

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

IN THE MATTER OF:)
)
NOTICE OF ADJUSTMENT OF THE RATES OF) **CASE NO. 2008-00427**
KENTUCKY-AMERICAN WATER COMPANY)
EFFECTIVE ON AND AFTER NOVEMBER 30, 2008)

DIRECT TESTIMONY OF LINDA C. BRIDWELL, P.E.
October 31, 2008

1 **1. Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 **A.** My name is Linda C. Bridwell and my business address is 2300 Richmond Road,
3 Lexington, Kentucky 40502.

4
5 **2. Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 **A.** I am employed by the Kentucky-American Water Company (“KAW”) as Manager,
7 Project Delivery, Water Supply.

8
9 **3. Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THIS**
10 **COMMISSION?**

11 **A.** Yes.

12
13 **4. Q. PLEASE STATE YOUR EDUCATIONAL AND PROFESSIONAL**
14 **BACKGROUND.**

15 **A.** I received a B.S. degree in Civil Engineering from the University of Kentucky in
16 1988 and I received a M.S. degree in Civil Engineering from the University of
17 Kentucky in 1992 with an emphasis in water resources. I completed a Masters of
18 Business Administration from Xavier University in Cincinnati, Ohio in 2000. I am a
19 registered Professional Engineer.

20
21 I have been employed by American Water Works Company (“AWW”) since 1989. I
22 worked as a distribution supervisor for KAW until 1990 and was promoted to
23 Planning Engineer. In July 1995, I was promoted to Engineering Manager. In
24 January 1998, I was promoted to Director of Engineering. In July 2004, I accepted
25 the position of Project Delivery and Developer Services Manager for the Southeast
26 Region of American Water, responsible for Kentucky, Tennessee, and West Virginia.
27 In 2006 that title was changed to Manager – Engineering, and responsibility for West
28 Virginia was shifted to someone in West Virginia. In November 2007 I shifted to my
29 role as Manager, Project Delivery, Water Supply for KAW and my focus is entirely
30 on project implementation of our new water treatment plant and transmission main
31 approved by this Commission in Case No. 2007-00134, referred to in this testimony

1 as KRS II. I am a member of the American Water Works Association (AWWA),
2 served as president of the local chapter and state section of the American Society of
3 Civil Engineering (ASCE), an officer in the local chapter of the National Society of
4 Professional Engineers (NSPE) and a State officer. Since 1991, I have served as an
5 Adjunct Professor at the University of Kentucky in the Civil Engineering Department,
6 teaching “Water Quality and Pollution Control” and the “Introduction to
7 Environmental Engineering.” I serve as a member of the Civil Engineering Industrial
8 Advisory Committee at the University of Kentucky. I served as a Commissioner on
9 the Kentucky Water Resources Development Commission established by Governor
10 Patton and currently serve on the Board of Directors for the Kentucky Infrastructure
11 Authority.

12
13 **5. Q. WHAT ARE YOUR DUTIES AS MANAGER, PROJECT DELIVERY,**
14 **WATER SUPPLY?**

15 **A.** My primary responsibility is the coordination and implementation of the new water
16 treatment plant, transmission main and booster station. Since 1997, I have been
17 involved directly as the project manager for the Bluegrass Water Project and since
18 December 1999 I have served as KAW’s representative to the Bluegrass Water
19 Supply Consortium/Commission (“BWSC”). Until June 2008, I was also responsible
20 for the coordination of the Engineering Department at KAW, which included the
21 planning, development, and implementation of all aspects of construction projects.
22 This included working with all new main extensions and developers, water treatment
23 plant upgrades, new construction, and network facilities improvements. I was
24 involved in the development of the 1992 Least Cost/Comprehensive Planning Study
25 (“LC/CPS”) for KAW, including coordinating local input, regionalization and data
26 collection, as well as drafting a 1998 update to the LC/CPS. I supervised the
27 implementation of the recommendations of the LC/CPS in the investment plan and
28 construction schedule. I also coordinated the development and implementation of the
29 investment plan and monitored the actual expenditures. I was responsible for
30 updating the demand projections and monitoring the source of supply for KAW. I

1 coordinated the provision of technical assistance to all other company departments as
2 needed.

