

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams

1. Reference: Application of Kentucky-American Water Company (Application). Please explain:
 - A. Whether the proposed 16-inch main would allow for expansion of Kentucky-American Water Company (KAW) into markets outside of those already serviced by its Northern Division.
 - B. Whether KAW plans to take advantage of expansion opportunities available as a result of the construction 16-inch main servicing Monterey and Owenton. Please provide any pertinent text from KAW's strategic planning documents.
 - C. Which utilities currently serve those areas and whether KAW has contacted any of those utilities to discuss acquisition, contract services, or other type of administrative, management or operational arrangement?

Response:

- A) The improvements were designed to provide service to existing customers and provide for growth within the existing service area of the Northern Division.
- B) At this point KAW has no specific plans for further expansion opportunities in the Northern Division.
- C) Suppliers to sections of the Northern Division include Gallatin County Water District, Carroll County Water District #1, and Georgetown Municipal Water and Sewer Service. KAW has not contacted current suppliers to discuss acquisition, contract services, or other types of administrative, management or operational arrangement as a result of planning for the connection from KRS II to the Northern Division system. Unrelated discussions have occurred related to sewer billing, water usage data and sewer shut-off services.

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2. Reference: Application. Please provide the documentation (including workpapers, memoranda, reports from third-parties, etc.) through which the construction, permitting, and right-of-way costs were calculated for both proposals as well as any proposal not referenced in the Application.

Response:

For costs related to the improvements that would have to be made to the Owenton Water Treatment Plant for its continued operation, please see the response to Staff Data Request Item No. 1. For costs for the Northern Division Connection, please see the response to Staff Data Request No. 65, which is the subject of a petition for confidential protection. The alternative bids for each of the phases are described as follows:

Phase 1 - Alternative Bids:

1. Constructing a tunnel through the steep cliff at Cedar Creek to bypass the City of Monterey, KY.
2. Utilizing PVC pipe in lieu of ductile iron pipe in areas of lower pressure.
3. Utilizing owner-provided materials on US 127, including piping, gate valves, fittings, and hydrants.
4. Utilizing owner-provided materials on KY 607, including piping, gate valves, fittings, and hydrants.
5. Utilizing HDPE pipe in lieu of ductile iron pipe in areas of lower pressure.

Phase 2 - Alternative Bids:

1. Utilizing PVC pipe in lieu of ductile iron pipe in areas of lower pressure.
2. Utilizing owner-provided materials on US 127 and KY 22, including piping, gate valves, fittings, and hydrants.
3. Utilizing HDPE pipe in lieu of ductile iron pipe in areas of lower pressure.

Phase 3 - Alternative Bids:

1. Constructing a fluted column elevated tank (300,000 gallons) in lieu of the elevated multi-leg tank at the Booster Pump Station site.
2. Constructing a composite column elevated tank (300,000 gallons) in lieu of the elevated multi-leg tank at the Booster Pump Station site.
3. Constructing a fluted column elevated tank (600,000 gallons) in lieu of the elevated multi-leg tank at the Owenton Tank site.
4. Constructing a composite column elevated tank (600,000 gallons) in lieu of the elevated multi-leg tank at the Owenton Tank site.

From the above alternative bids, KAW selected Phase 1 (Alternatives 3 and 4), Phase 2 (Alternative 2), and Phase 3 (Base Bid).

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Witness: **Lance Williams / Keith Cartier**

3. Reference: Application. Please provide the documentation (including workpapers, memoranda, reports from third-parties, etc.) through which the operating and maintenance costs were calculated for both proposed courses of action.

Response:

Please see the response to PSC Data Request No. 40, which contains the calculation documentation relevant to Appendix D and E of the Feasibility Study KAW submitted with its Application in this case. Chemical cost estimates for 2014, 2015, and 2016 are based on modeling that was conducted in conjunction with the 2012 planning process. Fuel & Power and Labor cost estimates are based on the 2012 budget.

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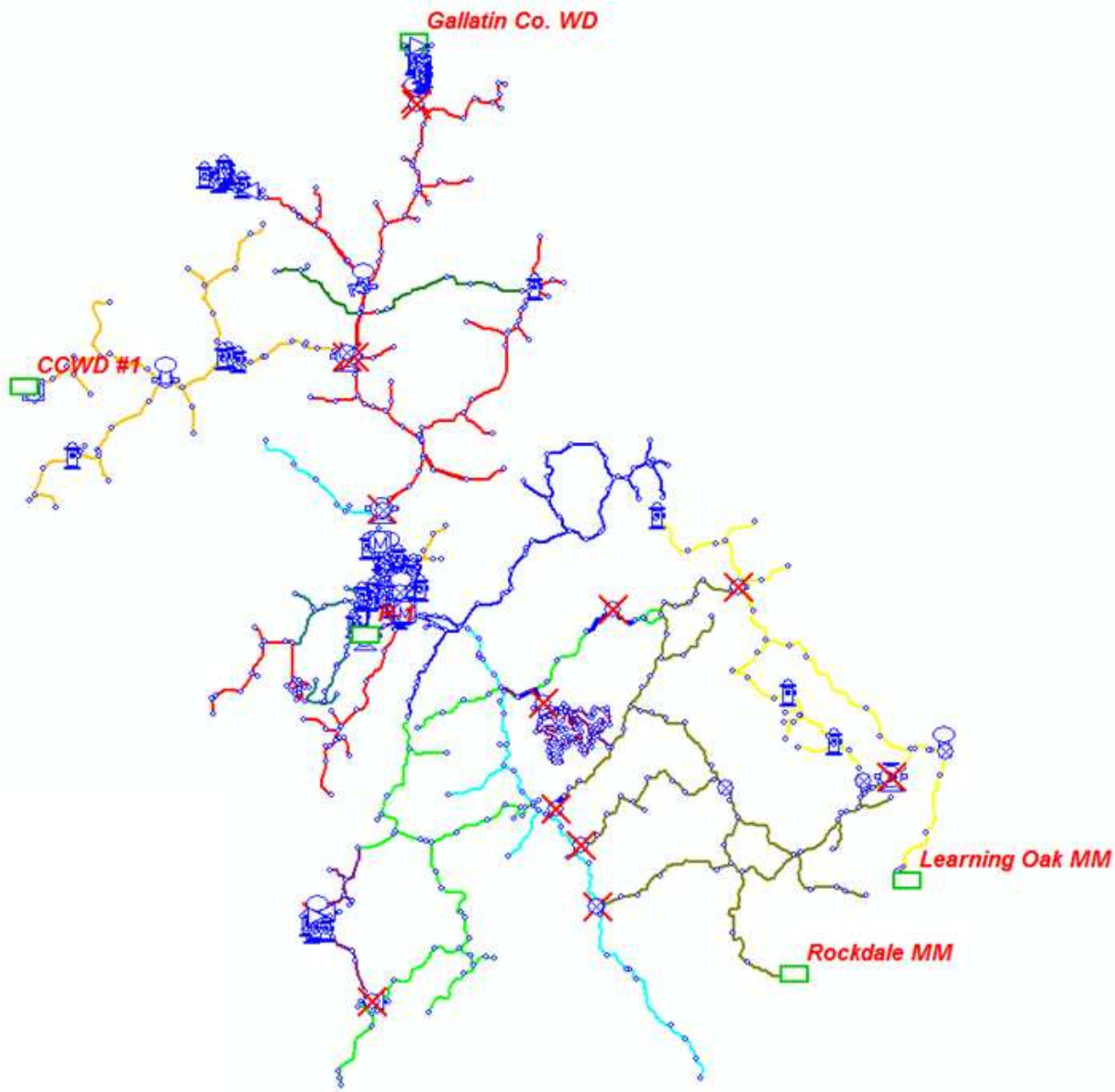
Witness: Lance Williams

4. Reference: Application. Paragraph 7 states that “the transmission main’s *primary* purpose will be to supply water to a new 600,000 gallon storage tank outside of Owenton.” (emphasis added). Please explain all current and anticipated non-primary purposes for the construction of the transmission main.

Response:

The completion of the Northern Division Connection project will increase pressure with the installation of the booster pump station and the new 600,000 gallon storage tank outside of Owenton. These improvements will provide reliable service to the Northern Division distribution system. Additionally, the construction of the transmission main will provide reliable service to areas within the existing Northern Division system that are currently served through Purchase Agreements with Georgetown Municipal Water and Sewer Service. These areas are in the Southeast portion of Owen County and are shown on the attached figure. The new 600,000 gallon storage tank will also allow KAW to better utilize the New Columbus tank.

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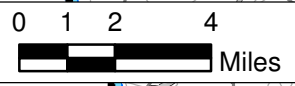
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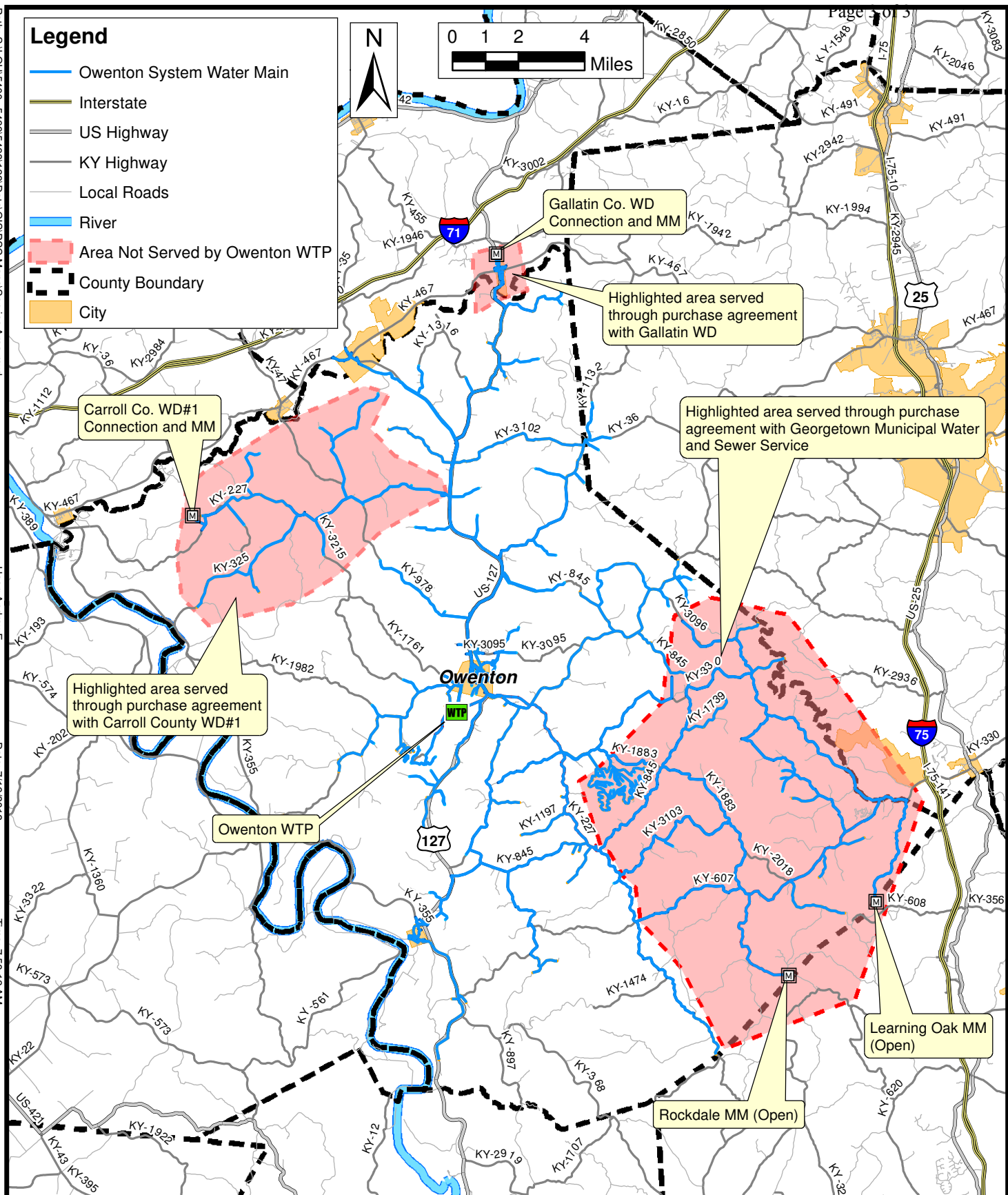
Legend

-  Owenton System Water Main
-  Interstate
-  US Highway
-  KY Highway
-  Local Roads
-  River
-  Area Not Served by Owenton WTP
-  County Boundary
-  City

N



Miles



**OWENTON WATER TREATMENT PLANT
SERVICE AREA**

**KENTUCKY AMERICAN WATER
LEXINGTON, KENTUCKY**



5493.122

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Witness: Lance Williams

5. Reference: Application. Explain why the preexisting Monterey Tank is going to be decommissioned during Phase I and a separate storage tank is going to be built at Monterey during Phase III. Specifically, explain why the original tank cannot be reprovisioned (or otherwise repaired or rehabilitated in a cost-effective manner).

Response:

The existing Monterey Tank will be decommissioned because it will not be a necessary piece of infrastructure if the Northern Division Connection project is completed. Also, removal of the tank will improve water quality and reduce maintenance costs after the completion of the project.

There are several design objectives associated with the capacity of the Monterey Tank, including the three identified below.

- 1) **Address Volume Needs** - The new Monterey Tank is designed to be of a large enough capacity to supply a flow of 2 MGD for a period of 3 hours (250,000 gallons) should a KRS II water plant outage occur. The new storage tanks are sized such that the Northern Division has at least 1 MG of useable storage volume in the system.

The existing Monterey Tank, however, is only 120,000 gallons and cannot supply the needed volume.

- 2) **Provide efficient use of existing infrastructure** - The existing Monterey Tank is lower in elevation than the new tank (650 max EL vs. 880 max EL). Pressure energy created by the existing KRS II high service pumps would be wasted by filling into the existing Monterey Tank. Additional energy from the pumps (as compared to that required if utilizing the new Monterey Tank) would subsequently be required to pump from an existing Monterey Tank to convey water into the Owenton system.
- 3) **Reduce maintenance costs where feasible and maintain a high standard of water quality** - Taking the existing Monterey Tank out of service after the Northern Division connection is complete is beneficial because:
- The current service area can be provided with adequate supply volume and pressure without the tank in service. Decommissioning the tank will reduce the maintenance and upkeep costs associated with the tank.
 - The existing Monterey Tank would also turn over less frequently after project completion. This is because customers on the south side of Cedar Creek will be supplied from the transmission main, reducing demand on the tank service area.

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Less frequent tank turn over results in increased water age, which can result in decreased water quality.

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Witness: Lance Williams

6. Reference: Application. KAW states that 89% of the Northern Division Connection transmission will be installed in existing road rights-of-way. Describe the proposed contingency plan if the remaining 11% cannot be obtained and any elevated or incremental costs associated with that course of action.

Response:

The original number of private easements needed for the Northern Division Connection was 20. KAW has continued to evaluate the route for this project since and in doing so it has determined that it has been able to make minor adjustments to the route to reduce the number of necessary private easements to 18. This adjustment occurred with minimal changes to the existing design. As of the date of this response, 13 of those 18 easements have been obtained. KAW expects to obtain a fourteenth easement in early August. KAW continues to evaluate the location of the pipeline route and has determined that it may be possible to avoid needing the final four easements by using existing right-of-way. This would reduce the percentage of private easements required for the entire route to less than five percent. KAW does not anticipate any elevated project costs due to these realignments.

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Witness: Lance Williams / Linda Bridwell

7. Reference: Application. KRS II was originally approved for a rate of 20 MGD from June 1 through August 31 and at a rate of 6 MGD for all other periods in order to service the Central District's water needs.
- A. Explain whether KRS II WTP will need to be expanded to accommodate new output of treated water resulting from KAW's proposal that KRS II now service the Northern District as well.
 - B. Explain whether KAW will need to obtain (or has obtained) an approval from the Kentucky Division of Water with respect to the water withdrawal permit that corresponds to the KRS II facility.

Response:

- A. The KRS II WTP would not need to be expanded to accommodate supplying the Northern District. KRS II has a rated capacity of 20 mgd and is capable of being safely operated at flows up to 24 mgd. The ability of KRS II to operate at 24 mgd is due to its pumping and filtration capacity. KRS II has five filters and with all filters in service, KRS II could produce 25 mgd. The pumps at KRS II are also sized to reliably produce 24 mgd with one unit out of service.

The Kentucky Division of Water generally permits withdrawals based on actual production of the plant, and will only consider requests for increased withdrawal amounts based on actual withdrawals above the permitted amount by 15% or more, for more than 30 days on average.

- B. The current Kentucky Division of Water Withdrawal Permit allows for the withdrawal of 20 mgd during the months of June, July, and August; and 6 mgd during the remaining months of the year. KAW recognizes that a revision to this Withdrawal Permit may need to be obtained in the future.

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Witness: Lance Williams / Keith Cartier

8. Reference: Feasibility Study Report (Feasibility Study). Under Section II, and Direct Testimony of Williams at page 6. Statement of the Problem, Please explain KAW's references to "more stringent water quality standards."

- A. To which future standards does this refer?
- B. What are the anticipated implementation dates for each new standard?
- C. Describe why the Owenton WTP will not be able to meet these standards and provide any supporting documentation to include any site inspections performed by Kentucky Division of Water.
- D. Provide copies of any and all correspondence between the Kentucky Energy and Environment Cabinet and its Division of Water (hereinafter referenced collectively as Division of Water or DOW) related to the present application.
- E. Describe whether or not KRS II will be affected by the new standards and what the associated increased O&M costs will be as a result.

Response:

- A) The reference relates to the Stage 2 of the Disinfection/Disinfection Byproducts (D/DBP) Rule.
- B) The standards will begin applying to the Northern Division in October 2013.
- C) KAW begins compliance monitoring for Stage 2 of the Disinfection/Disinfection Byproducts (D/DBP) Rule for our Northern Division in October 2013. Under current operating conditions, the Plant is having difficulty dealing with the amount of sludge generated due to enhanced coagulation that is necessary to meet existing D/DBP requirements. Without modifications to the sludge handling facilities, KAW will either not meet the Stage 2 D/DBP Rule or discharge requirements in the long-term. Please see the attached ND Routine Surface Inspection of September 8, 2011 which is a site inspection report by the Kentucky Division of Water. Please note section VI Compliance Status for Discharge/Emission Compliance for an inspection notation of "No violations were observed - but impending violation trends observed."
- D) Please refer to PSC DR#18 for correspondence with DOW, some of which may be interpreted to relate to the present application.
- E) KRS II has been designed to account for new regulatory requirements. No changes are necessary at KRS II to meet these requirements.

**ENERGY AND ENVIRONMENT CABINET
KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
Routine Surface Inspection**

Site/Permit ID: KY0940430	Division: Water	Regional Office: Florence
Site Name: KY American Water-N. Division	Program: Drinking Water	
Site Address: 220 Water Plant Lane		
City: Owenton	State: KY	Zip: 40359
County: Owen		
Inspection Type: Routine Surface	Purpose: Comprehensive	AI #: 34054
Inspection Date: 9/8/11	Time: Start 10:30 AM End 3:30 PM	
Latitude:	Longitude:	
Coordinate Collection Method:	Revision Code: 112108	
Drinking Water Data		
Plant Name: Owenton	Contact Name: Kevin Kruchinski	
Phone No.:	Fax No:	Email Address:

I. Administrative Requirements

Comments:

I. Compliance Status - No violations observed

II. Operator Certification/Accreditation Requirements

Operator in Charge or on duty.

Operator Name	Plant Certification #	Distribution Certification #
David Clifton		
Dalvin Krug		

Comments: The operators for Kentucky American's new plant also are able to come to Owenton division in case of emergencies.

II. Compliance Status - No violations observed

III. Record Keeping Requirements

Comments:

III. Compliance Status - No violations observed

Comments: The facility has a major leak in the pipe gallery that needs to be addressed. The facility has barrels of chemicals in the outside of the plant that need to be put in a proper storage area.

V. Compliance Status - No violations obs-but impending viol trends obs

VI. Discharge/Emission Compliance

Comments: Facility only cleans out backwash basin twice a year. The facility has reminisce of overflowing; none of the sediment was in the creek at the time of the inspection. The full inspection report on the backwash is on a separate inspection form.

VI. Compliance Status - No violations obs-but impending viol trends obs

VII. Monitoring/Analyses Evaluation

Comments:

VII. Compliance Status - No violations observed

VIII. Environmental /Health Impact

Work Site Hazard Assessment : ATTACHED REVIEWED

Comments:

VIII. Compliance Status – No violations observed

IX. Documentation

- Samples taken by DEP
- Samples taken by outside source
- Instrument readings taken by DEP regional office
- Photographs obtained by DEP
- Copies of records obtained by DEP
- Other documentation

Inspector: Catherine Haven

Title: Environmental Inspector I

Date: 9/19/2011

Signature:

Overall Compliance Status

No violations observed



STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

Division of Water
8020 Veterans Memorial Dr Ste 110
Florence, KY 41042
www.kentucky.gov

October 4, 2011

KY American Water Co
Kentucky American Northern Division
220 Water Plant Dr
Owenton, Kentucky 40359

RE: Kentucky American Northern Division --
34054
Permit No.: KY0940430
Owen County, Kentucky
Activity ID: CIN20110001

Dear Kevin Kruchinski:

Attached for your information and records is a copy of the DW Comp-Surface performed at Kentucky American Northern Division on September 8, 2011.

If you have any questions or comments concerning this inspection, please contact the Florence Regional Office at: (859) 525-4923.

Sincerely,

A handwritten signature in cursive script that reads "Catherine Haven".

Catherine Haven
Environmental Inspector
Florence Regional Office
Division of Water

CMH
Enclosure:

KENTUCKY-AMERICAN WATER COMPANY
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ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams

9. Reference: Feasibility Report and Testimony at p. 6. Provide copies of any and all correspondence or other documentation relating to DOW identifying the location of the raw water intake on Severn Creek as an issue for KAW to correct.

Response:

The raw water intake is owned by the City of Owenton. The condition and location of the intake has historically been a point of concern for the Division of Water with the City of Owenton. See the attached 2004 Sanitary Survey by the Division of Water.



ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

LAJUANA S. WILCHER
SECRETARY

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601-1190
www.kentucky.gov

October 8, 2004

Mr. Marshall Gibson
Owenton Water Works
220 Water Plant Lane
Owenton, Kentucky 40359

RE: PWSID #0940337
2004 Sanitary Survey

Dear Mr. Gibson:

The Division of Water conducted an Interim Enhanced Surface Water Treatment Rule sanitary survey of the Owenton water system on September 8 and 9, 2004. A copy of the survey is attached.

No significant deficiencies were found during the survey. The following non-significant deficiencies were noted:

1. The spent backwash holding basins at the old water treatment plant are not adequate for the amount of backwash water that can be produced at the new plant.
2. There is no containment around the caustic soda bulk tank.
3. There is no formal main break notification process.
4. The flow recorded on the monthly Discharge Monitoring Report (DMR) does not accurately reflect the flow being discharged.

In addition, the Division recommends the following:

1. Maintain a customer complaint/inquire log.
2. Maintain a maintenance log.
3. Place a sign on the chemical feed room door indicating that eye protection is needed due to the use of caustic soda.
4. Inspect and test backflow prevention devices on a regular basis.
5. Repair the tank telemetry system.
6. Remove and inspect the 2 remaining distribution high service pumps for potential caustic soda buildup.



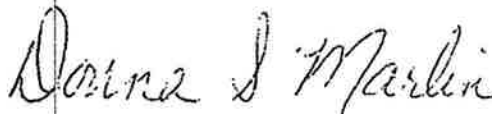
Owenton Sanitary Survey
October 8, 2004
Page 2

The Division is also concerned over the increased demand placed on the current treatment processes and inability to take the single Claricone out of service without shutting the entire plant down. There is no interconnection with any other water system for an emergency supply that could assist with customer demand during plant shutdown. This inability to take the Claricone out of service for routine maintenance is resulting in sludge buildup that cannot be adequately removed.

Owenton has 90 days to respond to the non-significant deficiencies (January 8, 2005). The response should be sent to the Drinking Water Branch, 14 Reilly Road, Frankfort KY 40601 to the attention of Julie W. Roney.

If you have any questions regarding this report, contact either Julie W. Roney in the DOW Drinking Water Branch at 502/564-2225, extension 535 or Gretchen Bartley in the Florence Regional Office at 859/525-4923.

