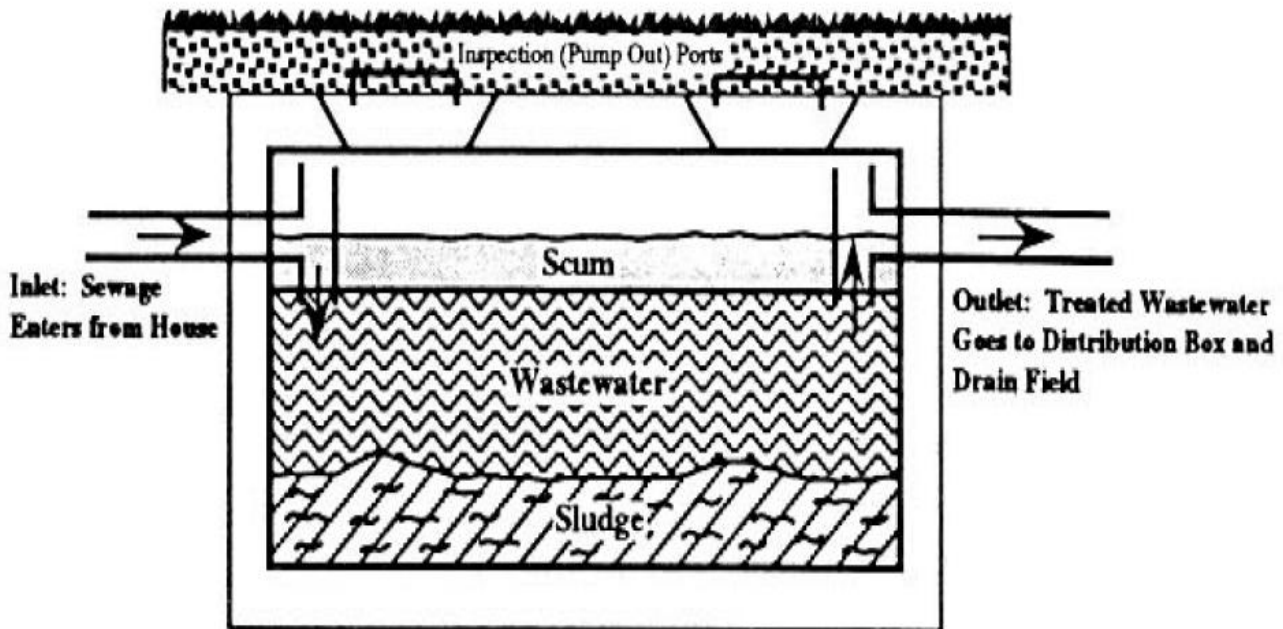
SYSTEM DESCRIPTION

A septic system uses natural processes to treat and dispose of the wastewater in your home. It typically consists of a septic tank and a drainfield (also called a leachfield, lateral field, or subsurface soil absorption beds/trenches). The system accepts both "blackwater" (toilet wastes) and "greywater" (wastes from the kitchen sink, bath tub/showers, and laundry). Water that should not be discharged to the system includes water from foundation or footing drains, roof gutters, and other "clear" water.