3
4 **6. Q. WHAT WILL YOUR TESTIMONY ADDRESS?**

5 **A.** My testimony will describe the preparation of the investment plan and detail the
6 information for the construction projects as submitted in this case. I will also address
7 the status of the water supply project and conservation initiatives.

8
9 **7. Q. PLEASE DESCRIBE THE FACTORS USED IN THE PREPARATION OF**
10 **THE FORECAST PERIOD DATA AS IT RELATES TO THE CAPITAL**
11 **CONSTRUCTION.**

12 **A.** The Company's capital investment plan can be divided into two distinct areas: 1)
13 normal recurring construction and 2) major projects identified as investment projects
14 ("IPs"). Normal recurring construction includes water main installation for new
15 development, smaller main projects for reinforcement and replacement, service line
16 and meter setting installation, meter purchases and the purchase of tools, furniture,
17 equipment and vehicles.

18
19 Recurring construction costs are trended from historical and forecasted data.
20 Estimates are prepared for the installation of new mains, service lines, meter settings
21 and the purchase of new meters based on preliminary plats from the appropriate
22 governmental planning agencies and consultations with developers, homebuilders and
23 engineering firms.

24
25 Purchase of tools, furniture, equipment and vehicles are based on needs. Each item is
26 reviewed independently and an itemized list of expenditures is prepared. Estimates
27 are made based on current year pricing.

28
29 The intent of the planning process is to provide a broad and comprehensive review of
30 facility needs that will allow us to then establish a general guide for needed
31 improvements over a short-term horizon. These improvements will enable KAW to

1 provide safe, adequate and reliable service to its customers to meet their domestic,
2 commercial and industrial needs; provide flows adequate for fire protection; and
3 satisfy all regulatory requirements. Some projects continue to have their origin in the
4 LC/CPS. The plan provides a general scope of each project along with a preliminary
5 design. The criteria for evaluating the various system components are engineering
6 requirements; consideration of national, state and local trends; environmental impact
7 evaluations; and water resource management.

8
9 The engineering criteria used are accepted engineering standards and practices that
10 provide adequate capacity and appropriate levels of reliability to satisfy residential,
11 commercial, industrial, and public authority needs, and provide flows for fire
12 protection. The criteria are developed from regulations, professional standards and
13 company engineering policies and procedures. Demand projections, based on
14 historical data and usage trends, are utilized in evaluating future system needs.
15 Regionalization opportunities are evaluated to determine if a consolidated solution to
16 water problems in a particular area is feasible or if management service opportunities
17 are viable.

18
19 Sources of supply are evaluated based on quantity and quality. There must be
20 sufficient quantity to supply the system's needs. There must be sufficient quality to
21 provide, through treatment, finished water that meets all federal and state regulations.
22 Sources of supply must also have sufficient allocation rights to enable average and
23 maximum demands to be met.

24
25 Treatment and pumping facilities are designed to reliably meet projected maximum
26 day needs. Storage facilities are designed to provide the recommended volume to
27 equalize the plant's pumping rate on a maximum demand day. With this approach
28 treatment facilities need only be designed to meet the projected maximum day
29 demand, although during that day hourly demands will exceed the treatment
30 capacity's maximum rate. Storage facilities are also designed to provide the volume
31 of water necessary for fire protection up to the maximum flow and duration addressed

1 in the most recent Insurance Services Office (ISO) municipal grading schedule and
2 the volume necessary for reliability.

3
4 Pipelines are designed to meet two conditions of service. They are expected to
5 deliver projected peak hour customer demands while maintaining system pressures at
6 30 psi or greater in accordance with the Public Service Commission (PSC)
7 regulations and to provide adequate fire flow identified by the ISO while maintaining
8 distribution system pressure at 20 psi or greater.

9
10 In developing the comprehensive planning study, it was beneficial to review national,
11 state and local trends, which can affect future planning. Nationally there has been a
12 strong trend toward more stringent regulations affecting water supplies and treatment
13 processes. Examples include increased protection of sources of supply, more
14 stringent water quality regulations of finished water, increased regulation of treatment
15 plant residuals, more frequent water quality monitoring requirements, and more
16 extensive environmental laws affecting new construction and source development.

17
18 Where major projects are not specifically included as a result of the LC/CPS, the
19 projected expenditure is based on preliminary engineering estimates, vendor quotes
20 and other individual analysis.