Sincerely,



Donna S. Marlin, Manager
Drinking Water Branch
Division of Water

DSM:JWR

C: Florence Regional Office
Drinking Water Files

**NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
Drinking Water Sanitary Survey**

Site/Permit ID: 0940337	Division: Water	Regional Office: Florence
Site Name: Owenton Water Workd	Program: Drinking Water	
Site Address: 220 Water Plant Lane		
City: Owenton	State: KY	Zip: 40359
		County: Owen
Inspection Type: Sanitary Survey	Purpose: Comprehensive	Not/Com #:
Inspection Dates: 09/08/04, 09/09/04	Time: Start 10:30 AM End	AM
Latitude: 38 31 17.9	Longitude: 84 51 2.6	
Coordinate Collection Method: G40-Handheld receiver		

Drinking Water Data

Revision Code: #040704

(To be changed by Central Office Staff only)

SANITARY SURVEY CODE: 83

INSPECTOR EMPLOYEE CODE: 778 & 833

PWSID: 0940337 **Plant Name:** Owenton Water Works **Plant Contact:** Marshall Gibson **Plant Type:** C (community) **Plant Class:** III (500,000-3,000,000 gpd)

Distribution Class: IID-Pop. 1500-15,000 **County:** Owen **Phone Number:** (502) 484-9077 **Fax Number:** **E- Mail Address:**

Service Connections: 1,100 **System Population Served:** 3,758

Total No. Purchasers: 1 **Total Population Served:** 8,181

Treatment

Primary Source: Severn Creek **Secondary Source:** Lower Thomas **Maximum Pumping Rate:** 675,000

Plant Capacity MGD: 1.2 **Filter Design Rate:** **Total Storage Capacity (gallons):** 500,000

Pre-sedimentation Size: **Aeration Code:**

Sedimentation (Primary) Code: Sedimentation 2 (if 2 different processes) **Type:**

Filter (Primary) Code: D-High Rate/Sand Anthracite **Filter 2 (if 2 different filter types) Type:**

Clear well Size (gallons): 50,000 Underground + 90,000 above ground

Chemicals

Pre-Disinfection Code: G-Chlorine Gas **Post-Disinfection Code:** G-Chlorine Gas

Primary Coagulant Code: L-Ferric/Lime/Polymer **Secondary Coagulant (Name):** 1849A **Filter Aid Name:**

Corrosion Control Code: **Taste and Odor Code:** K-Potassium Permanganate **Softening Code:**

Iron (and Manganese) Removal Code: **Fluoride Supplement Code:** A-Hydrofluosilicic Acid

Other Code: A-Algae Control/Copper Sulfate **Other Name:**

Legend – NA – Not Applicable NI – Not Inspected

I. Administrative Requirements

Comments:

Compliance Status - No violations observed

II. Operator Certification/Accreditation Requirements

(Check with Certification Section)

Plant Class	Plant Capacity (MGD)	Hours operated (annual average)	Shifts Operated (per day)	Operator Class Required	
				Plant	Distribution
IIIA	1.2	16	2	IIIA	IID

Does the plant have operators with the appropriate class certificate? Yes No

Are the certifications up-to-date? Yes No

Does the system appear well operated and maintained? Yes No

List Operators and certification numbers:

Operator Name	Plant Certification #	Distribution Certification #
Marshall Gibson	38574 IIIA	5121 IID
David Clifton	1703 IIIA	
Bobby O'Banion	1358 IIIA	2682 IID
Anthony Callan	118 IIIA	00173 IID
Terry Kincaid	1526 IIIA	3470 IID

Comments: The treatment plant is operated so that there is someone on-site at all times when water is being produced. There are two operators whose job description is such that they are designated to work exclusively at the plant, the other three operators are required to work at all phases of operation and maintenance in the system as well as being able to operate the plant. Shift scheduling is such that there is continual coverage for the plant for the two shifts, seven days per week and someone is on-call 24 hours/ 7 days. Facility personnel report that with the present water demand and capacity of the treatment plant, they begin the first shift as early as 4:00 AM and there are days when the second shift does not end until 8:00 PM.

Compliance Status - No violations observed

III. Record Keeping Requirements

Records to be kept on site	Time it must be kept	Check Yes or No
Data Summaries (if actual data not retained)	Based on data replaced	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Bacteriological Analyses	5 years	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Chemical Analyses	10 years	Yes <input type="checkbox"/> No <input type="checkbox"/>
Turbidity Analyses	1 year	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Records of Violation Certification (required after May 1, 2002)	10 years	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>
Records of Sanitary Surveys	10 years	Yes <input type="checkbox"/> No <input type="checkbox"/>
Records of Variance and Exemption	5 years	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Distribution Map	Updated In process of being updated	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
O & M Manual	Updated	Yes <input type="checkbox"/> No <input type="checkbox"/>
Sampling Plan Map	Updated	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Consumer Confidence Report and Certification (CWS only)	On File	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
CT/ Profiling Data		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Comments: The facility has a distribution map, and is currently in the process of having it updated. The facility maintains excellent daily operator's logs that include the required data on the operation and production of the plant as well as the process controls necessary to properly operate the plant. Although the majority of the records are maintained at the water district office, the operator's logs and associated lab data is maintained in a file in the on-site laboratory. It appears that the facility retains these records for the appropriate amount of time.

Although the facility does track water main leaks, water loss and major repairs, they do not maintain a repair or complaints log. We would recommend that the facility initiate a program whereby they begin to keep a maintenance and complaint log.

Compliance Status - No violations observed-Advisory action taken

IV. Reporting Requirements

(To be completed by Compliance Officer)

Reporting Item	Normal Reporting (list last reporting period and note any exceptions)	Emergency Reporting (List any reports to the public)
Asbestos	<input checked="" type="checkbox"/> once in 1 st 3 years of 9 year period (2002-2004)	<input type="checkbox"/>
Bacteriological	<input checked="" type="checkbox"/> 4 per month	<input type="checkbox"/>
Consumer Confidence Report (CCR)	<input checked="" type="checkbox"/> Due by July 1	<input type="checkbox"/>
Dioxin	<input checked="" type="checkbox"/> Waived	<input type="checkbox"/>
Fluoride (supplemental)	<input checked="" type="checkbox"/> 2 per month; 1 plant tap, 1 distribution	<input type="checkbox"/>
Inorganic Chemicals (IOCs)	<input checked="" type="checkbox"/> Annually	<input type="checkbox"/>
Lead & Copper	<input checked="" type="checkbox"/> 20 per year in 2004	<input type="checkbox"/>
Nitrate	<input checked="" type="checkbox"/> Annually in 3 rd Quarter	<input type="checkbox"/>
Nitrite	<input type="checkbox"/>	<input type="checkbox"/>
Operational Reports (MORs)	<input checked="" type="checkbox"/> Monthly	<input type="checkbox"/>
Radionuclides (RADs)	<input checked="" type="checkbox"/> 12/03-12/07?	<input type="checkbox"/>
Secondary Contaminants (SECs)	<input checked="" type="checkbox"/> Annually	<input type="checkbox"/>
Corrosivity	<input checked="" type="checkbox"/> Annually with secondaries	<input type="checkbox"/>
Sodium	<input checked="" type="checkbox"/> 2 per year; 1 in dry season and 1 in wet; 1 can be done with secondaries	<input type="checkbox"/>
Synthetic Organic Compounds (SOCs)	<input checked="" type="checkbox"/> 2 quarters in 12 months in the 3 year period	<input type="checkbox"/>
Total Trihalomethanes (TTHMs)	<input checked="" type="checkbox"/> 4 per quarter	<input type="checkbox"/>
Turbidity (Greater than 1 or 5 NTUs report ASAP)	<input checked="" type="checkbox"/> 0.5 NTU/1 NTU	<input type="checkbox"/>
Unregulated Contaminants (UCMR)	<input checked="" type="checkbox"/> Per Federal EPA	<input type="checkbox"/>
Volatile Organic Chemicals (VOCs)	<input checked="" type="checkbox"/> Annually	<input type="checkbox"/>
Haloacetic Acids	<input checked="" type="checkbox"/> 4 per quarter	<input type="checkbox"/>
Chlorite (Chlorine Dioxide Only)	<input type="checkbox"/>	<input type="checkbox"/>
Bromate (Ozone only)	<input type="checkbox"/>	<input type="checkbox"/>
Chlorine/Chloramines	<input checked="" type="checkbox"/> Chlorine with compliance bacts	<input type="checkbox"/>
Chlorine Dioxide	<input type="checkbox"/>	<input type="checkbox"/>
Total Organic Carbon	<input checked="" type="checkbox"/> Monthly on raw and CFE	<input type="checkbox"/>
Emergency Reports Immediately	<input type="checkbox"/> Line Breaks, <input type="checkbox"/> Loss of Pressure, <input type="checkbox"/> Loss of Disinfection	<input type="checkbox"/>

Sample Siting Plan

 Bact/LCR/DBTPComments: di(2ethylhexyl)phthalate quarterly in 3rd Q

Compliance Status - No violations observed

V. Operation & Maintenance/Performance Requirements**MANAGEMENT AND SYSTEM OPERATION****Organization:**

What is the utility's governing body? Water Board

Are the members familiar with water treatment? Yes No

How often does this body meet? Monthly

Do operators attend? Yes No Is there an organization chart? (Provide) Yes No Does the chart include the WTP? If not provide additional chart. Yes No **Communications:**Does the system have a Mission Statement? (Provide) Yes No Does the system have water quality goals? (Provide) Yes No Are the operators aware of these goals? Yes No Does the system have regular staff meetings? Yes No

How often?

Who is involved?

Do the administrators visit the water plant? Yes No

How often? Occasionally

Does the plant provide reports to the superintendent? Yes No

Types

Frequency

Does the superintendent provide reports to administrators? Yes No

Types Oral and Written

Frequency Monthly

Is there an Operations and Maintenance manual? Yes No

How often is it up-dated? As needed

Who up-dates the manual? Superintendent

Does the system provide any public relations or education activities? Yes No

Who is responsible for providing this?

What types of public relations or education are done? none

Who answers customer inquiries? Water office

Planning:Does the system have any short-term needs? Yes No Are they documented? Yes No

How are they developed?

Who provides input into these needs?

Are the operators involved? Yes No

- Does the system have any long-term needs? Yes No
- Are they documented? Yes No
- How are they developed? Engineers and Superintendent
- Who provides input into these needs? Superintendent
- Are the operators involved? Yes No
- What security measures are in place at the water plant? none
- What security measures are in place in the distribution system? none
- Has the system performed, or had performed, a Vulnerability Assessment? Yes No

Personnel: Note: Detailed Operator Certification Info in a Separate Section

- Certified Operators Number 5
- Adequate to cover needed shifts, vacations, and vacancies? Yes No
- What is the attitude of the staff? Administration Good
Operators Good
- Are the operators cross-trained? Yes No
- Do the operators perform maintenance as well as operations? Yes No
- Is someone cross-trained with the plant lead operator/supervisor? Yes No
- Do you have contingency plans for replacing retiring personnel? Yes No

Plant Coverage:

- Is there shift operation at the plant? Yes No
- Length of shift 8+ hours depending on need of system
- Number of operators per shift 1
- Number of shifts/day 2
- How are weekends and holidays covered? yes
- Does this system have unstaffed operations? Yes No
- Are there safeguards for when operators may be doing work outside the plant?
Yes No
- What types of safeguards?

Financial:

- Does the system have a budget? Provide 1-page summary if available. Yes No
- Is the water plant meeting its expenses? Yes No
- Does the water plant revenue go to meet other city expenses (such as sewer or garbage)? Yes No
- Who prepares the budget? Superintendent & Assistant
- Do the operators have any input into the budget? Yes No
- Is there a rate structure in place? Yes No
- When was the last rate increase? 11-2000
- Does the system have any long-term debts? Yes No
- Is the debt being paid on time? Yes No
- Does the system have a reserve account? Yes No
- Does the system have a capital improvement plan? Yes No
- How many years does the plan cover?
- What is the spending authority of the plant superintendent? Budget
- Is there a purchase order process? Yes No

of the MORs from both facilities during 2004 indicates that Kentucky American/Tri-Village Water District purchases a minimum of 59 percent of all water produced by Owenton Water District.

PLANT AND DISTRIBUTION SYSTEM OPERATIONS

**Insert a plant schematic (can be provided by DWB)
Include the following details:**

- Source water type/location
- Major unit processes (including baffling factors and volumes)
- Flow measurement locations
- Chemical injection locations
- Piping Flexibility (including number of raw and finished water mains)
- On-line monitoring type/location
- Waste handling

Source

Name	Water Withdrawal Number	Permitted Amount	Is Capacity Adequate?	Are there Water Quality issues?
	0863 -- Severn Creek	900,000 May - October 800,000 rest.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
	0874 -- Lower Thomas	900,000 July - October 850,000 May & June, 800,000 rest	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

List upstream land uses: 85 - 90 % Agricultural predominantly crops, but some cattle

List upstream discharges (Within 5 miles): None known, Facility did a survey/study a couple of years ago, and determined that there were no dischargers within 5 miles of their intakes.

Is there a source water protection plan in place? Yes No

Is the system drought-vulnerable? Yes No

Observations: Facility personnel report that the majority of water is withdrawn from Severn Creek and pumped directly to the Raw Water pumps.

The facility also pumps water from Severn Creek into Lower Thomas Lake, the water flows by gravity to the raw water pumps. In the past the facility also pumped from Severn Creek to Upper Thomas Lake that in-turn flowed into Lower Thomas Lake. There have been problems with the dam on Upper Thomas and the facility no longer uses Upper Thomas as a reservoir, although the water district is currently bypassing flow into Upper Thomas Lake, it could be utilized in an emergency situation.

Although Lower Thomas could possibly be employed as a pre-sedimentation basin, the demand for water seems to exceed the capacity of this impoundment. The relatively small size and ongoing sedimentation of the impoundment, combined with increasing demand and summer climatic conditions have the net effect of producing a shallow pool that is very prone to algae growth which degrades the water quality. The quality of the raw water withdrawn directly from Severn Creek is appreciably better than that withdrawn from Lower Thomas Lake.

Owenton Water District is currently in the process of obtaining approval from DOW and funding from Rural Development to relocate their water intake to the Kentucky River. Construction of an intake structure on the Kentucky River should bring about a vast improvement in both the water quality and quantity. Although still a somewhat "flashy source" the river will provide more volume on a sustained basis, and since it is a larger more free flowing body of water, it should alleviate the algae problem to some degree. It should also reduce the raw water Total Organic Carbon (TOC) concentrations, and alleviate the TTHM/HAA problems. Additionally, drawing water from the Kentucky River may well provide for the use of less chemicals in the treatment process. The net affect should be a better more consistent raw water quality providing for the production of a better finished water.

Intake Structure

Location	Type	Number of Inlets	Screen Size	Is Flooding a problem?	Is silt build-up a problem?
Lower Thomas	fixed	1 functioning	Unknown	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Severn Creek	fixed	2	Unknown	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
				Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
				Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

Is raw water pumped? Or gravity fed?

Number of raw water mains 2

Is raw water flow measured? Yes No

If so when was the meter last calibrated: November 2003

List any chemicals fed at the source: Copper Sulfate

If source is a reservoir is it aerated? Yes No

List depths of intake levels (normal pool): Not known precisely; approximately 25 ft in Lower Thomas

Are screens stationary? Or mechanical?

Is screen clogging a problem? Yes No

Are Zebra mussels a problem? Yes No

If yes list actions taken:

Are emergency power generators available? Yes No

Are emergency interconnections with other supplies available? Yes No

If yes list supplies and PWSID numbers:

Observations: At the time of the inspection the pool level in Lower Thomas Lake was noticeably low. The operators report that it was checked by divers a few years ago, and they estimate that the intake is at 25 feet below the normal pool level of the lake. The facility adds copper sulfate in small amounts to the raw water in Lower Thomas Lake for algae control. At the time of the inspection, the facility reported that they had not employed the use of copper sulfate since late July, 2004.

The Owenton facility does have emergency generators available through the city so that in the event of an emergency one could be put into service within 1 hour.

There are presently no other public water systems with interconnections to the Owenton facility. There is a possibility that in the future an interconnection could be made between Owenton and City of Georgetown in Scott County, however the Georgetown water system employs the use of chloramines for disinfection. Finished waters disinfected with chloramines are not compatible with finished waters disinfected with gas chlorine.

Pre-sedimentation Not Applicable

Capacity (gallons)	Flexibility to Bypass	Chemical Feed Capability	List Chemicals Fed
	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Copper Sulfate
	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Is alga growth a problem? Yes No

Observations: Lower Thomas Lake could be used as presedimentation, however the amount of demand is such that more water is withdrawn directly from Severn Creek and delivered directly to the treatment plant than is withdrawn from Lower Thomas Lake. The conditions of the impoundment structure are currently such that the water accumulated in Lower Thomas and that pumped from Severn Creek to Lower Thomas is somewhat degraded by being placed in this impoundment structure prior to being routed to the water treatment plant. Essentially, the Owenton facility does not have a Pre-sedimentation basin.

Aeration Inspected

Type	Capacity (gallons)	Reason for Aeration
Cascad		Taste Odor

Observations: Water pumped from the raw water pumps is brought up to the water treatment plant and is cascaded into the rapid mix at the raw water flume. The structure is more of a weir type structure, but it does appear to provide some aeration of the raw water prior to chemical treatment.

Rapid Mix Inspected

Type	Number	Volume (gallons)	Physical Condition
Mecha	1		Good

List chemicals fed in order they are fed: Chlorine, Lime (as needed - not currently in use) carbon (as needed, not fed since late July - early August), Ferric Chloride, Caustic Soda. Polymer 1849A is added after the rapid mix at the bottom of the claricone. The system is designed to add polymer at the rapid mix, reportedly this does not work in the Owenton application, they have found that adding the polymer at the bottom of the claricone does work.

Is adequate mixing of chemicals taking place? Yes No

Are there flow splits after the quick mix? Yes No

If so is the flow distribution even? Yes No

Observations: The use of ferric chloride is certainly indicated for this facility, however the iron staining associated with its use makes the equipment appear to be in worse condition than it actually is. The facility operators appear to take a great deal of care in the overall treatment and care of the equipment they have available, and the iron staining notwithstanding the rapid mix and associated equipment appeared to be in good working order and condition.

The facility also feeds caustic soda (sodium hydroxide). While this is a necessary chemical in most water treatment plants, this chemical presents certain maintenance challenges to the upkeep and condition of some of the equipment, especially the chemical feedlines and storage facilities. Additionally the recrystallization of the sodium hydroxide on many surfaces in the area of the rapid mix room presents safety concerns for the operators. The room in which the caustic soda is stored is clearly marked "caustic soda"; in addition to this labeling we would also recommend that the facility place an additional sign on the entrance door and inside the room that states that eye protection is required. The facility needs to look into ways to increase the safety in the handling, use and storage of this chemical.

Flocculation Basins Inspected

Type	# of Trains	Stages	Variable Speed Drive	Volume (gallons)	Physical Condition
Hydra	1		Yes <input type="checkbox"/> No <input type="checkbox"/>	71,769	Good
			Yes <input type="checkbox"/> No <input type="checkbox"/>		
			Yes <input type="checkbox"/> No <input type="checkbox"/>		
			Yes <input type="checkbox"/> No <input type="checkbox"/>		
			Yes <input type="checkbox"/> No <input type="checkbox"/>		
			Yes <input type="checkbox"/> No <input type="checkbox"/>		

What is the size OK and appearance of the floc? OK

How often are floc basins cleaned?

The facility tries to clean the claricone at least once per year. The last time the claricone was cleaned was reportedly in the spring of 2003

Are the floc speeds tapered (decreased) through the floc stages? Yes No

Are there flow splits after flocculation? Yes No

Is flow distribution even? Yes No

Observations: The facility essentially operates one treatment train until the flow is split just before the two filters. This makes some maintenance issues very difficult because the claricone would have to be taken out of service, drained and the sludge removed. The system can not produce water while this maintenance is being done. This process takes at least one entire day. The amount of demand for water production has been such that it has not been possible for the facility to take the claricone out of service, and essentially stop water production for one day. Given the increase in demand for production, and the necessity for being able to perform required routine maintenance on the claricone, it would be advantageous for the Owenton Water District to be able to expand their facility at some point in the future, to include a second claricone.

The subject claricone is situated out of doors and open to the elements. The facility operators report that the efficiency and degree of function of the claricone is almost weather dependent. At the time of the inspection the weather was cloudy, overcast with periods of light rain. The surface or top water of the claricone appeared to be clear, and the lighting was such that no floc could be observed. we werenot able to observe the level of the sludge blanket in the claricone either. Observation of the overflows on the claricone indicated that the settled water was clear and there was no indication of floc carryover.

Sedimentation Basins

Type	Number of Trains/ Stages	Volume (gallons)	% with tube settlers	Physical Condition
Claricone	1	same as claricone	0	Good

How often are the basins cleaned? Historically, the facility drains and cleans the claricone yearly. Due to the demand for water production this year the facility has not been able to clean the claricone in 2004.

How often is sludge removed from the basins?

Is sludge removal mechanical? Or manual?

What is the sludge depth at the time of the inspection? Could not observe

What is the settled water turbidity at the time of the inspection? 1.8 NTU

Is there evidence of short circuiting (Flow or density currents)? Yes No

Is baffling present in the basins? Yes No

If (yes) describe the baffling.

Is there evidence of floc carryover to the filters? Yes No

Observations: The claricone functions as both flocculation basin and sedimentation basin.

Filters

Number of Filters 2

Type	Media Type	Filter Rate (at inspection)	Filter control	Surface Wash Type	Filter to Waste	Filter Area	Physical Condition
Conve	Mixed Me	700 gal/min	Rate of Flow	Rotary	Yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	196 sqft	good
		= 3.6 gpm/sqft			Yes <input type="checkbox"/> no <input type="checkbox"/>		
Conve	Mixed Me	700 gal/min	Rate of Flow	Rotary	Yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	196 sqft	good
					Yes <input type="checkbox"/> no <input type="checkbox"/>		
					Yes <input type="checkbox"/> no <input type="checkbox"/>		
					Yes <input type="checkbox"/> no <input type="checkbox"/>		
					Yes <input type="checkbox"/> no <input type="checkbox"/>		
					Yes <input type="checkbox"/> no <input type="checkbox"/>		
					Yes <input type="checkbox"/> no <input type="checkbox"/>		

What Criteria are used for filter backwash? The Owenton facility uses head loss as the primary criteria for taken a filter out of service for backwash. The operators report that due to the nature of the system and the chemicals fed, they experience head loss before they show an increase in turbidity.

What is the backwash rate in gallons per minute? 2,500 - 3,800

Is filter backwash rate ramped up and down? Yes No

Is backwash flow rate measured? Yes No

Are filters ever bumped? Yes No

Is air scouring used? Yes No

Record the CFE turbidity at time of inspection .17 NTU

Are individual filters monitored for turbidity? Yes No

Is this turbidity continuously recorded? Yes No

Is filter to waste (rewash) present? Yes No **Is it used?** Yes No

Can turbidity be measured while filtering to waste? Yes No

Are flows adjusted on remaining filters during a backwash? Yes No

Is the spent backwash holding tank/lagoon volume adequate? Yes No

Does the plant discharge water from this tank/lagoon back to a body of water?
Yes No

Does the plant have a KPDES discharge permit? Yes No

Permit Number KYG640069

Meeting permit requirements? Yes No

Is spent backwash water recycled? Yes No

Is it recycled as a "slug"? **Or as a constant flow?**

What % of the flow is recycled?

Are chemical feed rates adjusted during recycle? Yes No

Are raw water flows adjusted during recycle? Yes No

Observations: The Owenton facility routes the filter backwash water to the old water treatment plant for settling before discharge to the stream. At the time of the inspection, the second day, 09/09/2004, the inspector observed the area of the old water treatment plant, settling basins for the filter backwash and the receiving stream.

The Owenton Water facility routes the filter backwash water from the wter treatment plant the old treatment plant located down gradient from the newer plant. The system utilized the series of old clearwells for settling prior to discharge to the unnamed tributary of North Severn Creek.

Owenton Water District operators/personnel report that they still have periodic problems with the amount of sludge that is generated by the filter backwash as well as the handling and timely disposal of the sludge. The operators report that since they have been using the clearwells at the old treatment plant as sediment basins for the filter backwash discharge, they have noted an overall improvement, however the capacity still is not adequate for the volume of water treated at the facility and the amount of backwash generated at the plant. If they can allow sufficient time between backwashing filters, there is enough time to allow for adequate settling. The problem is the demand for producing water and the subsequent necessity for more frequent backwashing of the filters. Reportedly the old clearwell configuration handles the volume from the backwashing of two filters, once this capacity has been reached the system basically discharges the same volume as that coming into it without time for adequate settling. Under ideal conditions the settling takes place in the old clearwells, and the topwater or decant is discharged to the receiving stream.

Under optimal conditions the final effluent is clear and there are no problems with deposition of sludge in the downstream area. When the demand for production is great and the filters are being more frequently backwashed the effluent from the old clearwell/settling basins is visually discolored and higher in concentration of settleable and suspended solids. The further complicate matters, the flow in this unnamed tributary of North Severn Creek is fed solely by the flow from Lower Thomas Lake. During periods of high demand, especially during the summer of 2004, there is no discharge from Lower Thomas as the water level is well below the normal pool. In this situation the flow in the UT of North Severn Creek is solely comprised of the discharge from the filter backwash basins.

The conclusion for the situation with the filter backwash is similar to that for the claricone, and intakes, the facility is in need of expanding the capacity of several areas of the treatment system and associated activities.

Chemical Feed Equipment

Chemical Name	Purpose	Feeder Type	Feed Point	Number & Condition
KMnO4	Taste Od	Volumetric	Intake	1 Good
Ferric	Coagulati	Volumetric	Quick/Flash	1 Good
Caustic	pH Adjus	Volumetric	Quick/Flash	1 Good
Powdered Activat	Taste Od	Volumetric	Quick/Flash	1 Not in operation
Lime	Alkalinity	Volumetric	Quick/Flash	1 Not in operation
Polymer	Filter Aid	Volumetric	Pre Floccula	1 Good
Hydrofluosilicic A	Dental He	Volumetric	Clearwell	1 Good
Copper Sulfate	Taste Od		Source Water	

How are chemical feeders calibrated?