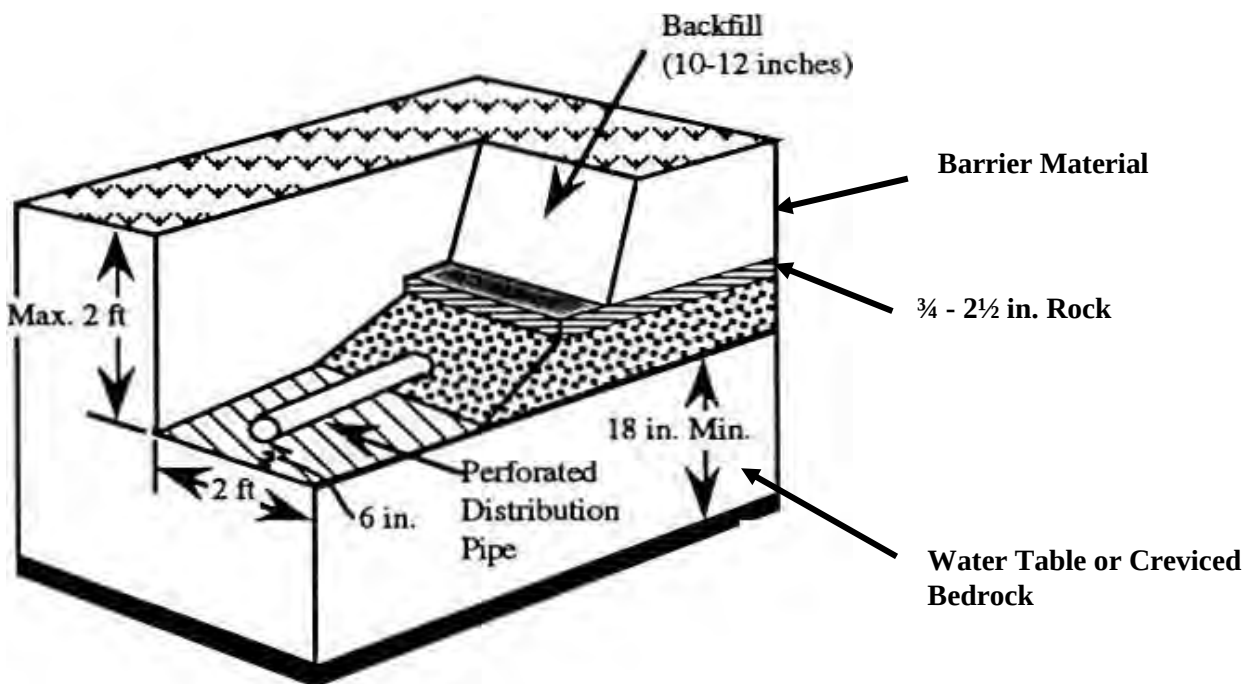
SEPTIC TANK

The septic tank provides the first step in treatment by separating the solids from the liquids. The wastewater is retained in the tank for 24 hours or more. During this time the heavier solids settle the bottom to form a sludge layer while the lighter solids float to the top to form a scum layer. Bacteria break down the solids, producing carbon dioxide, hydrogen sulfide, and other gases in the process. These gases are vented through the plumbing vent on your house roof. Since the bacteria reduce only about 40 percent of the sludge and scum volume, the tank must be pumped regularly (approximately every three to five years) to remove the accumulated solids. If the tank fills with sludge and scum, the solids will overflow into the drainfield and quickly clog the soil, resulting in system failure.



THE DRAINFIELD

The drainfield provides the final treatment of the wastewater and disposes of it through groundwater recharge. The typical drainfield is composed of trenches or beds which are shallow, level excavations installed one to one and a half feet above the groundwater table. Each trench contains a perforated distribution pipe through which wastewater drains into the gravel. The water is stored in the gravel until it can seep into unsaturated soil underlying and adjacent to the trench. As the wastewater moves slowly through the gravel and soil, many of the disease-causing bacteria and viruses are filtered out, or adsorbed and held by the soil particles until they die. Where soils do not permit a drainfield to adequately treat septic tank effluent, an additional or alternative treatment system must be used in conjunction with the drainfield. Alternative systems primarily used in Kentucky are constructed wetlands and sewage lagoons. These alternative systems have their own operation and maintenance guidelines. If you would like information about these guidelines, contact the Groundwater Section.