21
22 **8. Q. DOES KAW FOCUS ON COST CONTROL OF CAPITAL EXPENDITURES**
23 **IN ITS NORMAL DAY-TO-DAY ACTIVITIES?**

24 **A.** Yes. All significant construction work done by independent contractors and
25 significant purchases are completed pursuant to a bid solicitation process. We
26 maintain a list of qualified bidders and we believe that our construction costs are very
27 reasonable. AWW annually takes competitive bids for material and supplies that are
28 either manufactured or distributed regionally and nationally through its centralized
29 procurement group. We have the advantage of being able to purchase these materials
30 and supplies on an as-needed basis at favorable prices. In the past seven years, AWW
31 also has undertaken a number of procurement initiatives for services and materials to

1 reduce costs through either streamlined selection or utilization of large volume
2 purchasing power. Some of these initiatives that have directly impacted capital
3 expenditures include the use of master services agreements with pre-qualified
4 engineering consultants, national vehicle fleet procurement, and national preferred
5 vendor identification.

6
7 **9. Q. HAS KAW CHANGED ITS METHOD OF IMPLEMENTING ITS CAPITAL**
8 **PLAN?**

9 **A.** Yes. In 2003, the entire American Water system transitioned to a new process for
10 development and review of capital expenditures that used some of the best practices
11 already implemented at KAW. This new process includes the formation of a regional
12 Capital Investment Management Committee (“CIMC”) to provide that capital
13 expenditure plans meet the strategic intent of the business including introduction of
14 new technology and process efficiency, assure that capital expenditure plans are
15 integrated with operating expense plans, and provide more effective controls on
16 budgets and individual capital projects.

17
18 The CIMC includes the KAW President, KAW Vice President, Operations, KAW
19 Director of Engineering, and AWW Director of Finance. The CIMC receives capital
20 expenditure plans from project managers and approves them for submission to the
21 Corporate CIMC. Once budgets are approved the CIMC meets monthly to review
22 capital expenditures compared to budgeted levels. The process includes five stages
23 of project review: 1) a Preliminary Need Identification defining the project at an
24 early stage; 2) a Project Implementation Proposal that confirms all aspects of the
25 project are in a position to begin work; 3) Project Change Requests, if needed (if the
26 cost changes more than 5% or \$100,000); 4) a Post Project Review; and 5) Asset
27 Management. KAW personnel handle all of the stages, with oversight by the CIMC.
28 All projects, including normal recurring items, have an identified project manager
29 responsible for processing the stages of the project. The focus of the CIMC, along
30 with the monthly meetings, has allowed KAW to be more flexible with changes that
31 inevitably occur during the course of implementation of large construction projects.

1 KAW made tremendous progress in its delivery of capital expenditures over the last
2 ten years in regard to schedules, budgets, and quality of delivery.

3
4 As an added level of coordination, in 2008 a “Functional Sign-Off” Committee was
5 created at KAW and at AWW to meet monthly. This committee includes the KAW
6 Vice President, Operation, the KAW Director of Engineering, and the appropriate
7 Operations supervisors and project managers. The purpose of the committee is to
8 review projects that are moving forward in the next step of approval, or that require a
9 change. This allows the project manager and operational area supervisors to
10 communicate about the project on a monthly basis and help coordinate projects from
11 initial development through in-service.

12
13 One of the most challenging aspects of planning capital expenditures continues to be
14 determining the amount of construction that is required for individual municipal and
15 state road projects. Some of these projects required significant capital expenditures
16 on the part of KAW, but the company has no control over the schedule. KAW would
17 be required to act promptly if the project is to stay on schedule, but sometimes would
18 not be informed of project delays until waterline relocation was underway or nearly
19 complete. It is a guessing game to determine which projects will be delayed and how
20 long. Investment project funding is requested early in case a project remains on the
21 road relocation schedule, but more often than not the project schedule will be
22 delayed, sometimes even for years. In reviewing historical spending, it appeared that
23 a consistent expenditure level proceeded each year, but it was difficult to determine
24 which specific project was going to be delayed. KAW has now created one IP project
25 comprised of all major highway relocations, and we annually estimate which projects
26 will be built during that year in the budget. These estimates are based on regular
27 meetings with state and local agencies in charge of road projects. This process allows
28 more flexible approval of capital expenditures as unexpected projects arise, offsetting
29 other projects that may be postponed. The flexibility of the CIMC process allows
30 KAW to immediately address an increase or decrease in relocation projects due to
31 highway work.