How often are chemical feeders calibrated? daily

Are Chemical dosages calculated? Yes No

Are chemicals NSF approved? Yes No

Do the bulk liquid feed systems have day tanks? Yes No

Are at least two feeders provided for essential processes (such as coagulation, disinfection)?
 Yes No

Are spare parts available? Yes No

Is there enough storage for at least 30 days supply of chemicals used? Yes No

Are there containment areas around the chemicals in case of spills or leaks? Yes No

Are in plant water supplies protected from back-flow? (Cross connections): Yes No

Are backflow prevention devices tested? Yes No

What is the testing frequency? The facility is not sure when the backflow prevention system was last tested. **Last Tested**

Observations: The hydrofluosilicic acid and chlorine are stored in separate rooms from each other and from the rest of the chemicals fed at the subject facility. The facility operators report that the system is equipped with backflow prevention, however they do not have a program for testing the backflow devices and the frequency is sporadic and the date last tested was not known.

The storage area for all chemicals except the hydrofluosilicic and chlorine is in close proximity to the rapid mix. The area is in rather cramped quarters, however the storage area and day tanks appear to be reasonably well maintained. The only chemical that posed a concern from the standpoint of leaks and spills is the caustic soda. Although it is not presently feasible or convenient to store this chemical in a curbed or diked area, the corrosive nature of this chemical and the safety precautions for its handling and storage would indicate that it is advisable for the facility to consider a safer handling and storage plan for this chemical.

Disinfection

Type	Application Point	Redundancy Available
Chlori	Quick/Flash Mix	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Chlori	Pre Filter	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		Yes <input type="checkbox"/> No <input type="checkbox"/>
		Yes <input type="checkbox"/> No <input type="checkbox"/>

Are scales provided? Yes No

Are the scales operational? Yes No

Is automatic switchover of chlorine cylinders provided? Yes No

C-T Profiling Data Yes No

Observations: The facility appears to have the flexibility to feed chlorine at several places, if necessary. The facility has experienced problems with Disinfection ByProducts, and the addition of chlorine at the above given locations appears to give them adequate CT as well as some control over the DBPs. The relocation of the raw water intake to the free flowing portion of the Kentucky River as opposed to the backwater in Severns Creek or the shallow pools of Lower Thomas should appreciable help in alleviating the TOC concentrations in the raw water and this should be reflected in the TTHMs and HAA concentrations.

Clearwell

Volume (gallons)	Baffling Type	Disinfectant Residual
Basement 50,000		1.78mg/l
Round 225,000		1.77 mg/l

Are hatches secured? Yes No

Are vents screened? Yes No

List the plant tap: Chlorine residual: free 1.78 total 2.13 pH: 7.81

List any chemicals added to the clear well: Hydrofluosilic Acid

How often are clear wells cleaned? The chief operator reports that they have not cleaned the clearwell since it has been in operation (10 years)

Observations:

Pumps

(Low service/raw water, high service/finished water and backwash)

Flow Stream	Location	Number of Pumps	Capacity (gpm)	Pump Type	Flow Control Method
Raw Water	Severn Creek	2	600	centrifical	Manual
Raw Water	Raw Water	2	600	centrifical	Automatic
Finished Wat	Low Service basement clearwell	2	1,000	multi stage turbine	Automatic
Finished Wat	High Service basement	2	1,000	multio stage turbine	Automatic

Observations: The operators report that they can only operate one of the raw water pumps on automatic at a time, if they need to use both pumps they must run them on manual.

During the end of June 2004, the facility experienced problems with the two low service pumps that pump water from the basement clearwell up to the elevated round clearwell.

Both pumps "froze up" due to a heavy encrustation or coating of a lime type precipitate that covered the pumps and their internal mechanisms.

Both pumps were taken out of service and a sent off for cleaning and rehabilitation. An auxilliary pump was brought in from Georgetown, Ky. until one of the pumps could be sent off and repaired. The first pump was placed placed back into service within 48 hours of the incident, and the auxilliary pump was left at site as a standby in the event the problem reoccurred while the second pump was off being serviced. The operators report that the second pump had just been returned and placed back into service the week before the date of the inspection/sanitary survey. At the time of the inspection, Kentucky American Water was on-site to remove the auxilliary pump back to Georgetown.

As a result of the late June incident with the low service pumps, the facility has agreed to remove the high service pumps, one at a time, and evaluate their condition. The amount of precipitate observed to be present in the water in both the clearwells during the June incident was such that there is concern for a similar problem to occur with the high service pumps as well. As of the date of the field portion of the sanitary survey/inspection, the high service pumps were still scheduled for evaluation. The facility is waiting for the contractor with M & M Electric to clear his schedule to perform this evaluation.

On-line Instrumentation

Type	Flow Stream (Location)	Manufacturer	Last Calibration Date
Flow	Raw Water	Allen Bradley	11/ /03
Flow	Settled Water	Allen Bradley	11/ /03
Flow	Individual Filt	Allen Bradley	11/ /03
Level	Clearwell	Allen Bradley	11/ /03
Pressu	EPTDS	Allen Bradley	11/ /03
Loss o	Individual Filt	Allen Bradley	11/ /03
Level	Clearwell	Allen Bradley	11/ 03
Turbid	Settled Water	Hach	
Turbid	Individual Filt	Hach	
Turbid	EPTDS	Hach	
Chlori	Individual Filt	Hach	
Chlori	Tap	Hach	
pH	Tap	Hach	

Observations: The facility does have telemetry to the two tanks in the distribution system, however it has been out of service for about 2 years. They are able to determine the elevation of the water in the above ground clearwell/storage tank at the plant site as well as the pressure being pumped to town. At the time of the inspection/sanitary survey the water pressure leaving the facility via the high service pumps was 110 psi.

Distribution Storage Facilities

Location	Volume (gal)	Tank Type	Overflow				Last Cleaned/ Inspected	Telemetry
			Screen/ Flapper	Yes	No	>10' From tank		
Down-town	100,000	Eleva	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Fair-ground	400,000	Eleva	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
			Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>

Observations:The facility reports that both tanks were inspected by divers who videotaped the inspection/observations in 2002. As stated above the telemetry system to the two tanks has been out of service for a couple of years.

Distribution Booster Pumps and or Booster Disinfection Facilities Not Applicable

Location	Pump = P Disinfection = D	Number & Capacity of pumps (gpm)	Disinfection Type	Auxiliary Power
	P <input type="checkbox"/> D <input type="checkbox"/>	@		Yes <input type="checkbox"/> No <input type="checkbox"/>
	P <input type="checkbox"/> D <input type="checkbox"/>	@		Yes <input type="checkbox"/> No <input type="checkbox"/>
	P <input type="checkbox"/> D <input type="checkbox"/>	@		Yes <input type="checkbox"/> No <input type="checkbox"/>
	P <input type="checkbox"/> D <input type="checkbox"/>	@		Yes <input type="checkbox"/> No <input type="checkbox"/>
	P <input type="checkbox"/> D <input type="checkbox"/>	@		Yes <input type="checkbox"/> No <input type="checkbox"/>
	P <input type="checkbox"/> D <input type="checkbox"/>	@		Yes <input type="checkbox"/> No <input type="checkbox"/>
	P <input type="checkbox"/> D <input type="checkbox"/>	@		Yes <input type="checkbox"/> No <input type="checkbox"/>
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Does a certified distribution operator oversee distribution activities? Yes No

What piping materials are included in the distribution system (in general)? The facility operators report that there is a wide variety of piping material present in the distribution system. They do not believe that there is any lead pipe, however there is transite, steel, galvanized, PVC

Is there a formal flushing schedule? Yes No Written Procedure? Yes No

Are there maintenance schedules and procedures? Yes No

Is there a valve exercise/replacement program? Yes No

Is water loss tracked? Yes No

If so what is the percentage of water lost? The operators report that they track water loss as best as possible, however they did not have a "hard number" on the percentage lost.

Is there a water meter replacement program? Yes No

Is there a cross-connection control inspection program? Yes No

Does the utility have distribution maps? Yes No

Are there Main break notification procedures? Yes No

Observations: The facility reports that they do have a cross connection program in-place for the hospital, school and what little industry exists in town. They do replace water meters on an as needed basis, and the new water meters being used on new installations and replacements are equipped with a back flow preventer.

The facility is in the process of having the distribution map updated.

The facility does not have a formal line break notification procedure, and this was discussed during the course of the inspection. We would recommend that the water district develop a formal line break notification procedure and follow the procedures. We would also recommend that they begin keeping a maintenance and complaint log.

Laboratory (Plant)

Parameters Tested For	Frequency	Equipment Used	Calibration Method
Hardness	daily	Hach digital titrimeter	standards
Alkalinity	daily	titration	standards
Iron	daily	Hach Test Kit	
Manganese		Hach Test Kit	
Chlorine - Free & Total	every 4 hours	Hach Test Kit--DR/2000	
Fluorine	daily	Hach Test Kit	
Turbidity	every 4 hours	Hach turbidity meter -- 2100A	manufacturer's tech. annually standards at least weekly.
pH	every 4 hours	pH meter - Orion 420A	manufacturer's tech. annually 3 point standards calibration daily & end run
Jar Testing			

Is space adequate? Yes No

Is lighting adequate? Yes No

Are analyses conducted according to Standard Methods? Yes No

Observations: The reagents, buffer solutions and calibrations standards used were all well within the expiration dates specified on the bottles. The lab equipment appears to be well maintained.

In-Plant Sampling
(for example, top and bottom of filters)

Site #1	Cl. Free:	Total:	pH:	Turbidity: 0.21	Other:
Site #2	Cl. Free:	Total:	pH:	Turbidity: 0.2	Other:
Site CFE	Cl. Free: 1.79	Total: 2.13	pH: 7.79	Turbidity: 0.21	Other:
Site Top	Cl. Free:	Total:	pH:	Turbidity: 1.8	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:

Observations:

Distribution Sampling

Site #1	Cl. Free:0.47 Total: 0.70	pH: 7.95	Turbidity:	Other:	
Site #2	Cl. Free:0.68 Total: 1.08	pH: 7.80	Turbidity:	Other:	
Site #3	Cl. Free:0.98 Total: 1.26	pH: 7.84	Turbidity:	Other:	
Site #4	Cl. Free:1.01 Total: 1.32	pH: 7.73	Turbidity:	Other:	
Site #5	Cl. Free:0.31 Total: 0.38	pH: 7.75	Turbidity:	Other:	
Site #6	Cl. Free:1.34 Total: 2.2+	pH: 7.81	Turbidity:	Other:	
Site #7	Cl. Free:0.43 Total: 0.60	pH: 7.66	Turbidity:	Other:	
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:

Observations:Site #1 = Medical Center; Site #2 = 1105 Highway 127N; #3 = Dairy Queen; #4 = Highway 22W Hydrant; #5 = Green Acres Hydrant; #6 = 104 Robin Drive Hydrant; #7 = EMS Station. The distribution sample sites reflect North, South, East and Western portions of the distrubution system as well as dead end lines.

Chlorine Safety:

Is the chlorine room enclosed and separate from other operating areas? Yes No

Is there a working exhaust fan in the chlorine room? Yes No

Does it provide one complete air change per minute? Yes No

Does it exhaust from floor level? Yes No

Is intake air near the ceiling? Yes No

Are switches located outside the chlorine room? Yes No

Are chlorine tanks secured? Yes No

Is there a shatterproof viewing window in chlorine room? Yes No

Is there a crash bar on the door of the chlorine room? Yes No

Does it open out and to the exterior of the building? Yes No

Is there a SCBA unit meeting NIOSH standards out side the chlorine room? Yes No

Are personnel trained to use the SCBA? Yes No

Is leak detection provided? Yes No

If so is there an external audible and visual alarm? Yes No

Is there a chlorine tank repair kit? Yes No

Are personnel trained and certified to use the kits? Yes No

Is ammonia available for chlorine leak detection? Yes No

Is a lockout tag-out system used for electrical repairs? Yes No

Observations:the chlorine room is equipped with two (2); one intake, one exhaust. The intake is located up on the wall near the ceiling, the exhause is near the floor.

Chlorine Dioxide Safety: Not Applicable

Is sodium chlorite stored in a separate room? Yes No

Is it stored away from organic material? Yes No

Many materials will catch fire and burn violently when in contact with chlorite.

Observations:

Ammonia Safety: Not Applicable

Is the ammonia room enclosed and separate from other operating areas? Yes No

Is there a working exhaust fan in the ammonia room? Yes No

Does it provide one complete air change per minute? Yes No

Does it exhaust from ceiling level? Yes No

Is intake air near the floor? Yes No

Are switches located outside the ammonia room? Yes No

Are ammonia tanks secured? Yes No

Is there a shatterproof viewing window in ammonia room? Yes No

Is there a crash bar on the door of the ammonia room? Yes No

Does it open out and to the exterior of the building? Yes No

Is there a SCBA unit meeting NIOSH standards outside the ammonia room? Yes No

Are personnel trained to use the SCBA? Yes No

Is leak detection provided? Yes No

If so is there an external audible and visual alarm? Yes No

How are ammonia leaks detected?

Is a lockout tag-out system used for electrical repairs? Yes No

Observations:

Maintenance:

Is housekeeping adequate? Yes No

Are adequate supplies of spare parts kept on hand? Yes No

Are needed tools available? Yes No

What is the general condition of operating equipment? Although most of the operating equipment is stained from the use of ferric chloride, it appears to be well maintained and in good operating order. The facility maintains a reasonably adequate source of spare parts and back up equipment or can arrange to borrow the necessary equipment and materials in the event of an emergency. One concern for maintenance as well as safety is the negative impact that the sodium hydroxide (caustic soda) has on the solution pump equipment, low and high service pumps and other equipment with which it comes in contact.

Greater attention needs to be paid to the condition of the pumps that are vital to move the water from the basement clearwell to the above ground clearwell and from this final storage site to the distribution. The condition of the low service pumps that were the subject of the incident that occurred in June of 2004 needs to be evaluated on a routine basis to avoid a reoccurrence. The facility has indicated that they will be having the high service pumps evaluated in the near future, and we encourage them to make this a priority item. It would be advisable for the facility to make the necessary repairs so that the telemetry system could be recommissioned.

Is there a written preventive maintenance program? Yes No

If not, is preventive maintenance performed? Yes No

Observations: The housekeeping in the area of the basement clearwell could use some improvement, however given the amount of production required of the plant, the facility staff available, and the demands made on the personnel, the personnel are doing a very admirable job.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams

10. Reference: Feasibility Report, Section II: Statement of the Problem. KAW states that they recognized shortcomings of the Owenton WTP prior to purchasing it in 2005.
- A. Explain and provide documentation as to which issues were identified prior to the acquisition.
 - B. Explain whether the cost to correct these issues was taken into account during the acquisition (including the determination of the purchase price).

Response:

- A) KAW recognized the issues in the single treatment process train and raw water intake as described in the reports attached to the Responses to PSC Data Request Nos. 2 and 4. Also, KAW had access to the Division of Water 2004 Sanitary Survey, a copy of which is attached to the Response to AG Data Request No. 9.
- B) KAW did anticipate \$1.5 million in capital expenditures over the 5-year period following the purchase of the system during which KAW completed a chemical feed improvement project at the treatment plant, tank maintenance projects, and SCADA installation at remote tank sites.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
THE ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams / Keith Cartier

11. Reference: Feasibility Study, Section II: Statement of the Problem. KAW states that in the “portions of the system can be served from Purchase Agreements that KAW maintains with adjacent water districts.”
- A. Please provide a photocopy of each water purchase agreement or contract that KAW maintains with a supplier of the Northern Division.
 - B. Has KAW explored the feasibility of entering into a purchase agreement or agreements that would allow it to continue to serve Owenton without having to construct the main from KRS II?
 - C. Has KAW explored the feasibility of entering into a purchase agreement or agreements that would allow it to (i) reduce the size and/or scope of a KRS II interconnection project and/or (ii) reduce the size and/or scope of a rehabilitation of the Owenton WTP?
 - D. If yes, describe the providers contacted, the dates contact was made, and the content of the negotiations.
 - E. If no, explain why this option was not discussed in the Application.
 - F. Provide any necessary documentation used to determine operating under a purchase agreement is not a viable option. This includes, but is not limited to, an explanation as to why the current system cannot be modified in conjunction with a purchase agreement to meet the needs of Owenton.

Response:

- A. Please see the attached Water Agreements for the Georgetown Municipal Water and Sewer, Gallatin County Water District, and Carroll County Water District agreements.
- B. KAW has examined the possibility of increasing or commencing water purchases from neighboring water systems. These systems include Carroll County Water District #1, Gallatin County Water District, Georgetown Municipal Water and Sewer Service, and Bullock Pen Water District. All of these systems have limited infrastructure in place at the existing or potential connection points to the Northern Division system. Significant infrastructure improvements would be necessary on both sides of the connection point before even considering relying on purchase agreements through these systems to serve the Northern Division. Below are additional concerns for the potential connections:
 - Bullock Pen: The Bullock Pen WTP only has a 1 MG design capacity and the Bullock Pen Water District is expected to need an additional water source by 2020. See attached Bullock Pen WRIS System Data Report.
 - Georgetown Municipal Water & Sewer Service: The system utilizes an underground aquifer as its source water and relies on purchase

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
THE ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

agreements to supply approximately one-third of its annual usage. See attached GMWSS WRIS System Data Report.

- Carroll County Water District #1: The system only has a 1.06 MG design capacity and the system is in need of distribution system upgrades. See attached Carroll County WD WRIS System Data Report.
- C. Refer to the response to part B of this question.
- D. KAW has not contacted the providers to enter into negotiations for the purposes outlined in this question because none of these systems presents a viable option.
- E. Not applicable.
- F. Supplying the Northern Division through purchase agreements is not a viable option as documented in part B of this question. Significant infrastructure improvements would be required on both sides of the connection and the existing available service capacity from potential providers is very limited.



November 21, 2008

Mr. Keith Cartier
Kentucky American Water Company
2300 Richmond Road
Lexington, KY 40502

Re: Emergency Interconnection Agreement

Dear Mr. Cartier:

As you are aware, in May of 1999 Georgetown Municipal Water & Sewer Service (GMWSS) and Kentucky-American Water Company entered into an Agreement to connect facilities in order to supply water to one another in the event of a drought, emergency condition, service interruption or other unexpected condition. The term of the Agreement was for a period of ten (10) years from the original date of the Agreement. Therefore, the Agreement was scheduled to automatically renew in May of 2009, unless otherwise notified.

The GMWSS Board of Commissioners at their regularly scheduled meeting on November 18, 2008, approved a renewal of the Agreement for an additional ten (10) years from the automatic renewal date of May 2009.

If you have any questions, or need additional information, please feel free to contact our office at (502) 863-7816.

Sincerely,

GEORGETOWN MUNICIPAL WATER &
SEWER SERVICE

Billy Jenkins
General Manager

BJ:jbt



March 7, 2006

MAR -- 9 2006

Ms. Linda Bridwell
Kentucky American Water Company
2300 Richmond Road
Lexington, KY 40502

Dear Linda:

Per your request, attached please find a copy of the proposed contract water rate study for Georgetown Municipal Water & Sewer Service (GMWSS) to wholesale water to Kentucky-American.

Also enclosed are copies of the February 20, 2001, and March 20, 2001, GMWSS Board of Commissioners Meeting Minutes showing where the Board approved the transportation rate of \$0.70/1000 gallons of water.

If you have any questions, or need additional information, please feel free to contact our office at (502) 863-7816.

Sincerely,

GEORGETOWN MUNICIPAL WATER &
SEWER SERVICE

Robert L. Riddle, P.E.
General Manager

RLR:jbt

Enclosures

March 19, 2001



Mr. Bob Riddle
Georgetown Municipal Water & Sewer Service
P. O. Box 640
125 West Clinton
Georgetown, Kentucky 40324

Subject: **Contract Wholesale Water Rate for Kentucky American**

Dear Mr. Riddle:

As requested by Georgetown Municipal Water and Sewer Service (GMWSS), we have reviewed bulk water costs and have developed a wholesale rate for the sale of water to Kentucky American (KA). This rate was developed in response to KA's desire to purchase water from GMWSS for resale to customers in the Owen County area. The following is a brief summary of our analyses and findings.

PROPOSED CONTRACT WATER RATE

The recommended rate for water sold by GMWSS to KA for resale to customers in the Owen County area is \$2.65 per 1,000 gallons. This rate is based on a review of GMWSS's costs to provide water at the volumes specified by KA and should be reviewed on a periodic basis to reflect future changes.

Exhibit 1 (attached) summarizes the major cost components used in the determination of this rate. Other considerations and assumptions are discussed below.

PRINCIPAL CONSIDERATIONS AND ASSUMPTIONS

The following considerations and assumptions were used in establishing the recommended contract wholesale water rate for KA:

- The 1998 cost-of-service study was used as a basis for examining GMWSS's cost of water production, water purchases, transportation, and distribution.
- The KA contact rate includes: (a) bulk water transportation costs and (b) water commodity costs.
- The determination of bulk water transportation costs included an examination of GMWSS's direct investment in mains (8" and above) and an allocation of operations and maintenance, administrative and general, and replacement costs. Costs relating to smaller distribution mains were not included in the determination of bulk water transportation costs.
- The determination of water commodity costs included a review of rates at which GMWSS purchases water from Frankfort and KA and an examination of raw water treatment and other production-related expenses. The KA wholesale rate of \$1.93 per 1,000 gallons was used as a basis for the purposes of establishing GMWSS's incremental water commodity costs.
- Two interconnections with KA will be provided. One at Caney Church Road and one at Leaning Oak Road.
- Construction costs for existing interconnections at Leaning Oak Road and Caney Church Road were estimated based on average construction costs and pipeline length.

Mr. Bob Riddle
March 19, 2001
Page 2



- ☑ Based on information provided by KA, the total wholesale water requirements under this contract rate are anticipated to be 50,000 gallons per day for approximately 375 customers. No significant growth is expected.
- ☑ Water will be sold to KA pursuant to a contract between GMWSS and KA and will not be subject to regulation by the Kentucky Public Service Commission. No other customers will purchase water under the KA contract rates.

We appreciate the opportunity to provide these services to Georgetown Municipal Water and Sewer Service. Should you have any questions or need clarification of any issue discussed above, please call me at 615/851-5820.

Sincerely,

R. W. BECK, INC.

A handwritten signature in black ink, appearing to read 'Brown Thornton', written over a horizontal line.

Brown Thornton
Principal Consultant

BDT:cw
Attachment

GEORGETOWN MUNICIPAL WATER AND SEWER SYSTEM
Contract Wholesale Water Rate for Kentucky American
EXHIBIT 1 - Summary Analysis

Line No.	Item	Amount	Comment
1	<u>Estimated Cost of Mains</u>		
2	8" and above	\$ 4,714,365	(1)
3	<u>Estimated Transportation Cost as a % of Plant</u>		
4	Total Expenses and Margin	\$ 2,699,977	(1)
5	Less: Other Income	(258,971)	(1)
6	Revenue Requirement from Rates	\$ 2,441,006	Line 4 minus Line 5
7	Less: Water Filtration	(803,850)	(1)
8	Estimated Transportation Cost	\$ 1,637,156	Line 6 minus Line 7
9	Divided by: Total Utility Plant (OIC)	\$ 19,324,521	(1)
10	Transportation Cost Factor (Costs as a % of Plant)	8.5%	Line 8 / Line 9
11	<u>Annual Revenue Requirement for Mains</u>		
12	Investment in Mains	\$ 4,714,365	From Line 2
13	Transportation Cost Factor	8.5%	From Line 10
14	Annual Revenue Requirement for Mains	\$ 399,397	Line 12 X Line 13
15	<u>Transportation Rate</u>		
16	Annual Revenue Requirement for Mains	\$ 399,397	From Line 14
17	Annual System Gallons (000's)	572,894	(1)
18	Transportation Rate (\$/000 gal)	\$ 0.70	Line 16 / Line 17
19	<u>Water Commodity Costs</u>		
20	Average GMWSS Production Costs (\$/000 gal)	\$ 1.10	
21	Frankfort Contract Rate (\$/000 gal)	\$ 1.30	
22	Kentucky American Contract Rate (\$/000 gal)	\$ 1.93	
23	Total Calculated Contract Rate (2)	\$ 2.63	Line 18 + Line 22

Note: (1) Based on 1998 GMWSS Cost of Service Study.
(2) Recommend a contract rate of \$2.65 per 1,000 gallons

GEORGETOWN MUNICIPAL WATER
AND
SEWER SERVICE

BOARD MEETING

FEBRUARY 20, 2001

The regular meeting of the Georgetown Municipal Water & Sewer Service Board of Commissioners was held at the Water Company at the hour of 4:00 p.m.

Those present were:

Wil James	Bob Riddle	Bob Wilhite
Greg Johnson	Reggie Greenup	Vickie Dunn
Gervis Showalter	Bryan Lovan	Paul Combs
Maurice Alsop	Bill Jenkins	

Chairman Wil James called the meeting to order at 4:05 p.m.

The minutes of January 16, 2001, were not available for review.

Motion by Showalter, Second by Alsop to approve water availability for the Donald Thompson Farm property of approximately 10 tracts ranging from 5 acres to 7 acres on 54.27 acres located at the corner of Graves Road and Locust Fork Road, subject to the usual contingencies and the receipt of plans showing the acres involved. The motion passed, with Greg Johnson abstaining.