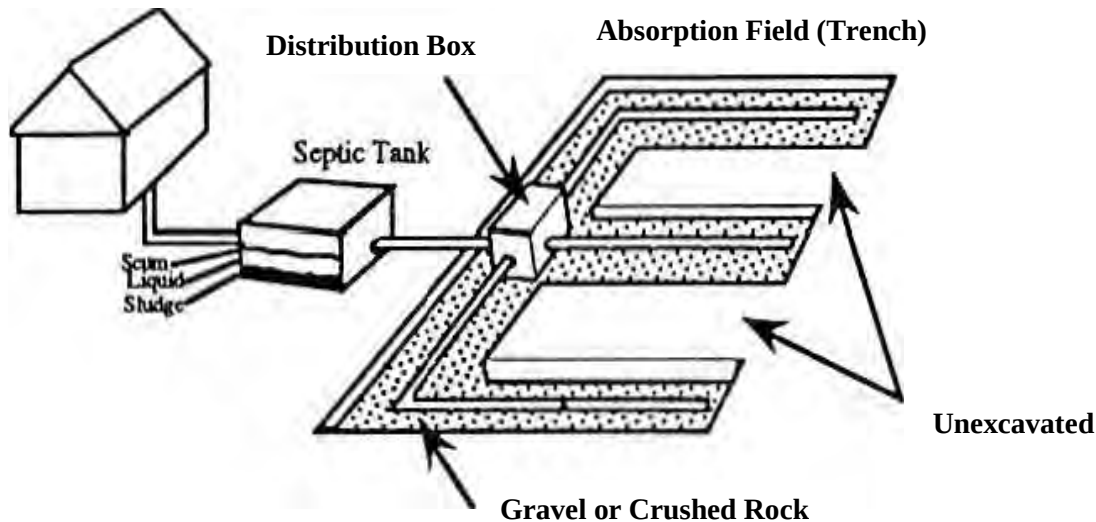


Conventional Rock Drainfield
Trench Cross-Section

TAKING CARE OF YOUR SYSTEM

Your septic system represents a significant investment worth protecting. The old "An ounce of prevention is worth a pound of cure" is so true when it comes to the care of your septic system. If you follow the operation and maintenance guidelines below, your system will function better and last longer, and you will avoid the nightmare and se of a failed system. Most important, your a will not be polluting groundwater.

Conventional Septic System



DO

- Conserve water to reduce the amount of wastewater that must be treated and disposed.
- Repair any leaking faucets and toilets.
- Discharge only biodegradable wastes into system.
- Divert down spouts and other surface water away from your drainfield.
- Keep your septic tank cover accessible for tank inspections and pumping
- Have your septic tank pumped regularly and checked for leaks and cracks.
- Call a professional when you have problems
- Compost your garbage or put in trash.

DON'T

- Use a garbage grinder.
- Flush sanitary napkins, tampons, disposable diapers, condoms and other non-biodegradable products into your system.
- Dump solvents, oils, paints, thinners, disinfectants, pesticides or poisons down the drain. These materials can disrupt the treatment process and contaminate the groundwater.
- Dig in your drainfield or build anything over it.
- Plant anything over the drainfield except grass
- Drive over you drainfield or compact the soil in any way.

If you have any questions or need additional information, contact:

The Groundwater Protection Program Coordinator

**Kentucky Energy and Environment Cabinet
Kentucky Division of Water
Watershed Management Branch
Groundwater Section
300 Sower Boulevard, 3rd floor
Frankfort, KY 40601
(502) 564-3410**

Groundwater Protection Plan Regulation 401 KAR 5:037

<https://eec.ky.gov/Environmental-Protection/Water/GW/Pages/GWGPP.aspx>

**Kentucky Cabinet for Health and Family Services
Department of Public Health
Environmental Management Branch
275 E. Main St.
Frankfort, Ky. 40621
(502) 564-4856**

Onsite Regulations 902 KAR 10:085

Septic Tank Servicing Regulation 902 KAR 10:170

<https://www.chfs.ky.gov/agencies/dph/dphps/emb/Pages/environmentmgmt.aspx>

A Kentucky Homeowner's Guide to Septic Systems

<https://healthdepartment.org/wp-content/uploads/2016/06/onsite-sewowners-manual.pdf>

**Check List
for
Evaluating Your Septic System**

- 1.** Find and mark the location of the septic system, you should map this information in the space provided in your Groundwater Protection Plan: "Homeowner's Septic System Guide and Record Keeping Folder."
- 2.** When was the septic tank last pumped?

- 3.** If the tank was last pumped over three years ago, or if you have recently moved into the house and don't know when the tank was last pumped, contact a septic tank pumper. Have him service the tank and check the baffles.
- 4.** Do toilets flush slowly and does water drain slowly from sinks and tubs, or does either "gurggle"?
Yes ☐ No ☐
- 5.** Is there any standing water, soggy ground, or smelly liquid in or near the drainfield?
Yes ☐ No ☐
- 6.** Does the ground slope toward the septic system?
Yes ☐ No ☐
- 7.** Are your septic tank and drainfield less than 100 feet from a lake, stream, or pond?
Yes ☐ No ☐
- 8.** Are water-loving trees such as willows, sycamores, birches, or water maples growing within 10 feet of the septic tank?
Yes ☐ No ☐
- 9.** Are there any areas over the septic tank or drainfield where people have frequently driven their cars or trucks?
Yes ☐ No ☐
- 10.** Have any additions been made to the house since the present septic system was installed?
Yes ☐ No ☐
- 11.** Do you have dripping faucets or a toilet that runs continuously or gradually loses water from its tank?
Yes ☐ No ☐
- 12.** Do you put cigarette butts, coffee grounds, cooking fats, disposable diapers, facial tissue, wet-strength towels, or other non-biodegradable materials into your septic tank?
Yes ☐ No ☐

If you have answered YES to one or more of questions 4 - 12, the septic system may not be functioning correctly. Call your local health department, or seek other professional help. Should repair of the system be necessary, be sure to engage the services of a professional who has a groundwater protection plan on file.