1
2 KAW has continued to make necessary investments in its system, investing
3 \$84,294,936 in its system over the last five years, net of
4 advances/contributions/refunds. The CIMC process has significantly enhanced
5 KAW's ability to develop, implement and monitor the capital expenditures in an
6 efficient manner.

7
8 **10. Q. PLEASE EXPLAIN THE MAJOR PROJECTS PROPOSED FOR 2008**
9 **THROUGH 2010.**

10 **A.** KAW has proposed capital construction expenditures of \$50,163,233 in 2008 net of
11 advances/refunds/contributions including costs related to KRS II, capital expenditures
12 of \$83,484,714 in 2009 net of advances/refunds/contributions and including costs
13 related to KRS II, and proposed capital construction expenditures of \$71,393,556 in
14 2010 net of advances/refunds/contributions including costs related to KRS II. In
15 2008 there are projected \$6,675,164 proposed for network infrastructure replacement,
16 with another \$9,687,500 projected in 2009, and \$7,090,000 projected in 2010. A
17 brief description of the projects as listed in the application including in Exhibit 13
18 follows.

19
20 **Item DV** - This investment plan item includes the installation of new main, valves
21 and hydrants that are funded entirely by others. This investment plan item may
22 also include the replacement of existing components of water supply, water
23 treatment, water pumping, water storage, and water pressure regulation facilities
24 not funded by company expenditures. The majority of these expenditures are
25 made through deposit agreements and as non-refundable contributions. The
26 projected expenditure amount is developed through discussions with
27 homebuilders and developers as well as a review of plats. Developers deposit
28 projected expenditures based on average pipe installation costs from the previous
29 year pursuant to our on-site main extension agreement. This item also includes
30 fire services that are paid for by the requesting new customer, at the cost of
31 installation.

1 **Item A** - This investment plan item includes new water mains, valves, and other
2 appurtenances that are necessary to perform the work that is funded by the
3 company, including upsizing of developer initiated extensions; company initiated
4 and funded new mains that are not related to immediate growth, such as new
5 mains that eliminate existing dead ends or provide new transmission capacity; and
6 new customer initiated extensions in accordance with tariffs that may include
7 some customer contribution (customer funded portion under abovementioned
8 Item DV). This item may also include new mains that parallel existing mains to
9 increase transmission capacity, provide reliability, or establish an additional
10 pressure gradient.

11 **Item B** - This investment plan item includes the scheduled replacement, renewal or
12 improvement of existing water mains including valves and other appurtenances
13 that are necessary to perform the work. This investment line item now includes
14 replacement of services in conjunction with those projects, which was previously
15 budgeted in the cost of service replacements.

16 **Item C** - This investment plan item includes the unscheduled replacement or
17 restoration of existing water mains, including valves and other appurtenances that
18 are necessary to perform the work. This investment line item now includes
19 replacement of services in conjunction with these projects, which was previously
20 budgeted in the cost of service replacements. This item is primarily used for
21 emergency replacements.

22 **Item D** - This investment plan item includes the relocation of existing water mains,
23 including valves and other appurtenances that are necessary to perform the work,
24 as required by municipal or state agencies. This investment line item now
25 includes replacement of services in conjunctions with these projects, which was
26 previously budgeted in the cost of service replacements. These costs are not
27 reimbursable.

28 **Item E** - This investment plan item includes the installation of new hydrants,
29 including hydrant assemblies and valves that are installed on existing mains or
30 installed in conjunction with main extension projects, which are company funded.
31 This item generally includes all public hydrants.

1 **Item F** - This investment plan item includes the replacement of leaking, failed or
2 obsolete hydrants, including hydrant assemblies and valves that are company
3 funded.

4 **Item G** - This investment plan item includes the installation of new water services or
5 improvements, including corporation stops and shut-off valves.

6 **Item H** - This investment plan item includes the replacement of water services or
7 improvements, including the replacement of corporation stops, or shut-off valves.
8 This budget item shows a reduction from previous years because services
9 previously scheduled in conjunction with scheduled main replacement projects
10 are now budgeted along with the main replacement project in Item B, C or D.

11 **Item I** - This investment plan item includes the installation of new meters and meter
12 settings.