Motion by Johnson, Seconded by Alsop to approve the monthly bills for payment after review. The motion passed.

Bob Wilhite presented the monthly financial reports. Board accepted report.

A purchase order to CEI Engineering Associates for \$8,250 was presented. This represents 50% of the design and inspection fees for sanitary sewer upgrades to Georgetown Community hospital; which would pay the other 50%. This upgrade will allow GMWSS to eliminate one of GMWSS's pump station and two privately owned pump stations. The cost will be shared 50/50 due to the benefit to GMWSS of eliminating three pump stations. Moved by Alsop, Seconded by Showalter. The motion passed.

Brian Lovan of PDR Engineers presented the status report of projects to the board. The Board accepted the report.

Paul Combs presented a report updating the Board on the progress so far of expanding class series and upgrading job descriptions. He is also preparing a market survey on employee compensation. A meeting will be scheduled with the Personnel Committee of the Board within three to four weeks, and the final report will then be submitted to the Board.

Bill Jenkins presented the Operations Report. Board accepted the report.

Bill Jenkins presented the Loss & Unaccounted for Water Report. Due to an unexpected increase in water production at the plant, a recalibration of the meters at the WTP will be scheduled. The Board requested a follow-up report after the re-calibration of the meters.

Bob Riddle presented the Engineering Report. Board accepted the report.

Bill Jenkins presented a proposal from KAWC to give assistance in disconnection of water service to GMWSS sewer customers in the area served by KAWC. The Board requested that some further details be worked out & the final proposal be presented at the next meeting.


Motion by Johnson, Seconded by Showalter to accept the low bid of 8.9% from Quest Engineering for design and construction fees for the Boston/Military Street Water Line Upgrades. The motion passed.

Bob Wilhite presented a report on the water transportation rate for water transported through GMWSS's system and sold in Owen County. The transportation rate was calculated to be \$.70 per thousand gallons, which would be added to the current wholesale rate of \$1.93 from KAWC. The board accepted the rate of \$2.63.

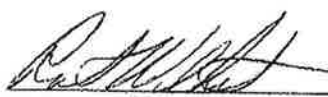
Motion by Johnson, Seconded by Alsop to go into executive session.

Motion by Alsop, Seconded by Johnson to come out of executive session.

There being no further business, Motion by Showalter, Second by Alsop to adjourn the meeting at 6:00 p.m. The motion passed.



Will James, Chairman



Robert Wilhite, Acting Secretary

GEORGETOWN MUNICIPAL WATER
AND
SEWER SERVICE BOARD MEETING
MARCH 20, 2001

The regular meeting of the Georgetown Municipal Water and Sewer Service Board was held at the Water Company at the hour of 4:00 p.m. Those present:

<p>Gervis Showalter Maurice Alsop Greg Johnson Walter Barkley Brian Lovan Billy Jenkins Bob Riddle Mr. Bill Howard</p>	<p>Les Jarvis Will James Bruce Lankford Glenn Williams Brown Thornton Vickie Dunn Bob Wilhite</p>
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The meeting was called to order by Chairman James.

Motion by Johnson, Second by Alsop, to approve the minutes of meetings on December 19, 2000, January 16, 2001 and February 20, 2001 after review. Motion approved.

Mr. Glenn Williams on behalf of Walter Barkley owner of the Dairy Freeze property addressed the Board concerning sewer charges now being received that previously had not been charged since the early 1960's. Mr. Williams indicated that when the property was purchased it was indicated that sewer would never be billed, however there appears to be no documentation to this effect. Staff will review further with Mr. Williams to resolve the matter.

Bob Wilhite next reviewed the monthly financial reports with the Board, which accepted the report as presented.

Motion by Jarvis, Second by Alsop, to approve the monthly bills payable after review. Motion approved.

Mr. Bill Howard next reviewed the plans for the sewer service on privilege fee #5 on Cherry Blossom Way and Connector Road. Mr. Howard is having trouble gaining permission to access the easement from Mr. Brent Rice at the Chevron Station. There appears to be an alternative route if necessary to avoid conflict. Presently Mr. Howard will begin digging along the other end of the project until amenable approvals can be obtained. Bruce Lankford will discuss further with Mr. Rice to obtain approval.

Motion by Showalter, Second by Johnson, to approve purchase order to Hamilton Hinkle and Ruth in the amount of \$5998.00 to install concrete binder and DGA at WWTP #1. Motion approved.

Motion by Showalter, Second by Jarvis, to approve purchase order to Reynolds in the amount of \$6145.00 to replace and install new pump at water treatment plant. Motion approved.

Motion by Johnson, Second by Showalter, to approve purchase order to Ball Homes in the amount of \$ 5875.00 for upsizing of eight-inch water line to 12-inch water line at Bradford Unit #2. Motion approved.

Bob Wilhite reviewed bids on the replacement of the handheld meter reading devices, which will not have support effective 12-31-02. The low bids to replace are

\$12,060.00 from Sensus not including maintenance costs. Motion by James, Second by Showalter to approve. Motion approved.

Brian Lovan reviewed the PDR Engineers project report. Board accepted report.

Billy Jenkins reviewed the Operational report. Board accepted report.

Bob Riddle reviewed the Engineering report. Board accepted report.

Billy Jenkins reviewed the bids for the replacement of two 1991 Chevrolets in accordance with our vehicle replacement policy and the budget. The low bidder on both vehicles was Dan Cummins in the amounts of \$16,379.88 and \$14,379.88.

Motion by Jarvis, Second by Showalter to accept both bids as presented. Motion approved.

Motion by Alsop, Second by Johnson to approve the low bidder of NAC Heavy Highway, Inc. in the amount of \$126,000.00 for the Plant Drainage pump station improvement project. This project is included within the fiscal year budget. Motion approved.

Brown Thornton next reviewed the report on developing rates for the Kentucky American Water for wholesale water sales. The recommendation to GMWSS is to sell at \$2.65 per 1000 gallons of water. The contract would not be subject to the Public Service Commission. Motion by Johnson, Second by Showalter, to approve the rate of \$2.65 per 1000 gallons of water. Motion approved.

Mr. Thornton next reviewed the feasibility of evaluating the feasibility of acquiring water from the Scott County reservoir as a water source. The Board will review and discuss at a later date.

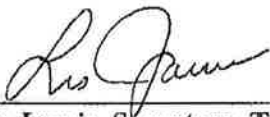
Bob Wilhite next reviewed the miscellaneous fee schedule with recommended changes from staff. After review by the Board, staff will restructure the report for next months meeting.

Bob Riddle informed the Board that the Kentucky Division for Air Quality has received several odor complaints from residents living in the area near the Toyota Plant. They are going to locate a monitoring site at WWTP #2 on Cherry Blossom Way. Board accepted report.

There being no further business the meeting was adjourned.



Will James, Chairman



Les Jarvis, Secretary-Treasurer

WATER PURCHASE AGREEMENT

This Contract, made and entered into this 10 day of October 2000, by and between the Gallatin County Water District, a special district formed pursuant to KRS Chapter 74, acting by and through its duly authorized officer and Chairman of its Board of Commissioners, Denny French, party of the first part, Seller, and the Tri-Village Water District, a special district formed pursuant to KRS Chapter 74, acting by and through its duly authorized officer and Chairman of its Board of Commissioners, Charles F. Noel, party of the second part, Buyer.

WITNESSETH

Whereas, the parties hereto are each special districts formed under KRS Chapter 74 for the purposes of constructing and operating water supply distribution systems serving water users within their respective areas of jurisdiction, and

Whereas, Buyer requires additional supplies of potable treated water in order to adequately fulfill its obligations to its users in the City of Glencoe and has requested that same be supplied to it by Sellers, and

Whereas, Seller owns and operates a water supply distribution system capable of serving its present customers and the estimated number of Buyer's users to be served by the gallonage proposed to be sold to Buyer hereunder (currently being 266), and

Whereas, Seller deems it in the best interests of itself and its users that it profitably dispose of its excess capacity as herein proposed, and

Whereas, both parties hereto have approved the sale and purchase of water in accordance with the terms and conditions contained herein by Resolutions duly adopted by their respective commissioners

PUBLIC SERVICE COMMISSION
OF KENTUCKY
OFFICE

JAN 01 2001

Now Therefore, for and in consideration of the foregoing premises and the mutual agreements and undertakings hereinafter set forth, the parties promulgated pursuant to 807 KAR 5011, SECTION 9(1)

BY Stephan Bee
SECRETARY OF THE COMMISSION

1 Seller agrees to furnish and supply to Buyer, at the point of delivery hereinafter specified, during the term of this agreement or any renewal or extension thereof, potable treated water meeting applicable state and federal purity and quality standards in such quantity as may be required by the Purchaser not to exceed 1.5 million gallons per month

2 Said water will be furnished at a reasonably constant pressure calculated at 30 or greater PSI from a 6 inch main supply at a point located at west side of U.S. Hwy 127 just south of Clarence Sullivan property at city limits of Glencoe, Kentucky. If a greater pressure than that normally available at the point of delivery is required by the

Purchaser. The cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply line breaks, power failure, flood, fire and use of water to fight fire, earthquake or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3. Seller agrees to furnish, install, operate and maintain at its own expense at point of delivery, the necessary metering equipment, including a meter house or pit, and required devices of standard type for properly measuring the quantity of water delivered to the Purchaser and to calibrate such metering equipment whenever requested by the Purchaser but no more frequently than once every twelve (12) months. A meter registering not more than two percent (2%) above or below the test result shall be deemed to be accurate. The previous readings of any meter disclosed by test to be inaccurate shall be corrected for the 3 months previous to such test in accordance with the percentage of inaccuracy found by such tests. If any meter fails to register for any period, the amount of water furnished during such period shall be deemed to be the amount of water delivered in the corresponding period immediately prior to the failure, unless Seller and Purchaser shall agree upon a different amount. The metering equipment shall be read on First Working day of Month. An appropriate official of the Purchaser at all reasonable times shall have access to the meter for the purpose of verifying its readings.

4. Seller agrees to furnish the Purchaser not later than the fifteenth day of each month, with an itemized statement of the amount of water furnished the Purchaser during the preceding month.

5. Purchaser agrees to pay the Seller, not later than the tenth day of each month, for water delivered in accordance with the following schedule of rates:

One Dollar and forty cents (\$1.40) per thousand gallons, unless and until modified by mutual agreement of the parties or by order of the Public Service Commission or any successor agency thereof.

6. Purchaser agrees to pay as an agreed cost, a connection fee to connect the Seller's system with the system of the Purchaser in a sum equal to one-half (1/2) the cost of installation and acquisition of the metering equipment, not to exceed the sum of \$2,000.00.

7. It is further mutually agreed between the Seller and the Purchaser as follows:

A. (Term of Contract) That this contract shall extend for a term of 20 years from the date of initial delivery of any water as shown by the first bill submitted by the Seller to the Purchaser and, thereafter shall be extended or renewed for successive one year terms, unless terminated by either party upon written notice delivered not less than 120 days next preceding the expiration of the term of the contract or any extension or renewal thereof. Upon breach of this

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PURSUANT TO 807 KAR 5.011,
SECTION 9 (1)

By Stephan D. Bell
SECRETARY OF THE COMMISSION

contract by failure to perform, misrepresentation or other cause the non-breaching party may terminate this contract upon thirty (30) days prior written notice to the breaching party, unless the breaching party wholly cures its breach within that 30 day notice period.

B. (Delivery of Water) That 30 days prior to the estimated date of initial delivery of water, the Purchaser will notify the Seller in writing the date for the initial delivery of water.

C. Purchaser shall have the right, at all reasonable times, to conduct testing of Seller's water quality at the master meter

D. (Failure to Deliver) That the Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities and quality of water required by the Purchaser. Temporary or Partial failure to deliver water shall be remedied with all possible dispatch. In the event of an extended shortage of water or the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to Purchaser's consumers shall be reduced or diminished in the same ratio or proportion as the supply to Seller's consumers is reduced or diminished.

E. (Modification of Contract) That the provisions of this contract pertaining to the schedule of rates to be paid by the Purchaser for water delivered are subject to modification at any time upon mutual agreement of the parties, or upon application to and approval of the Public Service Commission, or any agency successor thereto. No rate increase shall become effective prior to the date 180 days subsequent to the date Seller gives notice to Purchaser of its intent to raise the rate charged to Purchaser.

In the event that compliance with action by regulatory authority causes Seller to increase its rate to its customers in order to meet resulting increased costs, the rates charged to Purchaser shall be subject to increase in the same percentage as that borne by Seller's other users, the Seller's rate structure being based solely upon quantity of use. In the event that rate classifications are subsequently developed by Seller, Purchaser shall be given the whole sale rate or its equivalent.

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Provisions of this contract may be modified or altered by mutual agreement

JAN 01 2001

F. (Regulatory Agencies) That this contract is subject to such rules, regulations, or laws as may be applicable to similar agreements in this State, including those promulgated, implemented and enforced by the Public Service Commission and the Seller and Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.

PURSUANT TO 807 KAR 5011
SECTION 9(1)
BCC
OF THE COMMISSION

COMMONWEALTH OF KENTUCKY
COUNTY OF Gallatin)

Signed and acknowledged before me by Denny French and Charles F. Noel on
this the 10th day of October, 2000.

My commission expires: 8-4-2001

Cindy J. Cliper
Notary Public, State at Large, Ky

PUBLIC SERVICE COMMISSION
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JAN 01 2001

PURSUANT TO 807 KAR 5011,
SECTION 9 (1)

BY Stephan D. Bell
SECRETARY OF THE COMMISSION

WATER PURCHASE AGREEMENT

This Contract, made and entered into this 14th day of September, 2000, by and between the Carroll County Water District #1, a special district formed pursuant to KRS Chapter 74, acting by and through its duly authorized officer and Chairman of its Board of Commissioners, Dennis Crawford, party of the first part, Seller, and the Tri-Village Water District, a special district formed pursuant to KRS Chapter 74, acting by and through its duly authorized officer and Chairman of its Board of Commissioners, Charles F. Noel, party of the second part, Buyer.

WITNESSETH:

Whereas, the parties hereto are each special districts formed under KRS chapter 74 for the purposes of constructing and operating water supply distribution systems serving water users within their respective areas of jurisdiction, and

Whereas, Buyer requires additional supplies of potable treated water in order to adequately fulfill its obligations to its users in the Wheatley area and has requested that same be supplied to it by Sellers, and

Whereas, Seller owns and operates a water supply distribution system capable of serving its present customers and the estimated number of Buyer's users to be served by the gallonage purposed to be sold to buyer hereunder, and

Whereas, Seller deems it in the best interests of itself and its users that it profitably dispose of its excess capacity as herein proposed, and

Whereas, both parties hereto have approved the sale and purchase of water in accordance with the terms and conditions contained herein by Resolutions duly adopted by their respective commissioners.

Now Therefore, for and in consideration of the foregoing premises and the mutual agreements and undertakings hereinafter set forth, the parties promise and agree as follows:

1. Seller agrees to furnish and supply to Buyer, at the point of delivery hereinafter specified, during the term of this agreement or any renewal or extension thereof, potable treated water meeting applicable state and federal purity and quality standards in such quantity as may be required by the Purchaser.

2. Said water in the amount of 75000 gallons per day will be furnished at a reasonably constant pressure calculated at 30 or greater PSI from a master meter installed in a 6" water main located on Highway 227 between the water tank and

Wheatley. If a greater pressure than the normally available at the point of delivery is required by the Purchaser, the cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure of supply due to main supply line breaks, power failure, flood, fire and use of water to fight fire, earthquake or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3. Seller agrees to furnish, install, operate, and maintain at its own expense at point of delivery, the necessary metering equipment, including a meter house or pit, and required devices of standard type of properly measuring the quantity of water delivered to the Purchaser and to calibrate such metering equipment whenever requested by the Purchaser but no more frequently than once every twelve (12) months. A meter registering not more than two percent (2%) above or below the test result shall be deemed to be accurate. The previous readings of any meter disclosed by test to be inaccurate shall be corrected for the 3 months previous to such test in accordance with the percentage of inaccuracy found by such tests. If any meter fails to register for any period, the amount of water furnished during such period shall be deemed to be the amount of water delivered in the corresponding period immediately prior to the failure, unless Seller and Purchaser shall agree upon a different amount. The metering equipment shall normally be read on the 20th day of the month. An appropriate official of the Purchaser at all reasonable times shall have access to the meter for the purpose of verifying its readings.

4. Seller agrees to furnish the Purchaser not later than the 5th day of each month, with an itemized statement of the amount of water furnished the purchaser during the preceding month.

5. Purchaser agrees to pay the Seller, not later than the 20th day of each month, for water delivered in accordance with the following schedule of rates:

\$1.66 per thousand gallons

6. It is further mutually agreed between the Seller and the Purchaser as follows:

A. (Term of Contract) That this contract shall extend for a term of 20 years from the date of initial delivery of any water as shown by the first bill submitted by the Seller to the Purchaser and, thereafter shall be extended or renewed for successive one year terms, unless terminated by either party, upon one year's written notice delivered, except where the Seller is unable to comply with its obligations under Sections 1 and 2 or any breach of representations in this contract in which case Purchaser may terminate this contract upon 30 days' written notice.

B. (Delivery of Water) That 30 days prior to the estimated date of initial delivery of water, the Purchaser will notify the Seller in writing the date for initial delivery of water.

C. Purchaser shall have the right, at all reasonable times, to conduct such testing of Seller's water quality at such locations in Seller's system as is reasonable.

D. (Failure to Deliver) That the Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with the quality and quantities of water required by the Purchaser. Temporary or partial failure to deliver water shall be remedied with all possible dispatch. In the event of an extended shortage of water, or the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to Purchaser's consumers shall be reduced or diminished in the same ratio or proportion as the supply to Seller's consumers is reduced or diminished.

E. (Modification of Contract) That the provisions of this contract pertaining to the schedule of rates to be paid by the Purchaser for water delivered are subject to modification at any time upon mutual agreement of the parties provided that Purchaser shall be provided with 120 days' notice prior to any modification of rates.

In the event that compliance with action by regulatory or governmental authority causes Seller to increase its rate to its customers in order to meet resulting increased costs, the rates charged to Purchaser shall be subject to increase based upon approval by the Public Service Commission.

Provisions of this contract may be modified or altered by mutual written agreement.

F. (Regulatory Agencies) That this contract is subject to such rules, regulations, or laws as may be applicable to similar agreements in this State, including the Kentucky Public Service Commission, and the Seller and Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.

The parties' respective rights and duties hereunder are contingent upon all necessary approvals from the Kentucky Public Service Commission, or its successor agency.

CARROLL COUNTY WATER DISTRICT

RESOLUTION

A Resolution related to contracting for the Sale of Water to Tri-Village Water District, approving same and authorizing the Chairman of the Board of Commissioners to execute and deliver a contract evidencing same.

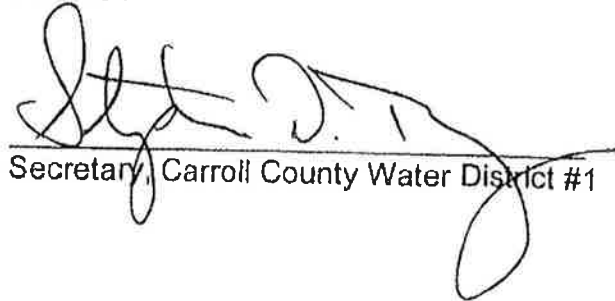
Be it resolved by the Commissioners of the Carroll County Water district, as follows:

That Dennis Crawford, Chairman, of the Board of Commissioners and is hereby authorized, empowered and directed to execute and deliver, on behalf of the district, thereby binding the District to, a contract for the sale of water to the Tri-village Water district at the rate of \$1.66 per thousand gallons, to a point of delivery at metering station near Wheatley, Kentucky, for a term of 20 years with automatic one-year extensions terminable by either party upon one year's prior notice, and containing other customary and prudent terms and provisions, which contract is hereby approved.

Adopted this 14th day of SEPT., 2000.


Chairman, Board of Commissioners of
Carroll County Water District #1

ATTEST


Secretary, Carroll County Water District #1

TRI-VILLAGE WATER DISTRICT

RESOLUTION

A Resolution related to contracting for the Sale of Water to Tri-Village Water District, approving same and authorizing the Chairman of the Board of Commissioners to execute and deliver a contract evidencing same.

Be it resolved by the Commissioners of the Tri-Village Water District, as follows:


That Charles Noel, Chairman of the Board of Commissioners and is hereby authorized, empowered and directed to execute and deliver, on behalf of the District, thereby binding the District to, a contract for the sale of water to the Tri-Village Water District at the rate of (INSERT RATE)per thousand gallons, to a point of delivery at (INSERT LOCATION), Kentucky, for a term of 20 years with automatic one-year extensions terminable by either party upon one year's prior notice, and containing other customary and prudent terms and provisions, which contract is hereby approved.

Adopted this ____ day of _____, 2000.



Chairman, Board of Commissioners of
Tri-Village Water District

A True Copy: ATTEST



Secretary, Tri-Village Water District

TRI-VILLAGE WATER DISTRICT

RESOLUTION

A resolution related to contracting for the sale of water to Tri-Village Water District, approving same and authorizing the Chairman of the Board of Commissioners to execute and deliver a contract evidencing the same.

Be it resolved by the Commissioners of the Tri-Village Water District, as follows:

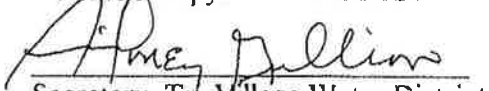
That Charles Noel, Chairman of the Board of Commissioners is hereby authorized, empowered and directed to execute and deliver, on behalf of the District thereby binding the District to, a contract for the sale of water to the Tri-Village Water District at the rate of \$1.66 per 1000 gallons, to a point of delivery at Wheatley, Kentucky, Highway 227, for a term of 20 years with automatic one-year extensions terminable by either party upon one year's prior notice, and containing other customary and prudent terms and provisions, which contract is hereby approved.

Adopted this 13th day of September, 2000



Chairman, Board of Commissioners of
Tri-Village Water District

A True Copy: ATTEST



Secretary, Tri-Village Water District

DOW Permit ID: **KY0410047**

[Link: EPA SDWIS Report](#)

DOW Permit Type: **DRINKING WATER (PWSID)**

[Link: DOW SDWIS Report](#)

DOW Permit Name: **Bullock Pen Water District**

WRIS System Name: **Bullock Pen Water District**

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **NKADD**

Primary County: **Grant**

Dow Field Office: **Florence**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

SYSTEM CONTACT INFORMATION

Contact: **William Catlett**

Title: **Superintendant**

Address Line 1: **PO Box 188**

Address Line 2:

City **Crittenden**

State: **KY** Zip: **41030**

Phone: **859-428-2112**

EMail: bullockpen@fuse.net

Data Source: **KENTUCKY INFRASTRUCTURE AUTHORITY**

Date Last Modified: **03.28.2012**

OWNER ENTITY INFORMATION

Entity Type: **Water District (KRS 74)**

PSC Group ID: **19200**

Entity Name: **Bullock Pen Water District**

Web URL:

Office EMail: bullockpen@fuse.net

Office Phone: **859-428-2112**

Toll Free:

Fax: **859-428-1293**

Mail Address Line 1: **PO Box 188**

Phys Address Line 1:

Mail Address Line 2:

Phys Address Line 2:

Mail City, State Zip: **Crittenden, KY 41030**

Phys City, State Zip:

Contact: **Bobby Burgess**

Manager: **Bobby Burgess**

Contact Title:

Manager Title:

Contact EMail: bullockpen@fuse.net

Manager EMail: bullockpen@fuse.net

Contact Phone: **859-428-2112**

Manager Phone: **859-428-2112**

Contact Cell:

Manager Cell:

Authorized Official: **Bobby Burgess**

Auth. Official Title:

Auth. Official EMail: bullockpen@fuse.net

Auth. Official Phone: **859-428-2112**

Auth. Official Cell:

Data Source: **KENTUCKY INFRASTRUCTURE AUTHORITY**

Date Last Modified: **01.05.2011**

DEMOGRAPHIC INFORMATION

Counties Directly Served: **6**

Directly Serviceable Population: **19,544**

Indirectly Serviceable Population:

Total Serviceable Population: **19,544**

Note: Population counts are based on KIA census block overlay with WRIS mapped features.

County Served	Connection Count	Serviceable Population
Boone	1,060	3,253
Gallatin	35	134
Grant	5,481	14,755
Kenton	386	986
Owen		8
Pendleton	118	408
Totals	7,080	19,544

System Respondent

ADD WMP

Date

FISCAL ATTRIBUTES

Date Established: **01.01.1957**

Employees: **15**

Does this system:

If this is a municipal system, what is the cost per 4,000 gallons of finished water for customers:

(a) Produce Water? **Yes**

(a) inside your municipality:

(b) Have wholesale customers? **No**

(b) outside your municipality:

(c) Purchase water? **Yes**

If this is a non-municipal system, what is the customer cost per 4,000 gallons of finished water? **\$44.19**

Comments:

Date Last Modified: 03.20.2012

Providers that sell water to this system:

Seller DOW Permit ID	Seller Name	Water Type	Ann. Vol. (MG)	Cost		Interconnects		
				Raw	Fin	Perm	Seas	Emer
KY0080034	Boone County Water & Sewer District	F			\$3.53	1	0	0
KY0080442	Walton Waterworks Department	F	38.341		\$3.93	1	0	0
KY0390130	Gallatin County Water District	F			\$3.53	0	0	1
KY0410472	Williamstown Municipal Water Department	F	47.943		\$2.75	1	0	0
KY0590220	Northern Kentucky Water District	F	164.037		\$3.13	1	0	0
Totals and Averages			250.321		\$3.37	4	0	1

- MG = Million Gallons
- Water Types: R = Raw Water, F = Finished Water, B = Both Raw and Finished Water
- Cost Categories: Raw = Raw Untreated Water, Fin = Finished Treated Water
- Raw and Finished costs are per 1,000 gallons.
- Interconnect Types: Perm = Permanent, Seas = Seasonal, Emer = Emergency

DOW Permit ID: **KY0410047**

[Link: EPA SDWIS Report](#)

DOW Permit Type: **DRINKING WATER (PWSID)**

[Link: DOW SDWIS Report](#)

DOW Permit Name: **Bullock Pen Water District**

WRIS System Name: **Bullock Pen Water District**

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **NKADD**

Primary County: **Grant**

Dow Field Office: **Florence**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

SYSTEM PLANNING

Water Treatment Plants:

Facility Name	Design Capacity (MGD)	Ave. Daily Prod. (MGD)	High. Daily Prod. (MGD)
BULLOCK PEN WTP	1.000	0.460	0.920
Totals	1.000	0.460	0.920

Operational Statistics:

Total Annual Vol. Produced (MG):

Total Annual Vol. Purchased (MG): **250.321**

Total Annual Vol. Provided (MG): **250.321**

Estimated Annual Water Loss: **(1.0)%**

Wholesale Customers: **0** Wholesale Usage (MG):

Residential Customers: **6,659** Residential Usage (MG): **278.112**

Commercial Customers: **428** Commercial Usage (MG): **16.164**

Institutional Customers: **7** Institutional Usage (MG): **18.720**

Industrial Customers: **5** Industrial Usage (MG): **1.512**

Other Customers: **5** Other Cust. Usage (MG): **0.252**

Total Customers: **7,104**

Flushing, Maintenance and Fire Protection Usage (MG):

Total Annual Water Usage (MG): **314.760**

Projected water supply inadequacies through 2020 during normal operating conditions:

Bullock pen water district will need additional water source

Projected water supply inadequacies through 2020 during drought operating conditions:

Conservative may be needed especially in the summer

Comments:

Date Last Modified: 03.28.2012

WMP Site Visit - Survey Information:

Site Visit / Survey Date: **03.20.2012**

Survey Administrator: **Jeff Burt**

Principal Respondent: **Billy Catlett**

Other Respondent(s):

Comments:

Date Last Modified: 03.28.2012

WRIS System Data Report

KY0410047 - Bullock Pen Water District

DOW Permit ID: **KY0410047**

[Link: EPA SDWIS Report](#)

DOW Permit Type: **DRINKING WATER (PWSID)**

[Link: DOW SDWIS Report](#)

DOW Permit Name: **Bullock Pen Water District**

WRIS System Name: **Bullock Pen Water District**

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **NKADD**

Primary County: **Grant**

Dow Field Office: **Florence**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

SYSTEM MAINTENANCE

This system has a policy manual in place containing the following items:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Personnel Policies | <input checked="" type="checkbox"/> Standard Operating Procedures |
| <input checked="" type="checkbox"/> Line Maintenance Program | <input checked="" type="checkbox"/> Meter Testing Program |
| <input checked="" type="checkbox"/> Routine Pressure Checks | <input checked="" type="checkbox"/> Pump Station Maintenance Schedule |
| <input checked="" type="checkbox"/> Emergency Operation Procedures | <input checked="" type="checkbox"/> Backup Sources |
| <input checked="" type="checkbox"/> A Water Shortage Plan | <input checked="" type="checkbox"/> A Water Conservation Plan |

The management of this system participates in an area water management planning council.

The management of this system participates in regular training activities.

System operator(s) participate in regular training activities.

This system has periodic service outages.

Cause(s):

This system has periodic pump failures.

Cause(s):

This system has periodic line breaks.

The following components are associated with periodic line breaks:

Typical line size: **6.00**

Typical line location(s): **Various areas**

Typical cause(s): **Aging lines, weather**

Other cause(s): **No**

Est. Water Loss Percentage: **5.0 %**

This system has localized problems.

The following components are associated with localized problems:

Problem location(s):

Problem diameter(s):

Problem pressure(s):

Problem cause(s):

Other problem characteristics:

This system has as-built plans (record drawings).

Est. degree of accuracy for as-built plans (%): **85%**

This system uses an on-staff inspector(s) for construction projects.

Maintenance notes for this system:

Date Last Modified: **09.29.2004**

The following projects are associated with this system:

PNUM	Applicant	Project Status	Funding Status	Schedule	Project Title	Profile Modified	GIS Modified
WX21015002	Bullock Pen Water District	Approved	Not Funded	0-2 Years	BPWD McCoy Fork / Poole Road WL Connector	05.14.2012	03.12.2012
WX21015003	Bullock Pen Water District	Approved	Not Funded	0-2 Years	BPWD I-71 Water Line Bore	05.14.2012	03.12.2012
WX21015006	Bullock Pen Water District	Approved	Not Funded	0-2 Years	Bullock Pen Water District - Boone County Master Meter and Improvements	02.13.2012	11.14.2011
WX21037313	Northern Kentucky Water District	Under Construction	Partially Funded	0-2 Years	NKWD - Advance Treatment Project	04.11.2012	10.31.2011
WX21081003	Bullock Pen Water District	Approved	Not Funded	0-2 Years	Bullock Pen Improvements Phase 13	02.13.2012	02.13.2012
WX21081303	Bullock Pen Water District	Approved	Not Funded	3-5 Years	Bullock Pen - Dry Ridge-Mt. Zion Rd. Water Line Replacement	02.10.2012	09.30.2010
WX21081304	Bullock Pen Water District	Approved	Not Funded	0-2 Years	Bullock Pen Water District - Grant County Improvement Project	03.28.2012	02.14.2011
WX21081305	Bullock Pen Water District	Approved	Not Funded	0-2 Years	Bullock Pen - Raw Water Intake	02.10.2012	01.25.2011
WX21081306	Bullock Pen Water District	Approved	Not Funded	3-5 Years	Bullock Pen - Phase II Water System Improvements	02.10.2012	02.14.2011
WX21081310	Grant County Fiscal Court	Under Construction	Partially Funded	0-2 Years	Grant County Waterline Extension; Phase - Closeout	03.28.2012	09.30.2010
WX21081311	Bullock Pen Water District	Constructed	Not Funded	0-2 Years	Pumpstation At NKWD Master Meter	02.10.2012	08.05.2010
WX21081312	Bullock Pen Water District	Approved	Not Funded	6-10 Years	Bullock Pen - Southwest Water Storage Tank	03.28.2012	08.05.2010
WX21081313	Bullock Pen Water District	Under Construction	Not Funded	0-2 Years	Bullock Pen Water District - Highway 25 Water Line Replacement	02.10.2012	10.01.2010
WX21081314	Bullock Pen Water District	Approved	Not Funded	3-5 Years	Bullock Pen Water District - Sherman Mt. Zion Water Line Replacement	02.10.2012	09.30.2010
WX21081315	Bullock Pen Water District	Approved	Not Funded	3-5 Years	Bullock Pen Water District - Gardnersville Tank	02.10.2012	08.05.2010
WX21081316	Bullock Pen Water District	Approved	Not Funded	0-2 Years	Bullock Pen - Golds Valley Water Line - Owen County	02.10.2012	09.30.2010
WX21117012	Bullock Pen Water District	Constructed	Fully Funded	3-5 Years	Bullock Pen Water Line Extension, Phase 6	02.10.2012	09.30.2010
WX21117013	Bullock Pen Water District	Approved	Not Funded	3-5 Years	Bullock Pen Water Line Extension, Phase 9	02.10.2012	09.30.2010

WRIS System Data Report

KY1050157 - Georgetown Municipal Water & Sewer Service

DOW Permit ID: **KY1050157**

[Link: EPA SDWIS Report](#)

DOW Permit Type: **DRINKING WATER (PWSID)**

[Link: DOW SDWIS Report](#)

DOW Permit Name: **Georgetown Municipal Water Service**

WRIS System Name: **Georgetown Municipal Water & Sewer Service**

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **BGADD**

Primary County: **Scott**

Dow Field Office: **Frankfort**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

SYSTEM CONTACT INFORMATION

Contact: **Robert Wilhite**

Title: **General Manager**

Address Line 1: **PO Box 640**

Address Line 2:

City: **Georgetown**

State: **KY** Zip: **40324**

Phone: **502-863-7816**

EMail: rwilhite@gmwss.com

Data Source: **KENTUCKY INFRASTRUCTURE AUTHORITY**

Date Last Modified: **03.28.2012**

OWNER ENTITY INFORMATION

Entity Type: **City / Municipal Utility**

PSC Group ID:

Entity Name: **Georgetown Municipal Water and Sewer Service**

Web URL: <http://www.gmwss.com>

Office EMail: bjenkins@gmwss.com

Office Phone: **502-863-7816**

Toll Free:

Fax: **502-863-3575**

Mail Address Line 1: **PO Box 640**

Phys Address Line 1: **125 West Clinton Street**

Mail Address Line 2:

Phys Address Line 2:

Mail City, State Zip: **Georgetown, KY 40324**

Phys City, State Zip: **Georgetown, KY 40324**

Contact: **Robert Wilhite**

Manager: **daryl mulder**

Contact Title: **General Manager**

Manager Title: **engineering tech**

Contact EMail: rwilhite@gmwss.com

Manager EMail: dmulder@gmwss.com

Contact Phone: **502-863-7816**

Manager Phone: **502-863-7816**

Contact Cell:

Manager Cell: **859-509-4493**

Authorized Official: **everett Varney**

Auth. Official Title: **Mayor**

Auth. Official EMail:

Auth. Official Phone: **502-863-9800**

Auth. Official Cell:

Data Source: **KENTUCKY INFRASTRUCTURE AUTHORITY**

Date Last Modified: **03.28.2012**

DEMOGRAPHIC INFORMATION

Counties Directly Served: **5**

Directly Serviceable Population: **33,052**

Indirectly Serviceable Population:

Total Serviceable Population: **33,052**

Note: Population counts are based on KIA census block overlay with WRIS mapped features.

County Served	Connection Count	Serviceable Population
Fayette	4	24
Franklin	1	6
Owen	1	17
Scott	12,086	32,951
Woodford	18	54
Totals	12,110	33,052

WRIS System Data Report

KY1050157 - Georgetown Municipal Water & Sewer Service

System Respondent

ADD WMP

Date

FISCAL ATTRIBUTES

Date Established: **01.01.1973**

Employees: **50**

Does this system:

If this is a municipal system, what is the cost per 4,000 gallons of finished water for customers:

- | | | | |
|-------------------------------|------------|--------------------------------|----------------|
| (a) Produce Water? | Yes | (a) inside your municipality: | \$18.14 |
| (b) Have wholesale customers? | No | (b) outside your municipality: | \$18.14 |
| (c) Purchase water? | Yes | | |

If this is a non-municipal system, what is the customer cost per 4,000 gallons of finished water?

Comments:

Date Last Modified: **03.28.2012**

Providers that sell water to this system:

Seller DOW Permit ID	Seller Name	Water Type	Ann. Vol. (MG)	Cost		Interconnects		
				Raw	Fin	Perm	Seas	Emer
KY0340250	Kentucky-American Water Company	F	4.491		\$3.27	0	0	0
KY0370143	Frankfort Plant Board	F	266.200		\$2.46	1	0	0
Totals and Averages			270.691		\$2.87	1	0	0

- MG = Million Gallons
- Water Types: R = Raw Water, F = Finished Water, B = Both Raw and Finished Water
- Cost Categories: Raw = Raw Untreated Water, Fin = Finished Treated Water
- Raw and Finished costs are per 1,000 gallons.
- Interconnect Types: Perm = Permanent, Seas = Seasonal, Emer = Emergency

WRIS System Data Report

KY1050157 - Georgetown Municipal Water & Sewer Service

DOW Permit ID: **KY1050157**

[Link: EPA SDWIS Report](#)

DOW Permit Type: **DRINKING WATER (PWSID)**

[Link: DOW SDWIS Report](#)

DOW Permit Name: **Georgetown Municipal Water Service**

WRIS System Name: **Georgetown Municipal Water & Sewer Service**

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **BGADD**

Primary County: **Scott**

Dow Field Office: **Frankfort**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

SYSTEM PLANNING

Water Treatment Plants:

Facility Name	Design Capacity (MGD)	Ave. Daily Prod. (MGD)	High. Daily Prod. (MGD)
ROYAL SPRING WTP	4.000	2.190	3.420
Totals	4.000	2.190	3.420

Operational Statistics:

Total Annual Vol. Produced (MG): **919.124**

Total Annual Vol. Purchased (MG): **270.691**

Total Annual Vol. Provided (MG): **1,189.815**

Estimated Annual Water Loss: **28.8%**

Wholesale Customers: **0** Wholesale Usage (MG):

Residential Customers: **10,913** Residential Usage (MG): **579.247**

Commercial Customers: **1,213** Commercial Usage (MG): **235.167**

Institutional Customers: Institutional Usage (MG):

Industrial Customers: **12** Industrial Usage (MG): **33.353**

Other Customers: Other Cust. Usage (MG):

Total Customers: **12,138**

Flushing, Maintenance and Fire Protection Usage (MG):

Total Annual Water Usage (MG): **847.767**

Projected water supply inadequacies through 2020 during normal operating conditions:

Projected water supply inadequacies through 2020 during drought operating conditions:

Comments:

Date Last Modified: 03.28.2012

WMP Site Visit - Survey Information:

Site Visit / Survey Date: **03.28.2012**

Survey Administrator: **Samantha**

Principal Respondent: **Robert Wilhite**

Other Respondent(s):

Comments:

Date Last Modified: 03.28.2012

WRIS System Data Report

KY1050157 - Georgetown Municipal Water & Sewer Service

DOW Permit ID: **KY1050157**

[Link: EPA SDWIS Report](#)

DOW Permit Type: **DRINKING WATER (PWSID)**

[Link: DOW SDWIS Report](#)

DOW Permit Name: **Georgetown Municipal Water Service**

WRIS System Name: **Georgetown Municipal Water & Sewer Service**

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **BGADD**

Primary County: **Scott**

Dow Field Office: **Frankfort**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

SYSTEM MAINTENANCE

This system has a policy manual in place containing the following items:

- Personnel Policies
- Standard Operating Procedures
- Line Maintenance Program
- Meter Testing Program
- Routine Pressure Checks
- Pump Station Maintenance Schedule
- Emergency Operation Procedures
- Backup Sources
- A Water Shortage Plan
- A Water Conservation Plan

The management of this system participates in an area water management planning council.

The management of this system participates in regular training activities.

System operator(s) participate in regular training activities.

This system has periodic service outages.

Cause(s):

This system has periodic pump failures.

Cause(s):

This system has periodic line breaks.

The following components are associated with periodic line breaks:

Typical line size:

Typical line location(s):

Typical cause(s):

Other cause(s):

Est. Water Loss Percentage: **12.0 %**

This system has localized problems.

The following components are associated with localized problems:

Problem location(s):

Problem diameter(s):

Problem pressure(s);

Problem cause(s):

Other problem characteristics:

This system has as-built plans (record drawings).

Est. degree of accuracy for as-built plans (%): **90%**

This system uses an on-staff inspector(s) for construction projects.

Maintenance notes for this system:

Date Last Modified: **03.28.2012**

WRIS System Data Report

KY1050157 - Georgetown Municipal Water & Sewer Service

The following projects are associated with this system:

PNUM	Applicant	Project Status	Funding Status	Schedule	Project Title	Profile Modified	GIS Modified
WX21187400	Owen County Fiscal Court	Approved	Not Funded	3-5 Years	2003 Owen County Fiscal Court - Waterline Extensions	02.15.2012	10.01.2010
WX21209003	Scott County Fiscal Court	Withdrawn	Not Funded	3-5 Years	SCOTT COUNTY RESERVOIR	10.28.2011	
WX21209004	City of Georgetown	Withdrawn	Not Funded	3-5 Years	SCOTT COUNTY RESERVOIR RAW WATER TRANSMISSION LINE	12.16.2011	
WX21209005	City of Georgetown	Approved	Not Funded	3-5 Years	CHAMPION WAY 16" WATER MAIN EXTENSION	12.16.2011	08.02.2010
WX21209007	Scott County Fiscal Court	Withdrawn	Not Funded	3-5 Years	IRONWORKS ESTATES WATER LINE REPLACEMENT	10.28.2011	
WX21209008	City of Georgetown	Constructed	Fully Funded	0-2 Years	OAK STREET AND SHARPS TRAILER PARK WATER LINE REPLACEMENT	12.07.2010	08.02.2010

WRIS System Data Report

KY0210066 - Carroll County Water District #1

DOW Permit ID: **KY0210066** [Link: EPA SDWIS Report](#)
DOW Permit Type: **DRINKING WATER (PWSID)** [Link: DOW SDWIS Report](#)
DOW Permit Name: **Carroll Co Water District #1**
WRIS System Name: **Carroll County Water District #1**
System Type: **Community** Water Source Type: **Groundwater**
ADD ID: **NKADD** Primary County: **Carroll** Dow Field Office: **Florence**
Permit Dates: Issued: **02.01.1973** Expired: Inactivated:

SYSTEM CONTACT INFORMATION

Contact: **James Smith**
Title:
Address Line 1: **PO Box 350**
Address Line 2:
City **Ghent** State: **KY** Zip: **41045**
Phone: **502-347-9500** EMail: carrollcountywat@bellsouth.net
Data Source: **KENTUCKY DIVISION OF WATER**

Date Last Modified: **06.03.2010**

OWNER ENTITY INFORMATION

Entity Type: **Water District (KRS 74)** PSC Group ID: **19600**
Entity Name: **Carroll County Water District #1**
Web URL:
Office EMail: carrollcountywat@bellsouth.net
Office Phone: **502-347-9500** Toll Free: Fax: **502-347-9333**
Mail Address Line 1: **205 Main Cross St** Phys Address Line 1:
Mail Address Line 2: Phys Address Line 2:
Mail City, State Zip: **Ghent, KY 41045** Phys City, State Zip:
Contact: **Jim Smith** Manager: **Jim Smith**
Contact Title: Manager Title:
Contact EMail: carrollcountywat@bellsouth.net Manager EMail: carrollcountywat@bellsouth.net
Contact Phone: **502-347-9500** Manager Phone: **502-347-9500**
Contact Cell: Manager Cell:

Authorized Official: **Jim Smith**
Auth. Official Title:
Auth. Official EMail: carrollcountywat@bellsouth.net
Auth. Official Phone: **502-347-9500** Auth. Official Cell:
Data Source: **KENTUCKY INFRASTRUCTURE AUTHORITY**

Date Last Modified: **01.05.2011**

DEMOGRAPHIC INFORMATION

Counties Directly Served: **3**
Directly Serviceable Population: **6,129**
Indirectly Serviceable Population: **9,187**
Total Serviceable Population: **15,316**

County Served	Connection Count	Serviceable Population
Carroll	1,797	3,781
Gallatin	464	943
Owen	815	1,405
Totals	3,076	6,129

Note: Population counts are based on KIA census block overlay with WRIS mapped features.

System Respondent _____ ADD WMP _____ Date _____

WRIS System Data Report

KY0210066 - Carroll County Water District #1

DOW Permit ID: **KY0210066**

[Link: EPA SDWIS Report](#)

DOW Permit Type: **DRINKING WATER (PWSID)**

[Link: DOW SDWIS Report](#)

DOW Permit Name: **Carroll Co Water District #1**

WRIS System Name: **Carroll County Water District #1**

System Type: **Community**

Water Source Type: **Groundwater**

ADD ID: **NKADD**

Primary County: **Carroll**

Dow Field Office: **Florence**

Permit Dates: Issued: **02.01.1973**

Expired:

Inactivated:

FISCAL ATTRIBUTES

Date Established: **01.09.1961**

Employees: **8**

Does this system:

If this is a municipal system, what is the cost per 4,000 gallons of finished water for customers:

- (a) Produce Water? **Yes**
- (b) Have wholesale customers? **Yes**
- (c) Purchase water? **Yes**

- (a) inside your municipality:
- (b) outside your municipality:

If this is a non-municipal system, what is the customer cost per 4,000 gallons of finished water? **\$27.75**

Comments:

Date Last Modified: **12.03.2008**

Providers that sell water to this system:

Seller DOW Permit ID	Seller Name	Water Type	Ann. Vol. (MG)	Cost		Interconnects		
				Raw	Fin	Perm	Seas	Emer
KY0210067	Carrollton Utilities	F			\$7.88	0	0	1
Totals and Averages					\$7.88	0	0	1

Providers that purchase water from this system:

Purchaser DOW Permit ID	Purchaser Name	Water Type	Ann. Vol. (MG)	Cost		Interconnects			Serviceable Population
				Raw	Fin	Perm	Seas	Emer	
KY0940430	Kentucky-American Water Company - Northern Division	F			\$1.66	1	0	0	9,187
Totals and Averages					\$1.66	1	0	0	9,187

- MG = Million Gallons
- Water Types: R = Raw Water, F = Finished Water, B = Both Raw and Finished Water
- Cost Categories: Raw = Raw Untreated Water, Fin = Finished Treated Water
- Raw and Finished costs are per 1,000 gallons.
- Interconnect Types: Perm = Permanent, Seas = Seasonal, Emer = Emergency

DOW Permit ID: **KY0210066**

[Link: EPA SDWIS Report](#)

DOW Permit Type: **DRINKING WATER (PWSID)**

[Link: DOW SDWIS Report](#)

DOW Permit Name: **Carroll Co Water District #1**

WRIS System Name: **Carroll County Water District #1**

System Type: **Community**

Water Source Type: **Groundwater**

ADD ID: **NKADD**

Primary County: **Carroll**

Dow Field Office: **Florence**

Permit Dates: Issued: **02.01.1973**

Expired:

Inactivated:

SYSTEM PLANNING

Water Treatment Plants:

Facility Name	Design Capacity (MGD)	Ave. Daily Prod. (MGD)	High. Daily Prod. (MGD)
GALLATIN WTP	0.300	0.250	0.300
GHENT WTP	0.760	0.210	0.420
Totals	1.060	0.460	0.720

Operational Statistics:

Total Annual Vol. Produced (MG):

Total Annual Vol. Purchased (MG): **0.000**

Total Annual Vol. Provided (MG): **0.000**

Estimated Annual Water Loss: %

Wholesale Customers: **1** Wholesale Usage (MG): **0.000**

Residential Customers: **2,870** Residential Usage (MG): **133.540**

Commercial Customers: **163** Commercial Usage (MG): **46.386**

Institutional Customers: Institutional Usage (MG):

Industrial Customers: **31** Industrial Usage (MG): **123.903**

Other Customers: Other Cust. Usage (MG):

Total Customers: **3,065**

Flushing, Maintenance and Fire Protection Usage (MG):

Total Annual Water Usage (MG): **303.829**

Projected water supply inadequacies through 2020 during normal operating conditions:

Lack of distribution system and need for distribution system upgrades

Projected water supply inadequacies through 2020 during drought operating conditions:

Not substantially affected by drought

Comments:

Date Last Modified: 12.03.2008

WMP Site Visit - Survey Information:

Site Visit / Survey Date: **03.14.2012**

Survey Administrator: **Jeff Burt**

Principal Respondent: **Jim Smith**

Other Respondent(s): **Obie Cox**

Comments: **Ccwd does have an agreement to purchase water from carrollton utilities for emergencies. depending on the nature of the construction project, an on-Staff inspector is sometimes used.**

Date Last Modified: 03.28.2012

WRIS System Data Report

KY0210066 - Carroll County Water District #1

DOW Permit ID: **KY0210066**

[Link: EPA SDWIS Report](#)

DOW Permit Type: **DRINKING WATER (PWSID)**

[Link: DOW SDWIS Report](#)

DOW Permit Name: **Carroll Co Water District #1**

WRIS System Name: **Carroll County Water District #1**

System Type: **Community**

Water Source Type: **Groundwater**

ADD ID: **NKADD**

Primary County: **Carroll**

Dow Field Office: **Florence**

Permit Dates: Issued: **02.01.1973**

Expired:

Inactivated:

SYSTEM MAINTENANCE

This system has a policy manual in place containing the following items:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Personnel Policies | <input checked="" type="checkbox"/> Standard Operating Procedures |
| <input checked="" type="checkbox"/> Line Maintenance Program | <input checked="" type="checkbox"/> Meter Testing Program |
| <input checked="" type="checkbox"/> Routine Pressure Checks | <input checked="" type="checkbox"/> Pump Station Maintenance Schedule |
| <input checked="" type="checkbox"/> Emergency Operation Procedures | <input checked="" type="checkbox"/> Backup Sources |
| <input checked="" type="checkbox"/> A Water Shortage Plan | <input checked="" type="checkbox"/> A Water Conservation Plan |

The management of this system participates in an area water management planning council.

The management of this system participates in regular training activities.

System operator(s) participate in regular training activities.

This system has periodic service outages.

Cause(s):

This system has periodic pump failures.

Cause(s):

This system has periodic line breaks.

The following components are associated with periodic line breaks:

Typical line size: **4.00**

Typical line location(s): **System wide**

Typical cause(s): **Natural stress (rocks, branches, etc.)**

Other cause(s): **Contractor hits due to construction**

Est. Water Loss Percentage: **10.0 %**

This system has localized problems.

The following components are associated with localized problems:

Problem location(s):

Problem diameter(s): **24,000 ft of 2" pvc**

Problem pressure(s):

Problem cause(s):

Other problem characteristics:

This system has as-built plans (record drawings).

Est. degree of accuracy for as-built plans (%): **95%**

This system uses an on-staff inspector(s) for construction projects.

Maintenance notes for this system:

Date Last Modified: **09.27.2010**

WRIS System Data Report

KY0210066 - Carroll County Water District #1

The following projects are associated with this system:

PNUM	Applicant	Project Status	Funding Status	Schedule	Project Title	Profile Modified	GIS Modified
WX21041001	Carrollton Utilities	Approved	Not Funded	0-2 Years	Carroll County Interconnect Project	05.14.2012	02.14.2012
WX21041302	Carroll County Water District #1	Approved	Not Funded	3-5 Years	Carroll County Water District 2006 System Improvements	02.09.2012	04.13.2011
WX21041303	Carroll County Water District #1	Under Construction	Partially Funded	0-2 Years	Carroll County Water District - Capacity Upgrade 2007	03.15.2012	04.06.2012
WX21041701	Carroll County Water District #1	Approved	Not Funded	0-2 Years	Carroll County Water Meter Setter Replacement	02.09.2012	12.09.2010
WX21041706	Carroll County Water District #1	Approved	Not Funded	0-2 Years	Carroll County Water District - Emergency Generators	02.09.2012	10.26.2011
WX21077401	Carroll County Water District #1	Approved	Not Funded	0-2 Years	Carroll County Water District - KY 1039 Tank and Main	02.09.2012	02.14.2012
WX21187311	Carroll County Water District #1	Approved	Not Funded	0-2 Years	Carroll County Water District - Brown Bottom Water Line Extension Phase I	02.15.2012	10.01.2010
WX21187400	Owen County Fiscal Court	Approved	Not Funded	3-5 Years	2003 Owen County Fiscal Court - Waterline Extensions	02.15.2012	10.01.2010

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams

12. Reference: Feasibility Study. Describe the projected implementation timeline noting the start date and anticipated end date of each individual Phase in KAW's proposed KRS II WTP Supply plan.

Response:

KAW anticipates that all three phases of the project will commence by October 15, 2012 or immediately following the issuance of the Certificate of Public Convenience and Necessity. All three phases are scheduled to be substantially complete within 335 days after project start and fully complete within 365 days after project start.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams

13. Reference: Application. Did the Kentucky-American Water Company submit its proposal either formally or informally (including in response to a request by the Kentucky River Authority for information) to the Kentucky River Authority? If yes, then please provide all pertinent details and supporting documentation. If no, then please explain why not.

Response:

No, because KAW is not required to formally or informally submit the proposal to the Kentucky River Authority.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams

14. Reference: Application. Did the Kentucky-American Water Company submit its proposal either formally or informally (including in response to a request by the LFUCG for information) to the Lexington-Fayette Urban County Government? If yes, then please provide all pertinent details and supporting documentation. If no, then please explain why not.

Response:

No, because KAW was not required to formally or informally submit the proposal to the Lexington-Fayette Urban County Government.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams

15. Reference: Feasibility Study. Explain the current servicing method for the residents of Monterey and how that method is projected to change as a result of the new infrastructure.

Response:

- Current service method
 - Monterey is served entirely by the Monterey Tank.
 - The Monterey Tank is served and filled through 6-inch main along US 127, which is part of the Owenton Water Treatment Plant service area.
 - A valve upstream of the Monterey Tank inlet is manually opened by field personnel, as needed, to fill the tank.

- Projected changes
 - The existing Monterey Tank will be decommissioned.
 - Monterey will be split into two smaller service areas:
 - North of Cedar Creek in Monterey – The new Monterey Tank 6-inch bypass main with a pressure reducing valve will be utilized to serve residents in Monterey north of Cedar Creek.
 - South of Cedar Creek in Monterey – A 6-inch main with a pressure reducing valve off of the 16-inch transmission main will be utilized to serve residents in Monterey south of Cedar Creek.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams

16. Reference: Feasibility Study, Appendix D and Appendix E. Please explain the difference between the labor costs estimated for the Owenton WTP O&M Costs and the \$0.00 of labor costs associated with Additional KRS II WTP Supply O&M Costs.

A. In the Application, the Owenton labor is attributed in footnote 2 to KAW's Budget Plan. Are there no similar increases in the budget for KRS II WTP? If yes, then please identify the increases. If no, then please explain why not.

B. Provide documentation to include the relevant portions of the referenced budget plan to support your answer.

Response:

A. There will be no increase in labor costs for the KRS II WTP if the Northern Division connection is completed because KAW will not need to employ additional employees at the KRS II WTP.

B. No increases in labor costs are necessary.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams

17. Reference: Application and Feasibility Study. KAW asserts that one of the arguments against further operation of Owenton WTP is the lack of redundancy. Considering the proposed use of a single 16-inch main, explain the redundancy measures to be taken into account as they pertain to KRS II:
- A. Between KRS II and the water tanks.
 - B. Between the water tanks the remaining transmission and distribution system.

Response:

- A) In addition to the proposed 16-inch transmission main from KRS II to the Northern Division, a new 300,000 gallon elevated storage tank will be constructed north of Monterey, and a new 600,000 gallon elevated storage tank will be constructed outside of Owenton. All three of these components, in addition to KRS II and the existing distribution system storage tanks, will provide redundancy to the Northern Division. In the event that a main break occurs in the 16-inch transmission main, KRS II will supply points south of the main break while the storage tanks will provide temporary supply to the remaining parts of the system. The 16-inch main is a readily replaceable component which can easily be repaired and/or replaced.
- B) In addition to the redundancy measures outlined in part A), KAW is capable of utilizing existing connections with Georgetown Municipal, Carroll County, and Gallatin County to supply many areas outside of Owenton as needed. Given the built-in reliability and redundancy of KRS II, the available storage volume of the new storage tanks, and the readily replaceable capability of 16-inch main, KAW is confident that, if the Northern Division Connection made, service can be maintained to all of our customers in the Northern Division during a disruption.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: **Keith Cartier / Lance Williams**

18. Reference: Application and Feasibility Study, specifically references to a lack of redundancy. Since 1 January 2005, what disruptions in service or other disturbances to the Northern Division system have occurred that may be directly related to a lack of redundancy?
- A. For each identified incident, please provide what actions KAW has taken to resolve the matter?
- B. How has KAW managed the Northern Division to date without built-in redundancies?

Response:

- a. The Northern Division has not experienced any disruptions or service degradations as a result of a lack of redundancy in its treatment process.
- b. Although, to date, current storage capacity and operator interventions have been adequate to prevent service disruptions for treatment upsets, the lack of redundancy results in KAW being unable to remove the claricone or filters from service to perform normal maintenance, such as painting or media replacement. To date, KAW has not experienced a significant performance issue as a result of this situation, but, at some point, it will as maintenance cannot be deferred indefinitely.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

Witness: Lance Williams/Linda C. Bridwell

19. Reference: Application, Direct Testimony of Williams, pages 8 through 10. With regard to the cost estimates for each option, please answer the following.

- A. If the Commission authorizes the KRS II option, explain what KAW will do with the current intake facility on Severn Creek. (Include in the explanation whether KAW will leave the facility in place “as is,” remove all or part of the facility, or modify the facility or grounds. (The Engineering Feasibility Study Report does state that “the intake is a frequent site for vandalism” and that it “appears to be a late night congregating area for young people who are willing to scale the locked gate.” Please fully explain the risk management considerations for the facility.) Please identify the corresponding cost estimates for any plan.
- B. If the Commission authorizes the KRS II option, explain what KAW will do with (i) the current WTP and property and (ii) the previous water treatment plant and the adjacent property. (Include in the explanation whether KAW will leave each facility in place “as is,” removes all or part of the each facility, or modify the facility or grounds. Please identify the corresponding cost estimates for any plan.)
- C. In the overview of the Northern Division Connection Project (pages 9 and 10), there is no discussion of KAW’s plans for the current intake facility on Severn Creek, the current WTP and property, and the previous water treatment plant and property. Please explain why the discussion does not include the disposition of these KAW assets.
- D. Explain why the KRS II option does not include decommissioning, removal, and/or modification costs corresponding to the existing facilities that will no longer be in service in the Total Project Cost Estimate of \$14,104,868
- E. If the Commission authorizes the KRS II option, fully explain the rate-making impact consequent to the intake facility on Severn Creek being taken out of service. (For example, will the facility be removed from rate base; will there be a corresponding impact on depreciation or amortization; will KAW seek the cost recovery of any removal or modification of the facility or grounds; etc.?)
- F. If the Commission authorizes the KRS II option, fully explain the rate-making impact consequent to the current WTP being taken out of service. (For example, will the facility be removed from rate base; will there be a corresponding impact on depreciation or amortization, will KAW seek the

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

cost recovery of any removal or modification of the facility or grounds; etc.? With regard to this question, also include in the explanation a discussion of the rate-making impact consequent to the plan for the previous water treatment plant and adjacent property.)

G. Please supply all documentation, including reports, studies, memoranda, that discuss the future of the (i) intake facility, (ii) current WTP and property, and (iii) previous water treatment plant and adjacent property under a scenario in which KAW obtains approval of the KRS II option.

H. Supply all correspondence with the KY Division of Water pertaining to the current and future use of the Owenton WTP as well as any other KAW owned or managed infrastructure associated with this application.

Response:

- A. The intake is owned by the City of Owenton and the future use of the intake is undetermined.
- B. KAW has not yet determined how the current Owenton Water Treatment Plant site will be utilized going forward, if at all, if the Northern Division connection is completed.
- C. KAW has not yet determined how the current Owenton Water Treatment Plant and intake site will be utilized going forward, if at all, if the Northern Division connection is completed.
- D. KAW has not yet determined how the current Owenton Water Treatment Plant site will be utilized going forward, if at all, if the Northern Division connection is completed. Therefore, the KRS II option does not include decommissioning, removal and/or modification costs corresponding to the existing Owenton Water Treatment Plant facilities.
- E. KAW does not own the Severn Creek intake, and is therefore unable to make a determination of any ratemaking impact.
- F. The following is a list of ratemaking impacts that could occur if the Owenton Water Treatment Plant is retired as a part of the KRS II option:
 - 1) Presuming normal accounting treatment, the rate base impact of the retirement would be equal to the net salvage value. The two transactions would generally be:
 - a. The book cost of the Owenton Water Treatment Plant assets would be credited to Utility Plant in Service (estimated \$3.3 million).

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00096
ATTORNEY GENERAL STAFF'S FIRST REQUEST FOR INFORMATION

- b. The book cost of the Owenton Water Treatment Plant, less the net salvage value, would be debited from Accumulated Depreciation (estimated \$3.3 million less the net salvage value, which is equal to any salvage revenue less the cost of physically removing the assets).

2) Depreciation Expense:

Presuming normal accounting treatment, depreciation expense for the retired assets would cease.

- G. No studies, reports, or memoranda have been issued at this time.
- H. There is no correspondence with the KY Division of Water concerning this issue.

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Witness: Lance Williams

20. Reference: Feasibility Study. Explain and provide documentation:
- A. Supporting the use and placement of the proposed booster
 - B. For any projected future operation of the new infrastructure being placed in or near Monterey, KY as a result of the KRS II proposal.

Response:

A) Based on hydraulic analysis and modeling, the Northern Division service area cannot be completely serviced by KRS II without the use of a booster station. The placement of the booster station was determined by locating the new Monterey Tank at the most elevated point possible that could be supported by the Hydraulic Grade Line from the KRS II WTP. This maximizes the use of the high service pumping at the KRS II WTP and minimizes the size and costs of the booster station.

B) High elevated areas south of Monterey can be fed from a main located at KY 607 and Cedar Creek. Lower elevated areas could be fed directly by the new transmission main. Also, high elevated areas northwest of Monterey could be served by extending a new main a short distance back from the discharge side of the new Monterey pump station.

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Witness: Linda Bridwell

21. Reference: Application. Describe and provide documentation for any projected rate increases that will be sought by KAW as a result of:
- A. The proposed KRS II scenario. (Include projected increases on Monterey customers as well as Owenton customers.)
 - B. The continuation of Owenton WTP.
 - C. Any other explored option not described in the application.
 - D. Provide an estimate of the amount of capital investment, if any, KAW is going to assign to shareholders and which will be excluded from rate base for rate-making purposes under each scenario.

Response:

Because KAW has the same tariffs for its Northern and Central Division customers, addressing the issues at the Owenton WTP will have an equal rate impact on all customers, regardless of which option is pursued. Single-tariff pricing also means that the rate impact of constructing KRS II affected Northern and Central Division customers equally.

- A. Please refer to the attached file. The additional revenue requirement for the proposed KRS II scenario is an additional \$1,242,110.
- B. Please refer to the attached file. The additional revenue requirement for the continuation of the Owenton WTP is \$1,543,169.
- C. N/A.
- D. None.

**Ratemaking Impact of Owenton WTP Improvements vs. Proposed KRS II Scenario
AG DR1 21A & AG DR1 21B**

Ratemaking Impact: Owenton WTP Option

Investment in Owenton WTP

O&M & Depreciation & Tax - Incremental Due to Capital Investments						
Line #	Item	2014	2015	2016	2017	2018
1	O&M*					
2	Labor					
3	Chemical					
4	Fuel & Power					
5	Sludge Disposal					
6						
7	Depreciation (for New Investments)	\$ 329,090	\$ 329,090	\$ 329,090	\$ 329,090	\$ 329,090
8	General Tax					
9	Income Tax (Effect of Above Items)	\$ (128,016)	\$ (128,016)	\$ (128,016)	\$ (128,016)	\$ (128,016)
10	Income Tax (Interest Effect)	\$ (149,070)	\$ (149,070)	\$ (149,070)	\$ (149,070)	\$ (149,070)
11	Total O&M, Depreciation, Tax (Sum Lines 1-9)	\$ 52,004	\$ 52,004	\$ 52,004	\$ 52,004	\$ 52,004
12						
13						
14	Capital Investments to Improve Owenton WTP					
15	Item	2014	2015	2016	2017	2018
16	Additional UPIS	\$ 11,400,000	\$ 11,400,000	\$ 11,400,000	\$ 11,400,000	\$ 11,400,000
17	Accumulated Depreciation	\$ (329,090)	\$ (658,180)	\$ (987,270)	\$ (1,316,360)	\$ (1,645,450)
18	Net Rate Base	\$ 11,400,000	\$ 11,070,910	\$ 10,741,820	\$ 10,412,730	\$ 10,083,640
19						
20	Rate of Return **	7.74%	7.74%	7.74%	7.74%	7.74%
21	Return on Rate Base (Line 17 x Line 19)	\$ 882,360	\$ 856,888	\$ 831,417	\$ 805,945	\$ 780,474
22						
23	Total Impact Pre-Gross Up (Line 10 + Line 20)	\$ 934,364	\$ 908,892	\$ 883,421	\$ 857,949	\$ 832,478
24						
25	Gross Up**	1.6515716	1.6515716	1.6515716	1.6515716	1.6515716
26						
27	Ratemaking Impact (Line 22 x Line 24)	\$ 1,543,169	\$ 1,501,101	\$ 1,459,033	\$ 1,416,965	\$ 1,374,896

Ratemaking Impact: Proposed KRS II Scenario

Investment in Pipeline to KRS II, Shift in Production Cost from Owenton WTP to KRS II

O&M & Depreciation & Tax - Incremental KRS II Costs for Additional Production & for Capital Investments					
Item	2014	2015	2016	2017	2018
O&M*					
Labor	\$ -	\$ -	\$ -	\$ -	\$ -
Chemical	\$ 40,292.00	\$ 40,292.00	\$ 40,292.00	\$ 43,113.00	\$ 46,113.00
Fuel & Power KRS II	\$ 93,612.00	\$ 102,973.00	\$ 113,270.00	\$ 124,597.00	\$ 137,057.00
Fuel & Power New Booster Station	\$ 16,662.00	\$ 18,328.00	\$ 20,161.00	\$ 22,177.00	\$ 24,395.00
Depreciation (for New Investments)	\$ 249,913	\$ 249,913	\$ 249,913	\$ 249,913	\$ 249,913
General Tax (for New Investments)	\$ 103,875	\$ 103,875	\$ 103,875	\$ 103,875	\$ 103,875
Income Tax (Effect of Above Items)	\$ (196,194)	\$ (200,483)	\$ (205,202)	\$ (211,490)	\$ (218,366)
Income Tax (Interest Effect)	\$ (184,440)	\$ (184,440)	\$ (184,440)	\$ (184,440)	\$ (184,440)
Total O&M, Depreciation, Tax (Sum Lines 1-9)	\$ 123,721	\$ 130,458	\$ 137,870	\$ 147,746	\$ 158,547

O&M & Depreciation & Tax - Savings from Elimination of Owenton WTP Production Costs

Item	2014	2015	2016	2017	2018
O&M:					
Labor	\$ (362,653)	\$ (373,532)	\$ (384,738)	\$ (396,280)	\$ (408,169)
Chemical	\$ (222,307)	\$ (222,307)	\$ (222,307)	\$ (237,868)	\$ (254,519)
Fuel & Power	\$ (141,320)	\$ (150,126)	\$ (153,529)	\$ (168,882)	\$ (185,770)
Sludge Disposal	\$ (32,083)	\$ (33,687)	\$ (35,371)	\$ (37,140)	\$ (38,997)
Depreciation (for New Investments)					
General Tax (for New Investments)	\$ -	\$ -	\$ -	\$ -	\$ -
Income Tax (Effect of Above Items)	\$ 295,003	\$ 303,285	\$ 309,623	\$ 326,826	\$ 345,220
Total O&M, Depreciation, Tax (Sum Lines 15-22)	\$ (463,360)	\$ (476,367)	\$ (486,322)	\$ (513,344)	\$ (542,235)
Net O&M, Depreciation & Tax (Line 10 + Line 23)	\$ (339,639)	\$ (345,909)	\$ (348,453)	\$ (365,598)	\$ (383,688)

Capital Investments to Build Pipeline and Booster

Item	2014	2015	2016	2017	2018
Additional UPIS	\$ 14,104,868	\$ 14,104,868	\$ 14,104,868	\$ 14,104,868	\$ 14,104,868
Accumulated Depreciation	\$ (249,913)	\$ (499,826)	\$ (749,739)	\$ (999,652)	\$ (1,249,565)
Net Rate Base	\$ 14,104,868	\$ 13,854,955	\$ 13,605,042	\$ 13,355,129	\$ 13,105,216
Rate of Return **	7.74%	7.74%	7.74%	7.74%	7.74%
Return on Rate Base (Line 31 x Line 33)	\$ 1,091,717	\$ 1,072,374	\$ 1,053,030	\$ 1,033,687	\$ 1,014,344
Total Impact Pre-Gross Up	\$ 752,078	\$ 726,464	\$ 704,577	\$ 668,089	\$ 630,656
Gross Up**	1.6515716	1.6515716	1.6515716	1.6515716	1.6515716
Ratemaking Impact	\$ 1,242,110	\$ 1,199,808	\$ 1,163,660	\$ 1,103,397	\$ 1,041,573

More Expensive or (Less Expensive) Than Owenton WTP

	\$ (301,059)	\$ (301,293)	\$ (295,373)	\$ (313,568)	\$ (333,323)
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* O&M Costs and Capital Investments are Per the Company's original filing in this Case, No. 2012-00096.

** Per Final Order for Cause 2010-0036, p. 72

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Witness: Lance Williams/Linda Bridwell

22. Reference: Application, Engineering Feasibility Study Report (May 2012). Please answer the following.
- A. With regard to the Northern District, have demand projections been made through the year 2030? If yes, then please provide, if available, (i) the average daily demand projection(s), (ii) the peak day demand projection(s), and (iii) the demand projection(s) for the system under maximum stress (for example, the maximum day demand projection(s) during a severe drought scenario). Also, supply each corresponding study, projection, analysis, or report serving as the basis or otherwise supporting the projections. If no, then please explain why not.
- B. Under the assumption that KAW diverts water from the KRS II facility to the Northern Division, has KAW projected, calculated, or otherwise forecasted the impact of such a diversion or reassignment upon the water available to the Central Division when that portion of KAW's service territory is (i) under maximum stress and/or (ii) one or both of the other WTPs servicing the Central Division fail (and the impact of the diversion or reassignment upon the redundancy of the facilities service the Central Division). If not, then please explain why not.
- C. In that KAW identifies the current lack of redundancy for the Northern Division as a significant limitation, please explain whether (and why) a failure of the KRS II facility (under a scenario in which the KRS II diversion is approved) would be less disruptive to the Northern Division than a failure of the current WTP and facilities.

Response:

- A) Demand projections have been completed through 2025:
- 2025 Avg. Daily Demand: 1.08mgd
 - 2025 Max Day Demand: 2.07mgd
- B) KRS II has a rated capacity of 20 mgd and is capable of being safely operated at flows up to 24 mgd. The ability of KRS II to operate at 24 mgd is due to its pumping and filtration capacity. KRS II has five filters and with all filters in service, KRS II could produce 25 mgd. The pumps at KRS II are also sized to reliably produce 24 mgd with one unit out of service.

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- C) The KRS II facility is a very robust and fully reliable plant with built-in redundancy, whereas, the Owenton Water Treatment Plant has no redundancy and limited reliability. KRS II does not solely rely on a single treatment process train as the Owenton facility does and, consequently, the KRS II facility can easily handle treatment upsets, whereas, the Owenton facility is nearly shut down with just minor treatment upsets. Therefore, the KRS II facility is well equipped to handle failures and will minimize disruptions to the Northern Division.

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Witness: Lance Williams

23. Reference: Direct Testimony of Williams, page 2. With regard to the current purchases of treated water, please answer the following.
- A. If the Commission authorizes the KRS II option, will the interconnection and related facilities allow KAW to serve any of the “small areas of the system that cannot hydraulically be served from the [current] treatment plant”? Please fully explain.
 - B. In examining the options, did KAW consider using the purchase of additional treated water for meeting all or part of the requirements of its Northern Division customers? Please fully explain.

Response:

- A) Yes, the area currently served through purchase agreement with Georgetown Municipal Water and Sewer Service will be reliably served through the KRS II option. The new 600,000 gallon storage tank outside of Owenton is designed so that its overflow elevation matches the overflow elevation of the existing New Columbus tank. The KRS II option will also allow KAW to serve the areas currently served through purchase agreements with Gallatin County and Carroll County, however, a portion of small diameter mains along US 127 and KY 335 would need to be upsized to provide reliable service to these areas.
- B) KAW did consider the option of purchasing additional treated water to supply the Northern District. All of these options, however, would require the investment of new infrastructure, replacement and upsizing of existing infrastructure, and none of these options could fully serve the Northern Division.

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Witness: Counsel

24. Reference: Application at p. 3, paragraph 6. On what legal precedent does KAW rely upon for proposing that the new build versus retrofit option is the least-cost option in light of the fact that capital costs of the build option exceed the capital costs of the retrofit option by, at least, nearly \$3 million? Please cite specific PSC orders.

Response:

The Commission routinely considers “all relevant factors”¹ in deciding cases involving requests for certificates of public convenience and necessity (“CPCN”). Perhaps the most applicable example of the Commission’s consideration of operating costs in addition to capital costs in this case is the Commission’s decision in Case No. 2007-00134 in which the Commission granted a CPCN for the construction of KRS II by its April 25, 2008 Order. In that Order, the Commission conducted its own net present value analysis which included many future operating costs for items such as payroll, security, purchased power, chemicals, insurance and property taxes. (Case No. 2007-00134, April 25, 2008 Order, pp. 51-75).

¹ *In the Matter of: The Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity to Construct a 138 KV Transmission Line in Rowan County, Kentucky*, Case No. 2005, 00089, August 19, 2005 Order, p. 6.

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Witness: Linda C. Bridwell

25. Reference: Application at p. 4, paragraph 11 and Direct Testimony of Williams at p. 11, lines 9-12. Please explain whether the funding for the project as proposed will be previously approved financing or short-term bank loans or both.
- A. If previously approved financing, identify the PSC Order approving said financing;
 - B. If short-term bank loans, identify the banking/financing source and anticipated borrowing interest rate.
 - C. If unknown at this time, would KAW be willing to commit to the lowest possible financing option benefiting its ratepayers.

Response:

This project will not be financed separately, but as part of KAW's capital construction plan. Initially, KAW will utilize its short-term borrowing capacity through American Water Capital Corporation ("AWCC") to meet the periodic needs for its overall construction capital. AWCC provides short-term funding to KAW through its access to the commercial paper markets at the identical rates it receives. Eventually, KAW expects to permanently finance its capital construction funding with 60% long-term debt and 40% common equity.

- A. The previously approved financing for long-term debt was approved in the Commission's May 11, 2011 Order in Case No.2011-0115. KAW expects to seek its next financing request in the fall of 2012.
- B. Short-term financing is provided by AWCC at market rates.
- C. KAW believes that its current plan of initially utilizing short-term borrowing capacity and later permanently financing the costs is the most reasonable low-cost financing option.

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Witness: **Lance Williams / Keith Cartier**

26. Reference: Application at p. 5, paragraph 12, wherein KAW states that it “does not believe that this facility will compete with any other water purveyor.” On what does KAW rely to support this belief? Please provide any studies, documentation or other related materials referenced.

Response:

The project has been designed to accommodate the demands of Northern Division customers now into the future. At different junctures of time, the few areas currently served through water purchase agreements have been served by the existing Owenton Water Treatment Plant. Use of the KRS II facility to supply KAW's Northern Division simply replaces KAW's existing Owenton Water Treatment Plant as the treated water provider to KAW's own Northern Division customers, and reduces the need to purchase water to supply our customers. The entire project lies within the current Northern Division service territory, and does not cross or encroach on areas served by surrounding providers.

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Witness: Lance Williams

27. Reference: Application and Testimony at p. 8. Please identify the names and positions of those individuals at KAW and/or its parent company who made the decision to pursue the build-option connecting the Northern Division to KRS II.

A. Please explain why the individual(s) identified have not filed testimony in this proceeding.

Response:

Name	Title / Company
Cheryl Norton	President / Kentucky American Water
Keith Cartier	Vice President Operations / Kentucky American Water
Lance Williams	Director of Engineering / Kentucky American Water

A. The individuals listed above were all involved in deciding that the construction of the Northern Division Connection is the best and least-cost solution for KAW's customers. The basis and support for that decision are described in Lance William's testimony and KAW's Application and supporting materials. Therefore, KAW did not feel that it was necessary to file additional testimony that would have been repetitive.

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Witness: Lance Williams

28. Reference: Application and Testimony at p. 8-9. Please explain the other alternative routes considered by KAW and why they did not prove viable according to KAW?

A. Please identify the names and positions of those individuals at KAW who considered and rejected these alternatives.

B. Please provide the specific reasons that these alternatives were not viable.

Response:

A) Lance E. Williams, Director of Engineering
Linda C. Bridwell, Central Division Manager Rates & Regulations
Jason M. Hurt, Sr. Project Engineer

B) The alternate routes that were initially studied are illustrated in Appendix B of the Feasibility Report. Alternate A is of similar length to the proposed route and was not considered viable due to the following:

- The existing mains from the treatment plant site to Owenton would need to be upsized.
- The ground elevation of a new storage tank at the treatment plant site is approximately 50' lower than the ground elevation of the proposed tank site, thus, increasing the cost of construction and maintenance of the tank.
- This route would involve more cross-country easements and cause more land disturbances than the proposed route.

Alternate B considered a route along Severn Creek Road from US 127 to the raw water intake and then converting the existing raw water line to finished water. This alternate was not considered viable due to the following:

- The capacity within the existing 12-inch raw water line and the 6-inch and 8-inch mains extending from the treatment plant into Owenton is insufficient to adequately serve the Northern District. Several miles of these existing mains would need to be replaced and upsized.
- The construction along Severn Creek Road would be extremely difficult and costly.
- The alternative would not support a new storage tank near Owenton.

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Witness: Linda Bridwell

29. Reference: Direct Testimony of Williams, page 7. With regard to the diversion of water from the KRS II facility to the Northern Division, please answer the following.
- A. In Kentucky Public Service Commission Case No. 2007-00134, KAW sought Commission approval of a project for addressing the water supply and treatment needs of its Central Division. Through the Direct Testimony of Linda Bridwell in that proceeding (at pages 29 through 31), KAW represented “a raw water supply deficient of 20 mgd in 2010, which grows to 28 mgd in 2030” for its Central Division. Are the foregoing referenced projections still the projections for the raw water supply deficit for KAW’s Central Division in the absence of augmentation by the KRS II facility? If not, then please fully explain the change and supply the corresponding documentation.
 - B. In Case No. 2007-00134, Linda Bridwell’s testimony during the evidentiary hearing includes the following (27 November 2007 evidentiary hearing, Vol. II at pages 102 and 103) in response to a request for the description of the personal and economic consequences corresponding to a failure by KAW to meet the demand by 20 million gallons a day: “I do not even want to begin to contemplate that; no.” Please explain how the diversion of capacity of KRS II from the needs of the Central Division does not endanger the Central Division.
 - C. With regard to the capacity of KRS II that will be diverted to the Northern Division, does KAW have a plan to offset or otherwise hold harmless the Central Division? For example, will KAW implement a conservation and/or demand management plan for its Central Division that will reduce its drought risk demand by an amount that corresponds to the capacity being diverted to the Northern Division? Please fully explain.
 - D. Please explain whether KRS II will need to be expanded to accommodate the incremental requirement of the Northern Division.

Response:

- A. The demand projections were updated in 2012. Please refer to the attachment.
- B. KAW indicated in 2007-00134 in Ms. Bridwell’s direct testimony that it was proposing a 20 MGD treatment plant when the raw water supply deficit is projected as high as 28 mgd through the year 2030 during a drought of record, because KAW believes that it is not unreasonable to ask for moderate, voluntary restrictions on outdoor water usage during a drought of record, which generally reduces KAW

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customer demands in the Central Division by as much as 10% or more. The addition of the Northern Division customers to KRS II would represent approximately 2% of the demand during a drought of record. In Case No. 2007-00134, it was anticipated that KRS II may need to be expanded by 5 mgd in 2027 based on peak day demand projections. At this time, the addition of the connection of the Northern Division customers to KRS II may require that an expansion of 5 mgd to the KRS II be completed in 2025, or two years earlier than anticipated in Case No. 2007-00134. However, recent declining per capita usage trends may offset that if they continue over the next thirteen years. KRS II has a rated capacity of 20 mgd and is capable of being safely operated at flows up to 24 mgd. The ability of KRS II to operate at 24 mgd is due to its pumping and filtration capacity. KRS II has five filters and with all filters in service, KRS II could produce 25 mgd. The pumps at KRS II are also sized to reliably produce 24 mgd with one unit out of service. Please also see KAW's response to AG Item No. 7.

- C.** KAW believes that the current demand management plan, which is under revision and will be submitted to the PSC later this year, adequately provides the necessary plan for managing demands within the available capacity for both the Northern and Central Division. There is not a specific plan to offset the demands that will be delivered to the Northern Division.
- D.** No.

Kentucky American Water Demand Projections

Updated Demand Projections with 2010 Population Projections:

	2000 Actual	2005 Actual	2010 Actual	2015	2020	2025	2030
Normal Weather							
Residential	20.13	22.31	20.73	20.75	21.71	22.81	23.91
Commercial/Industrial	10.70	12.20	11.49	10.34	10.99	10.94	10.92
Public/Unaccounted for	7.20	6.77	5.60	7.12	7.41	7.74	8.08
Other	2.99	3.02	3.05	3.10	3.21	3.33	3.43
Average Day Demand	41.02	44.30	40.87	41.30	43.31	44.82	46.34
Total Maximum Day Demand	66.37	69.65	61.36	73.46	76.23	79.39	82.68
Hot, Dry Scenario							
Average Day Demand w/ Conservation				44.39	46.15	48.15	50.23
Maximum Day Demand w/ Conservation				77.98	80.87	84.17	87.60
Drought Average Day				58	61	63	66

KENTUCKY AMERICAN WATER COMPANY

WATER DEMAND MODEL

U of L PROJECTIONS & UNACCOUNTED-FOR of 13%

MODEL UPDATE MARCH, 1992
 RUN DATE 07/16/12
 DIRECTORY: \Engineering\Demand Projections
 FILENAME: 12DEMFOR.xls
 SHEET: 12updtul10

2011 Usage with 2010 Census and Kentucky State Data Center 2010 Population Projections

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
Assumed Inflation Rate for the Year (CPI)					5.4%	4.21%	3.01%	2.99%	3.60%	2.50%	3.20%	2.29%	1.56%	3.45%	2.21%	2.80%	1.60%	2.30%	2.70%	
Projected Water/Sewer Rate Increase for the Year					4.04%	5.51%	51.80%	0.00%	3.32%	6.65%	6.19%	3.10%	0.00%	0.00%	0.00%	7.79%	20.10%	0.00%	0.00%	
Losses and Non-Revenue Uses for Year						13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	
% GROWTH FOR YEAR - REFERENCE CASE			1.1%	1.1%	1.0%	1.0%	0.9%	0.8%	0.8%	0.7%	0.7%	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
			1.1%	0.0%	1.1%	1.6%	1.5%	1.5%	1.5%	1.5%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	0.6%	0.2%	1.1%	0.4%
Calendar Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
Total Population (Fayette County)	217701	220526	222912	222904	225366	228881	232395.2	235910	239424	242939	246454	249968	253483	256997	260512	262185	262648	265478	266451	
Apartment Population	70546	71462	72235	72232	75741	76922	78103	79285	80466	81647	82828	84009	85190	86372	95127	95932.7	96738.1	97543.5	98348.9	
U of K Full Time Residents	8153	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	
Inmates of Institutions	3793	4116	4439	4761	5084	5163	5243	5322	5401	5480	5560	5639	5718	5798	6385	6439.34	6493.4	6547.46	6601.52	
Remaining Population Served (SFR, Fayette Co)	135,209	136,748	138,039	137,710	136,341	138,595	140,849	143,103	145,358	147,612	149,866	152,120	154,374	156,628	150,799	152,146	153,492	154,838	156,184	
Outside County Population Served	4720	4979	5256	5436	5557	5721	5899	6050	6288	6584	6926	7529	8187	8791	9511	9959	10536	11113	11691	
New Residents											2597	5454	8366	11224	6115	7909	9832	11756	13680	
Actual Number of Total Customers	69437	71500	73348	74653	76274	77871	79600	81301	83382	85180	87403	89491	93391	96477	99199	101580	103659	105332	107424	
Usage Per Customer (gpd)	515	535	500	453	453	477	460	486	486	470	483	469	457	411	413	415	371	355	395	
											80.81	82.20	83.47	84.63	83.05	82.96	81.99	80.69	78.63	
											80.42	82.09	83.68	85.09	83.35	82.30	79.56	80.98	78.97	
											0.08	0.02	-0.04	-0.09	-0.06	0.13	0.49	-0.06	-0.07	
Single Family Residential Per Capita Use (gpd)	85.54	89.11	85.17	76.13	79.55	80.38	75.73	80.74	84.51	82.69	87.32	82.09	86.52	76.65	82.24	82.45	75.57	76.25	78.59	
New Resident SFR Per Capita Use (gpd)											78.59	73.88	77.87	68.98	74.01	74.20	68.02	68.62	70.73	
Single Family Residential	11.97	12.63	12.21	10.90	11.29	11.60	11.11	12.04	12.82	12.75	13.69	13.11	14.06	12.68	13.18	13.37	12.40	12.65	13.19	
Fayette Co. Residential use (in mgd).....	11.57	12.19	11.76	10.48	10.85	11.14	10.67	11.55	12.28	12.21	13.09	12.50	13.13	11.80	12.18	12.33	11.41	11.61	12.08	
Apartment Population	70546	71462	72235	72232	75741	76922	78103	79285	80466	81647	82828	84009	85190	86372	95127	95933	96738	97544	98349	
New Residents											1181	2362	3544	4725	13480	14286	15091	15897	16702	
Number of Customers																				
Usage Per Customer											75.81	81.90	85.09	87.84	87.21	86.40	79.70	74.23	69.92	
											75.58	81.84	85.22	88.14	87.40	85.97	78.22	74.40	70.11	
											0.05	0.01	-0.03	-0.06	-0.04	0.09	0.29	-0.03	-0.04	
Existing Apart. Resident Per Capita Use (gpd)	79.66	83.04	78.91	80.71	75.56	74.57	74.17	76.04	77.23	77.03	105.05	90.11	89.77	74.08	73.00	71.53	62.79	68.22	61.60	
New Resident MFR Per Capita Use (gpd)																				
Multi-Family Residential	1.37	1.41	1.39	1.33	1.40	1.40	1.42	1.49	1.57	1.45	1.71	1.49	1.53	0.96	1.21	1.18	0.88	1.19	1.36	
Garden Apartments	4.20	4.47	4.26	4.45	4.27	4.28	4.32	4.49	4.58	4.82	5.89	5.08	5.01	4.38	4.78	4.77	4.18	4.55	4.68	
High Rise Apartments	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.02	1.10	1.00	1.11	1.05	0.96	0.91	1.02	0.91	0.02	
Apartment use (in mgd).....	5.62	5.93	5.70	5.83	5.72	5.74	5.79	6.03	6.21	6.29	8.70	7.57	7.65	6.40	6.94	6.86	6.07	6.65	6.06	
Outside Counties (see "Counties" pages)																				
Individual Cust. Use (in mgd)....	0.40	0.44	0.45	0.41	0.44	0.46	0.45	0.49	0.53	0.54	0.60	0.61	0.93	0.88	1.00	1.04	0.99	1.04	1.11	
Bulk Sales Use (in mgd).....	0.53	0.77	0.73	0.61	0.58	0.64	0.63	0.78	0.75	0.71	0.80	0.85	1.08	1.46	1.39	1.38	1.37	1.17	1.22	
											8.33	7.81	8.11	8.19	8.43	8.39	8.00	7.91	7.84	7.23
											0.03	0.02	0.01	-0.01	-0.03	-0.02	0.04	0.15	-0.02	-0.02
Commercial Use (mgd)	7.75	8.10	7.74	7.18	7.48	7.79	7.53	7.93	8.37	7.84	8.12	8.18	8.40	8.37	8.04	8.06	7.83	7.21	8.98	
Toyota Usage (mgd)			0.41	0.74	0.89	0.94	1.09	1.05	1.25	1.40	1.37	1.61	1.70	1.62	1.48	1.39	1.48	1.27	1.20	
Industrial Use (mgd,non-Toyota)	1.64	1.58	1.49	1.36	1.44	1.39	1.23	1.24	1.23	1.23	1.31	1.38	1.43	1.30	1.18	1.07	0.96	0.97	0.93	

University of Kentucky U of K Base Demand including residences (Main Campus only)	1.20	1.31	1.30	1.50	1.46	1.55	1.47	1.57	1.73	1.63	1.45										
U of K Student Population	23696	22461	22879	23297	23081	24132	24197	24288	24217	24378	24200										
U of K per student use (g/d)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00										
U of K student usage on campus (mgd).....	0.24	0.22	0.23	0.23	0.23	0.24	0.24	0.24	0.24	0.24	0.24										
Total U of K Main Campus Usage (mgd)	1.44	1.53	1.53	1.73	1.69	1.79	1.71	1.81	1.97	1.88	1.69	1.67	1.80	1.77	1.60	1.57	1.60	1.79	1.74		
Calendar Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		
Other Public Use (in mgd).....	0.76	1.00	1.40	1.32	1.48	1.50	1.64	1.67	1.60	1.52	1.35	1.37	1.32	1.52	2.32	2.64	0.86	0.75	1.30		
Total System Usage (mgd).....	29.70	31.55	31.20	29.67	30.57	31.40	30.73	32.56	34.19	33.61	37.03	35.73	37.44	35.13	36.14	36.34	32.57	32.46	34.62		
Losses and Non-Revenue Use (%)	16.90%	17.60%	15.00%	12.30%	11.60%	15.40%	16.10%	17.64%	15.69%	16.01%	12.25%	14.90%	12.30%	11.50%	11.90%	13.70%	15.20%	13.30%	18.50%		
Losses and Non-Revenue Use (mgd).....	6.04	6.74	5.51	4.16	4.01	5.71	5.90	6.97	6.36	6.41	5.17	6.25	5.25	4.56	4.88	5.77	5.84	4.98	7.86		
Calculated Average Day Demand (mgd)	35.74	38.28	36.71	33.84	34.59	37.11	36.63	39.53	40.55	40.02	42.20	41.98	42.69	39.69	41.02	42.11	38.41	37.44	42.48		
Average Day Demand w/out Conservation (mgd)	35.74	38.28	36.71	33.84	34.59	37.11	36.63	39.53	40.56	41.98	42.51	43.65	43.24	39.99	41.54	42.59	38.31	38.19	40.64		
Maximum Day w/out Conservation (mgd)	60.32	64.09	62.33	58.36	59.76	62.86	61.95	66.08	68.43	70.86	72.70	73.88	73.79	68.55	71.15	72.31	64.87	65.31	67.46		
Actual Maximum Day (mgd)	57.47	54.89	63.91	47.72	58.52	56.42	47.22	59.49	58.36	63.77	53.7	60.7	64.67	61.18	66.37	56.04	71.82	61.37	56.89		
Conservation Impacts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-1.95	-0.31	-1.67	-0.55	-0.30	-0.53	-1.39	-1.96	-1.12	-3.71		
Total Average Day Demand (mgd).....	57.62	61.52	59.70	55.69	57.11	60.24	59.26	63.51	65.74	64.78	69.47	68.30	70.27	65.56	67.63	68.87	62.40	61.35	67.98		
Max Day: 95% Exceedance (mgd).....	57.62	61.52	59.70	55.69	57.11	60.24	59.26	63.51	65.74	64.78	69.47	68.30	70.27	65.56	67.63	68.87	62.40	61.35	67.98		
In Plant Usage (mgd)	1.617	2.37	1.91	1.77	1.36	1.40	1.42	1.55	1.59	1.64	1.66	1.71	1.69	1.56	1.62	1.37	1.40	1.34	1.38		
Total Max Day Production (mgd)[95%excd]	59.087	57.26	65.82	49.49	59.88	57.82	48.64	61.04	67.33	66.42	71.13	70.01	71.96	67.13	69.26	70.24	63.80	62.69	69.36		
previous forecast (1992 CPS)	59.087	57.26	65.82	49.49	59.88	57.82	63.53	63.87	64.67	65.44	65.71	65.79	65.88	65.97	65.81						

* NOTE: Revised to reflect actual 1986-1998 year-end billed usage.

FOR SAME CONDITIONS UNDER HOT, DRY SCENARIO:

TOTAL SYSTEM USAGE (mgd).....	31.48	33.44	33.08	31.45	32.41	33.28	32.58	34.51	36.24	35.63	39.25	37.87	39.69	37.23	38.30	38.52	34.52	34.41	36.70		
LOSSES AND NON-REVENUE USE (%)	16.90%	17.60%	15.00%	12.30%	11.60%	15.40%	16.10%	17.64%	15.69%	16.01%	12.25%	14.90%	12.30%	11.50%	11.90%	13.70%	15.20%	13.30%	18.50%		
LOSSES AND NON-REVENUE USE (mgd).....	6.40	7.14	5.84	4.41	4.25	6.06	6.25	7.39	6.74	6.79	5.48	6.63	5.57	4.84	5.17	6.11	6.19	5.28	8.33		
Average Day Demand w/out Conservation (mgd)	37.89	40.58	38.91	35.87	36.66	39.34	38.83	41.90	42.99	44.38	45.04	46.17	45.80	42.37	44.00	45.11	40.62	40.44	43.19		
Maximum Day w/out Conservation (mgd)	64.08	68.08	66.21	62.01	63.48	66.78	65.80	70.19	72.67	75.05	77.17	78.27	78.31	72.79	75.51	76.74	68.91	69.29	71.84		
ACTUAL MAXIMUM DAY (mgd)	57.47	54.89	63.91	47.72	58.52	56.42	47.22	59.49	58.36	63.77	53.70	60.70	64.67	61.18	66.37	56.04	71.82	61.37	56.89		
CONSERVATION IMPACTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-1.95	-0.31	-1.67	-0.55	-0.30	-0.53	-1.39	-1.96	-1.12	-3.71		
Projected Average Day Demand (mgd)	37.89	40.58	38.91	35.87	36.66	39.34	38.83	41.90	42.99	44.73	44.50	45.26	42.07	43.48	43.72	38.66	39.32	39.48			
6-mo Summer Avg. Day Dem.: 95% C. I. (mgd) w/out cons.		54	52	48	49	52	52	55	57	58	59	61	60	56	58	59	54	54	57		
6-mo Summer Avg. Day Dem.: 99% C. I. (mgd) w/out cons.		55	53	49	50	54	53	57	59	60	61	63	62	58	60	61	55	55	59		
6-mo Summer Avg. Day Dem.: 95% C. I. (mgd) w/ cons.		54	52	48	49	52	52	55	57	56	59	59	59	55	57	57	51	52	52		
6-mo Summer Avg. Day Dem.: 99% C. I. (mgd) w/ cons.		55	53	49	50	54	53	57	59	58	61	60	61	57	59	59	53	54	54		
MAX DAY: 95% EXCEEDANCE (mgd).....	61.08	65.21	63.28	59.04	60.53	63.85	62.82	67.32	69.69	70.11	73.86	73.59	74.82	69.61	71.94	72.31	63.87	65.08	67.99		
IN PLANT USE(mgd)	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6		
TOTAL MAX DAY PRODUCTION (mgd)[95%excd]		56.49	65.51	49.32	60.12	58.02	48.82	61.09	71.29	71.71	75.46	75.19	76.42	71.21	73.54	73.91	65.47	66.68	69.59		

SURROUNDING COUNTIES--INDIVIDUAL CUSTOMER

WATER DEMAND	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
WOODFORD COUNTY																			
Population	18,884	19,076	19,900	19,928	19,955	20,270	20,585	20,934	21,283	21,632	21,988	22,344	22,689	23,033	23,208	23,373	23,523	23,671	23,939
No. of resid. connections	138	137	142	139	141	142	145	149	151	152	153	155	163	171	179	180	184	189	193
Persons per household	2.80	2.80	2.81	2.76	2.71	2.69	2.68	2.66	2.65	2.63	2.62	2.61	2.59	2.58	2.57	2.56	2.56	2.55	2.54
Population Served	386	384	399	384	382	383	388	397	400	400	401	404	423	442	460	461	471	481	491
Existing Customer Per capita use (GPD)	85.54	89.11	85.17	76.13	79.55	80.38	75.73	80.74	84.51	82.69	87.32	82.09	86.52	76.65	82.24	82.45	75.57	76.25	78.59
New Customer Per Capita Use (GPD)											78.59	73.88	77.87	68.98	74.01	74.20	68.02	68.62	70.73
WOODFORD CO. WATER DEMAND (in MGD).....	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.04	0.04	0.04	0.04	0.04
SCOTT COUNTY																			
Population	22,689	23,501	22,760	23,314	23,867	24,135	24,403	25,360	26,317	27,274	27,731	29,446	30,423	31,397	33,061	34,478	35,444	36,729	37,901
No. of resid. connections	1055	1149	1287	1373	1446	1507	1571	1628	1716	1799	1926	2142	2362	2560	2770	2920	3114	3307	3501
Persons per household	2.90	2.90	2.77	2.73	2.69	2.68	2.67	2.66	2.65	2.64	2.63	2.63	2.62	2.62	2.61	2.61	2.61	2.62	2.62
Population Served	3060	3332	3565	3748	3890	4039	4195	4330	4547	4749	5073	5629	6193	6697	7230	7627	8139	8652	9166
Existing Customer Per Capita Use (GPD)	85.54	89.11	85.17	76.13	79.55	80.38	75.73	80.74	84.51	82.69	87.32	82.09	86.52	76.65	82.24	82.45	75.57	76.25	78.59
New Customer Per Capita Use (GPD)											78.59	73.88	77.87	68.98	74.01	74.20	68.02	68.62	70.73
SCOTT CO. WATER DEMAND (in MGD).....	0.26	0.30	0.30	0.29	0.31	0.32	0.32	0.35	0.38	0.39	0.44	0.45	0.52	0.50	0.57	0.61	0.59	0.63	0.69
BOURBON COUNTY																			
Population	19,188	19,088	18,978	19,277	19,236	19,248	19,261	19,273	19,286	19,298	19,310	19,323	19,335	19,348	19,360	19,507	19,494	19,563	19,694
No. of resid. connections	394	391	394	407	409	419	427	433	441	477	486	506	538	575	645	663	683	704	724
Persons per household	2.70	2.70	2.73	2.68	2.63	2.62	2.60	2.59	2.57	2.56	2.55	2.53	2.52	2.50	2.49	2.49	2.49	2.49	2.49
Population Served	1064	1056	1076	1091	1076	1096	1111	1121	1135	1221	1237	1281	1355	1440	1606	1650	1700	1750	1800
Existing Customer Per capita use (GPD)	85.54	89.11	85.17	76.13	79.55	80.38	75.73	80.74	84.51	82.69	87.32	82.09	86.52	76.65	82.24	82.45	75.57	76.25	78.59
New Customer Per Capita Use (GPD)											78.59	73.88	77.87	68.98	74.01	74.20	68.02	68.62	70.73
BOURBON CO. WATER DEMAND (in MGD).....	0.09	0.09	0.09	0.08	0.09	0.09	0.08	0.09	0.10	0.10	0.11	0.10	0.12	0.11	0.13	0.13	0.12	0.13	0.14
HARRISON COUNTY																			
Population	15,722	15,907	15,887	16,195	16,248	16,422	16,595	16,769	16,942	17,116	17,289	17,463	17,636	17,810	17,983	18,044	18,100	18,268	18,330
No. of resid. connections	78	77	80	80	80	78	79	78	80	83	84	84	85	84	85	87	89	91	93
Persons per household	2.70	2.70	2.71	2.67	2.62	2.61	2.60	2.59	2.58	2.57	2.56	2.55	2.55	2.54	2.53	2.53	2.53	2.53	2.53
Population Served	211	208	217	213	210	204	205	202	206	213	215	215	216	213	215	220	225	230	235
Existing Customer Per capita use (GPD)	85.54	89.11	85.17	76.13	79.55	80.38	75.73	80.74	84.51	82.69	87.32	82.09	86.52	76.65	82.24	82.45	75.57	76.25	78.59
New Customer Per Capita Use (GPD)											78.59	73.88	77.87	68.98	74.01	74.20	68.02	68.62	70.73
HARRISON CO. WATER DEMAND (in MGD).....	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
CLARK COUNTY																			
Population					29,496	29,861	30,226	30,590	30,955	31,320	31,685	32,050	32,414	32,779	33,144	33,433	33,576	33,940	34,408
No. of residential connections										1109	1180	1205	1215	1298	1320	1306	1315	1325	1334
Persons per household										2.58	2.57	2.55	2.54	2.52	2.51	2.51	2.50	2.50	2.49
Population Served										3028	3075	3084	3276	3313	3272	3288	3305	3322	
Existing Customer Per capita use (GPD)	85.54	89.11	85.17	76.13	79.55	80.38	75.73	80.74	84.51	82.69	87.32	82.09	86.52	76.65	82.24	82.45	75.57	76.25	78.59
New Customer Per Capita Use (GPD)											78.59	73.88	77.87	68.98	74.01	74.20	68.02	68.62	70.73
CLARK CO. WATER DEMAND (in MGD)													0.24	0.23	0.25	0.24	0.22	0.23	0.23
INDIVIDUAL CUSTOMER																			
TOTAL WATER DEMAND OUTSIDE COUNTIES...	0.40	0.44	0.45	0.41	0.44	0.46	0.45	0.49	0.53	0.54	0.60	0.61	0.93	0.88	1.00	1.04	0.99	1.04	1.11

OUTSIDE COUNTIES--BULK SALES
WATER DEMAND

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
MIDWAY																			
Woodford Co. population projections	18,884	19,076	19,900	19,928	19,955	20,270	20,585	20,934	21,283	21,632	21,988	22,344	22,689	23,033	23,208	23,353	23,497	23,642	23,786
Projected bulk consumption (mgd)	0.16	0.17	0.10	0.10	0.10	0.11	0.12	0.12	0.13	0.13	0.16	0.15	0.13	0.14	0.15	0.19	0.18	0.20	0.19
MIDWAY WATER DEMAND (in MGD).....	0.16	0.17	0.10	0.10	0.10	0.11	0.12	0.12	0.13	0.13	0.16	0.15	0.13	0.14	0.15	0.19	0.18	0.20	0.19
VERSAILLES																			
Woodford Co. population projections	18,884	19,076	19,900	19,928	19,955	20,270	20,585	20,934	21,283	21,632	21,988	22,344	22,689	23,033	23,208	23,353	23,497	23,642	23,786
Versailles projected tot. avg usage													4.00	4.00	3.13				
Versailles production capacity(mgd)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected bulk consumption (mgd) (supplemental supply)													0.00	0.00	0.13	0.15	0.14	0.09	0.07
VERSAILLES WATER DEMAND (in MGD).....	0.00	0.13	0.07	0.03	0.05	0.07	0.02	0.13	0.02	0.01	0.01	0.02	0.13	0.23	0.10	0.09	0.07	0.04	0.02
(FORMER SPEARS DISTRICT) CITY OF NICHOLASVILLE																			
Jessamine Co. population projections	28,911	29,338	30,610	30,559	30,508	31,361	32,215	33,068	33,921	34,775	35,628	36,481	37,334	38,188	39,041	39,785	40,689	41,444	42,256
Average bulk consumption (mgd)	0.12	0.15	0.15	0.11	0.11	0.12	0.14	0.13	0.11	0.10	0.14	0.15	0.17	0.20	0.26	0.22	0.19	0.07	0.06
SPEARS DISTRICT WATER DEMAND (in MGD).....	0.12	0.15	0.15	0.11	0.11	0.12	0.14	0.13	0.11	0.10	0.14	0.15	0.17	0.20	0.26	0.22	0.19	0.07	0.06
SOUTH ELKHORN DISTRICT																			
Jessamine Co. population projections	28,911	29,338	30,610	30,559	30,508	31,361	32,215	33,068	33,921	34,775	35,628	36,481	37,334	38,188	39,041	39,785	40,689	41,444	42,256
Average bulk consumption (mgd)	0.25	0.33	0.41	0.37	0.32	0.35	0.36	0.40	0.39	0.38	0.40	0.41	0.42	0.51	0.52	0.54	0.64	0.56	0.48
SOUTH ELKHORN WATER DEMAND (in MGD).....	0.25	0.33	0.41	0.37	0.32	0.35	0.36	0.40	0.39	0.38	0.40	0.41	0.42	0.51	0.52	0.54	0.64	0.56	0.48
NORTH MIDDLETOWN																			
Bourbon Co. population projections	19,188	19,088	18,978	19,277	19,236	19,248	19,261	19,273	19,286	19,298	19,310	19,323	19,335	19,348	19,360	19,432	19,504	19,577	19,649
Average bulk consumption (mgd)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.09	0.09	0.10	0.11	0.13	0.14	0.20	0.19	0.21	0.35
NORTH MIDDLETOWN WATER DEMAND (in MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.09	0.09	0.10	0.11	0.13	0.14	0.20	0.19	0.21	0.35
GEORGETOWN MUNICIPAL WATER																			
Scott Co. population projections	22,689	23,501	22,760	23,314	23,867	24,135	24,403	25,360	26,317	27,274	27,731	29,446	30,423	31,397	33,061	34,307	35,554	36,800	38,047
Average bulk consumption (mgd)												0.02	0.12	0.25	0.22	0.06	0.03	0.01	0.04
GEORGETOWN WATER DEMAND (in MGD)												0.02	0.12	0.25	0.22	0.06	0.03	0.01	0.04
Harrison County Water Association																			
Harrison County population projections	15,722	15,907	15,887	16,195	16,248	16,422	16,595	16,769	16,942	17,116	17,289	17,463	17,636	17,810	17,983	18,044	18,100	18,268	18,330
Average bulk consumption (mgd)															0.07	0.08	0.07	0.07	0.07
HARRISON COUNTY WATER DEMAND (MGD)																0.07	0.08	0.07	0.07
BULK SALES																			
TOTAL WATER DEMAND OUTSIDE COUNTIES...	0.53	0.77	0.73	0.61	0.58	0.64	0.63	0.78	0.75	0.71	0.80	0.85	1.08	1.46	1.39	1.38	1.37	1.17	1.22

CONSERVATION PROGRAM IMPACTS

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
RESIDENTIAL RETROFIT PROGRAM																			
SAVINGS PER HOUSEHOLD (gal/d)									22.40	22.40	22.40	22.40	22.40	22.40					
HOUSEHOLDS PARTICIPATING									300	1500	2000	2500	3000	3500	0	0	0	0	0
ANNUAL SAVINGS (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.06	0.07	0.08	0.00	0.00	0.00	0.00	0.00
CUMULATIVE SAVINGS (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.09	0.14	0.21	0.29	0.29	0.29	0.29	0.29	0.29
RESIDENTIAL LANDSCAPE/TURF SCHEDULE																			
SAVINGS PER HOUSEHOLD										3.80	3.80	3.80	3.80	3.80	3.80				
HOUSEHOLDS PARTICIPATING										500	3000	10000	12500	12500	12500				
ANNUAL SAVINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.05	0.05	0.05	0.00	0.00	0.00	0.00
CUMULATIVE SAVINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.10	0.15	0.19	0.19	0.19	0.19	0.19
INTERIOR HOME CONSULTATION																			
SAVINGS PER HOUSEHOLD																			
HOUSEHOLDS PARTICIPATING																			
ANNUAL SAVINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CUMULATIVE SAVINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COMMERCIAL/INDUSTRIAL INTERNAL AUDIT																			
SAVINGS PER COMMERCIAL UNIT																			
UNITS PARTICIPATING																			
ANNUAL SAVINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAVINGS PER INDUSTRIAL UNIT																			
UNITS PARTICIPATING																			
ANNUAL SAVINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CUMULATIVE SAVINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INDUSTRIAL/UK EXTERIOR AUDIT																			
UNIVERSITY OF KENTUCKY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
SAVINGS PER INDUSTRIAL UNIT																			
UNITS PARTICIPATING																			
ANNUAL SAVINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CUMULATIVE SAVINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INCREASED LEAK DETECTION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.21	1.47	0.24	-0.14	0.05	0.91	1.48	0.64	3.23
TOTAL SAVINGS FROM CONSERVATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.95	0.31	1.67	0.55	0.30	0.53	1.39	1.96	1.12	3.71

ELAST. % OF USE														ADVANCED PLUMBING CODE EFFECTS CALCULATION													
SFR INDOOR														UNIT WATER SAVINGS, GDU													
SFR OUTDOOR														TOILETS													
COMMERCIAL														SHOWERHEADS													
INDUSTRIAL														1996 2006													
APARTMENT														21.12 20.20													
														10.03 10.90													
														FAUCETS 13.73 3.00													
														ELIGIBLE POPULATION,%													
														TOILETS 0.15 0.65													
														SHOWERHEADS 0.25 0.9													
														FAUCETS 0.25 0.9													
														PARTICIPATION RATE													
														LOW 0.75 0.75													
														HIGH 0.90 0.90													
														NUMBER OF CUSTOMERS CALC.													
														WATER USE,MGD													
														SINGLE FAMILY													
														IN CTY 13.08993 14.5653													
														OUT CTY 1.405197 2.651375													
														MULTI 8.701211 6.334521 FROM AM'													
														SFR PER CAP USAGE 87.3244 93.91792 FROM AM'													
														MFR PER CAP USAGE 105.05 63.89													
														SFR POPULATION 165992 183316													
														MFR POPULATION 82828 99154													
														PEOPLE/UNIT 2.64 2.52													
														EQU.RESID.CUSTOMERS 94250 112091													
														COMM & IND SAVINGS 0.15 0.44													
														GOVT AND UK SAVINGS 0.08 0.15													
														ESTIMATED APC SAVINGS, MGD													
														HIGH 1.00 3.18													
														LOW 0.87 2.75													
														AVG. 0.94 2.96													
2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2020	2025	2030														
271540	274,416	277,292	280,169	283,045	285921	288547	291173	293800	296426	299052	312190	326973	341326														
99154	99959.7	100765	101570	102376	104406	105365	106324	107282	108241	109200	113998	119396	124637														
8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200														
6656	6709.64	6763.7	6817.76	6871.82	7008	7072	7137	7201	7266	7330	7652	8014	8366														
157,530	158,876	160,222	161,569	162,915	166,307	167,910	169,513	171,116	172,719	174,322	182,340	191,363	200,123														
12531	13355	13785	14216	14648	15081	15456	15825	16187	16544	16894	18898	21441	24377														
15866	18036	19813	21590	23368	27193	29171	31143	33108	35067	37021	47043	58608	70305														
109892	112063																										
403	407																										
79.02	81.36	82.09	85.28	87.46	87.61	85.39	83.28	80.91	78.91	78.91	78.91	78.91	78.91														
78.27	81.56	82.47	77.79	80.09	83.90	85.64	83.39	79.10	78.65	78.78	77.52	77.52	78.78														
0.15	-0.04	-0.07	1.50	1.47	0.74	-0.05	-0.02	0.36	0.05	0.03	0.28	0.28	0.03														
93.92	86.13	91.50	87.16	79.35	82.79	75.61	79.64	77.14	76.05	76.05	76.05	76.05	76.05														
84.53	77.52	82.35	78.44	71.41	74.51	68.05	71.68	69.42	68.45	68.45	68.45	68.45	68.45														
15.97	14.84	15.92	15.32	14.09	15.02	13.86	14.51	14.19	14.13	14.26	14.95	15.74	16.54														
14.57	13.48	14.44	13.88	12.74	13.58	12.52	13.07	12.77	12.70	12.81	13.35	13.96	14.56														
99154	99960	100765	101570	102376	104406	105365	106324	107282	108241	109200	113998	119396	124637														
17507	18313	19118	19924	20729	22759	23718	24677	25636	26595	27554	32351	37749	42990														
	0	0	0	0																							
86.40	65.60	63.60	63.77	62.73	62.68	62.11	61.91	61.23	60.64	60.40	60.22	60.16	60.14														
85.89	65.71	63.78	60.27	59.43	61.02	62.23	61.96	60.37	60.52	60.34	59.56	59.50	60.08														
0.10	-0.02	-0.04	0.70	0.66	0.33	-0.02	-0.01	0.17	0.02	0.01	0.13	0.13	0.01														
63.89	61.50	63.62	63.06	61.33	61.04	60.48	60.25	60.10	60.15	60.15	60.15	60.15	60.15														
1.43	1.40	1.39	1.36	1.33	1.32	1.26																					
4.89	4.73	4.77	4.50	4.37	4.37	4.17																					
0.02	0.02	0.02	0.02	0.02	0.02	0.03																					
6.33	6.15	6.17	5.88	5.73	5.71	5.45	6.33	6.37	6.43	6.49	6.76	7.07	7.37														
1.41	1.36	1.48	1.44	1.35	1.44	1.34	1.44	1.42	1.43	1.45	1.60	1.78	1.98														
1.24	1.06	1.39	1.42	1.28	1.32	1.22	1.29	1.30	1.29	1.45	1.56	1.68	1.79														
8.93	9.99	9.78	9.70	9.62	8.69	9.96	8.83	9.31	9.35	9.93	10.27	10.60	11.09														
0.05	-0.02	-0.03	0.56	0.53	0.24	-0.02	-0.01	0.13	0.02	0.01	0.11	0.12	0.01														
9.98	9.75	10.27	10.15	8.93	9.94	8.82	9.45	9.37	9.31	10.38	10.72	11.11	11.58														
1.26	1.15	1.15	0.89	0.72	0.88	0.79	0.80	0.83	0.81	0.81	0.81	0.81	0.81														
0.96	0.88	0.93	0.79	0.67	0.67	0.50	0.62	0.60	0.58	0.70	0.73	0.77	0.80														

1.77	1.61	1.69	1.76	1.63	1.73	1.59	1.65	1.65	1.63	1.64	1.64	1.65	1.65
2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2020	2025	2030
0.35	1.63	1.10	1.04	1.27	1.15	1.16	1.21	1.18	1.19	1.20	1.26	1.31	1.37
37.87	37.07	38.62	37.25	34.31	36.42	33.41	35.86	35.50	35.37	36.94	38.44	40.13	41.91
14.50%	18.70%	14.80%	14.80%	14.80%	10.89%	12.03%	13.80%	13.80%	13.80%	13.80%	13.80%	13.80%	13.80%
6.42	8.53	6.71	6.47	5.96	4.45	4.57	5.74	5.68	5.66	5.91	6.15	6.43	6.71
44.30	45.60	45.33	43.72	40.28	40.87	37.98							
44.33	43.42	45.18	43.62	40.29	42.68	39.27	42.04	41.63	41.49	43.27	44.96	46.89	48.90
74.92	71.82	76.21	73.68	68.28	73.54	67.53	71.48	70.81	70.58	73.47	76.23	79.38	82.66
69.65	67.22	64.3	62.3	52.56	61.36	55.82							
-1.84	-4.05	-2.03	-2.15	-2.22	-0.06	-0.75	-1.78	-1.95	-2.13	-1.45	-1.49	-1.54	-1.58
	39.37	43.15	41.47	38.08	42.62	38.52	40.26	39.68	39.36	41.82	43.47	45.35	47.32
72.19	72.91	74.34	71.69	66.22	73.64	66.93	69.86	69.02	68.61	72.18	74.90	78.00	81.23
1.36	1.28	1.34	1.29	1.19	1.26	1.16	1.24	1.23	1.23	1.28	1.33	1.39	1.45
73.56	74.19	75.68	72.98	67.42	74.91	68.10	71.10	70.25	69.84	73.46	76.23	79.39	82.68
65.91				65.81						66.81	66.64		
40.15	39.30	40.94	39.48	36.37	38.61	35.42	38.01	37.63	37.49	39.16	40.74	42.54	44.42
14.50%	18.70%	14.80%	14.80%	14.80%	10.89%	12.03%	13.80%	13.80%	13.80%	13.80%	13.80%	13.80%	13.80%
6.81	9.04	7.11	6.86	6.32	4.72	4.84	6.08	6.02	6.00	6.27	6.52	6.81	7.11
46.99	46.16	47.90	46.24	42.71	45.14	41.55	44.54	44.10	43.95	45.85	47.64	49.68	51.82
79.55	76.49	80.94	78.25	72.51	77.91	71.59	75.86	75.15	74.91	77.98	80.91	84.24	87.73
69.65	67.22												
-1.84	-4.05	-2.03	-2.15	-2.22	-0.06	-0.75	-1.78	-1.95	-2.13	-1.45	-1.49	-1.54	-1.58
45.15	42.11	45.87	44.09	40.49	45.08	40.79	42.76	42.15	41.83	44.39	46.15	48.15	50.23
62	61	63	61	56	59	55	59	58	58	60	62	65	68
64	63	65	63	58	61	57	61	60	60	62	64	67	70
59	56	60	58	54	59	54	56	56	55	58	61	63	66
61	57	62	60	55	61	56	58	58	57	60	63	65	68
77.57	72.30	78.77	75.96	70.16	77.71	70.69	73.94	73.06	72.64	76.38	79.27	82.57	86.00
1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
79.17	73.90	80.37	77.56	71.76	79.31	72.29	75.54	74.66	74.24	77.98	80.87	84.17	87.60



2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2020	2025	2030
23,931	24,103	24,275	24,446	24,618	24,790	24,920	25,050	25,180	25,310	25,440	25,992	26,405	26,685
196	197	198	200	201	203	204	205	206	207	208	213	216	219
2.54	2.53	2.52	2.51	2.51	2.50	2.49	2.48	2.46	2.45	2.44	2.37	2.33	2.30
497	498	500	502	504	508	507	507	507	507	508	505	504	503
93.92	86.13	91.50	87.16	79.35	82.79	75.61	79.64	77.14	76.05	76.05	76.05	76.05	76.05
84.53	77.52	82.35	78.44	71.41	74.51	68.05	71.68	69.42	68.45	68.45	68.45	68.45	68.45
0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
39,293	40,884	42,475	44,067	45,658	47,249	49,022	50,794	52,567	54,339	56,112	66,411	78,759	92,613
3789	4071	4229	4388	4546	4705	4881	5058	5234	5411	5587	6613	7842	9222
2.62	2.62	2.62	2.63	2.63	2.63	2.61	2.59	2.58	2.56	2.54	2.45	2.39	2.35
9927	10674	11098	11523	11948	12374	12750	13120	13484	13841	14192	16201	18743	21671
93.92	86.13	91.50	87.16	79.35	82.79	75.61	79.64	77.14	76.05	76.05	76.05	76.05	76.05
84.53	77.52	82.35	78.44	71.41	74.51	68.05	71.68	69.42	68.45	68.45	68.45	68.45	68.45
0.88	0.87	0.96	0.95	0.89	0.96	0.90	0.98	0.97	0.98	1.01	1.15	1.32	1.52
19,721	19,758	19,795	19,832	19,869	19,906	19,976	20,047	20,117	20,188	20,258	20,586	20,854	21,039
751	781	782	784	785	787	790	792	795	798	801	814	824	832
2.49	2.48	2.48	2.48	2.48	2.48	2.47	2.46	2.45	2.44	2.43	2.39	2.36	2.35
1866	1940	1943	1946	1949	1951	1950	1949	1948	1947	1946	1945	1945	1954
93.92	86.13	91.50	87.16	79.35	82.79	75.61	79.64	77.14	76.05	76.05	76.05	76.05	76.05
84.53	77.52	82.35	78.44	71.41	74.51	68.05	71.68	69.42	68.45	68.45	68.45	68.45	68.45
0.17	0.16	0.17	0.16	0.15	0.16	0.14	0.15	0.14	0.14	0.14	0.14	0.14	0.14
18,196	18,307	18,418	18,528	18,639	18,750	18,836	18,921	19,007	19,092	19,178	19,590	19,958	20,267
95	96	97	97	98	98	99	99	100	100	101	103	105	106
2.53	2.53	2.53	2.53	2.53	2.53	2.52	2.51	2.49	2.48	2.47	2.41	2.37	2.34
240	243	244	246	247	249	249	249	249	248	248	248	248	249
93.92	86.13	91.50	87.16	79.35	82.79	75.61	79.64	77.14	76.05	76.05	76.05	76.05	76.05
84.53	77.52	82.35	78.44	71.41	74.51	68.05	71.68	69.42	68.45	68.45	68.45	68.45	68.45
0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
34,638	34,983	35,327	35,672	36,016	36,361	36,690	37,020	37,349	37,679	38,008	39,611	41,151	42,487
1359	1376	1390	1403	1417	1427	1443	1456	1469	1482	1491	1554	1615	1667
2.49	2.48	2.48	2.47	2.47	2.46	2.45	2.44	2.43	2.42	2.41	2.37	2.33	2.31
3377	3412	3439	3466	3492	3509	3536	3553	3570	3587	3594	3683	3762	3851
93.92	86.13	91.50	87.16	79.35	82.79	75.61	79.64	77.14	76.05	76.05	76.05	76.05	76.05
84.53	77.52	82.35	78.44	71.41	74.51	68.05	71.68	69.42	68.45	68.45	68.45	68.45	68.45
0.29	0.26	0.28	0.27	0.25	0.26	0.24	0.25	0.25	0.25	0.25	0.25	0.26	0.26
1.41	1.36	1.48	1.44	1.35	1.44	1.34	1.44	1.42	1.43	1.45	1.60	1.78	1.98

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2020	2025	2030
23,931	24,076	24,220	24,365	24,509	24,790	24,920	25,050	25,180	25,310	25,440	25,992	26,405	26,685
0.19	0.17	0.17	0.16	0.17	0.18	0.16	0.17	0.17	0.17	0.18	0.18	0.19	0.19
0.19	0.17	0.17	0.16	0.17	0.18	0.16	0.17	0.17	0.17	0.18	0.18	0.19	0.19
23,931	24,076	24,220	24,365	24,509	24,790	24,920	25,050	25,180	25,310	25,440	25,992	26,405	26,685
3.56					3.72					4.07	4.16	4.22	4.27
4.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
0.04	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02
0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02
43,175	44,263	45,351	46,439	47,527	48,615	49,732	50,850	51,967	53,085	54,202	60,051	66,227	72,347
0.09	0.06	0.09	0.17	0.09	0.10	0.08	0.09	0.09	0.09	0.11	0.12	0.13	0.14
0.09	0.06	0.09	0.17	0.09	0.10	0.08	0.09	0.09	0.09	0.11	0.12	0.13	0.14
43,175	44,263	45,351	46,439	47,527	48,615	49,732	50,850	51,967	53,085	54,202	60,051	66,227	72,347
0.64	0.57	0.78	0.77	0.69	0.73	0.71	0.73	0.74	0.74	0.82	0.90	1.00	1.09
0.64	0.57	0.78	0.77	0.69	0.73	0.71	0.73	0.74	0.74	0.82	0.90	1.00	1.09
19,721	19,793	19,865	19,938	20,010	19,906	19,976	20,047	20,117	20,188	20,258	20,586	20,854	21,039
0.21	0.20	0.24	0.22	0.21	0.22	0.17	0.20	0.20	0.19	0.22	0.22	0.23	0.23
0.21	0.20	0.24	0.22	0.21	0.22	0.17	0.20	0.20	0.19	0.22	0.22	0.23	0.23
39,293	40,539	41,786	43,032	44,279	47,249	49,022	50,794	52,567	54,339	56,112	66,411	78,759	92,613
0.02	0.00	0.02	0.00	0.03	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.02	0.00	0.02	0.00	0.03	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
18,196	18,307	18,418	18,528	18,639	18,750	18,836	18,921	19,007	19,092	19,774	19,590	20,913	20,267
0.08	0.08	0.09	0.09	0.09	0.10	0.09	0.09	0.10	0.09	0.10	0.10	0.11	0.10
0.08	0.08	0.09	0.09	0.09	0.10	0.09	0.09	0.10	0.09	0.10	0.10	0.11	0.10
1.24	1.06	1.39	1.42	1.28	1.32	1.22	1.29	1.30	1.29	1.45	1.56	1.68	1.79

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2020	2025	2030
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
0.00	0.00	23.76	23.76	23.76	23.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	200	200	200	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	523	523	523	523	523	523	523	0.00	0.00	0.00	0.00
0.00	0.00	0.00	200	200	200	200	200	200	200	0.00	0.00	0.00	0.00
			0.10	0.10	0.00	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00
0.00	0.00	0.00	70824	70824	70824	70824	70824	70824	70824	0.00	0.00	0.00	0.00
0.00	0.00	0.00	1	1	1	1	1	1	1	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.07	0.07	0.00	0.07	0.07	0.07	0.07	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.18	0.35	0.00	0.18	0.35	0.53	0.70	0.00	0.00	0.00	0.00
0.00					0.00					0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.36	3.57	1.54	1.49	1.37	-0.42	0.10	0.94	0.93	0.93	0.97	1.01	1.06	1.10
1.84	4.05	2.03	2.15	2.22	0.06	0.75	1.78	1.95	2.13	1.45	1.49	1.54	1.58