13 **Item J** - This investment plan item includes the replacement or improvement of
14 existing customer meters and meter settings with or without technology changes.
15 Again, the cost of replacing the meter setting in conjunction with a main
16 replacement project that may have been previously budgeted separately is now
17 budgeted under Item B, C or D.

18 **Item K** - This investment plan item is for the replacement of existing Information
19 Technology System Equipment and systems due to failure or obsolescence and
20 new items to achieve efficiency or address new requirements.

21 **Item L** - This investment item is a new division for the installation or replacement of
22 existing SCADA Equipment and Systems. The acronym SCADA can be defined
23 in several slightly different ways, but KAW generally prefers the definition as
24 System Control and Data Acquisition, which is the computerized system for
25 monitoring and operating the treatment plants and network facilities. AWW
26 believed it more appropriate to further subdivide these important investment costs
27 from general Information Technology Equipment costs.

28 **Item M** - This new investment item is a division for Security Equipment and Systems
29 that is separate from generally office and Operation Center expenses. This may
30 include fencing, alarm systems, cameras, barricades, electronic detection or
31 locking systems, software, or other assets related directly to Security.

1 **Item N** - This investment plan item is for the replacement or improvement of
2 building systems, equipment or furnishings for offices and operations centers,
3 including copy machines, fax machines, and phone systems.

4 **Item O** - This investment plan item is for replacement of vehicles, including trucks,
5 cars and light trucks and accessories.

6 **Item P** - This investment plan item is for the replacement or purchase of construction,
7 shop, garage, meter reading, and storeroom equipment.

8 **Item Q** - This investment plan item is for the new purchase or replacement of
9 existing components of water supply water treatment, water pumping, water
10 storage, and water pressure regulation facilities, including associated building
11 components and equipment. Replacements may be planned or made because of
12 failure, or may include improvements. This item now also includes laboratory
13 equipment and replacement of filter media used in the treatment process if
14 capitalized.

15 **Item S** - This investment item is for preliminary engineering studies primarily used
16 for planning purposes. At the initiation of a project, these capital dollars are
17 transferred to the appropriate construction project. These expenditures were
18 previously captured in the Preliminary Survey and Investigation Account, and
19 while they are still designated as such, the creation of this item assures
20 appropriate planning of those expenditures. If no project is developed as a result
21 of the study, the expenditures are then transferred from CWIP.

22
23 Additionally, the process includes investment plan items for capitalized tank painting.
24 However, KAW does not capitalize tank painting, and this line is used strictly for
25 capital improvements at the tanks as necessary.

26 27 **Investment Projects**

28 These projects are for facilities that are substantial in dollar amount. Projects
29 approved in the immediate investment plan are identified by two types of numbers.
30 The first is a hyphenated numerical system, the first number being the subsidiary and
31 district of the project originated and the second number being the number of the

1 project. Projects were previously assigned an 8-digit business unit where the first two
2 digits identify the subsidiary, the second two digits identify the District within each
3 Division, and the final four digits are the numerical project number. KAW's
4 company number is (12) and the central division is (02) while the northern division is
5 divided into districts of the former Tri-Village (30), Owenton (32) and former Elk
6 Lake System (03). For sewer assets, Owenton is district (33) and the former
7 Boonesboro wastewater network and treatment plant is district (50). If the project is
8 proposed but has not yet been approved it will be identified only by its description.

9 **IP 12300403 Owen County Main Extensions** -- This project covers design and
10 construction of new mains within rural Owen County. The Owen County Fiscal
11 Court received grant funding for \$750,000 for water lines in rural Owen County,
12 of which they elected to utilize \$400,000 in areas to be served by KAW. KAW
13 agreed to provide matching funds of \$700,000. In 2006, the Owen County Fiscal
14 Court received an additional \$750,000 in grant money. With the first phase,
15 KAW installed 44,000 feet of main and a chlorine booster station. With the
16 second phase, KAW installed 84,390 additional feet of pipe on six roads and
17 eliminating five existing dead end mains. The final \$336,000 is proposed in 2008
18 to complete the project, with no additional expenditures. The total project is
19 estimated to cost \$2,304,937 with KAW funding \$1,154,937 of the project.

20 **IP 12020204 Source of Supply Development Project** -- This project includes
21 preliminary design and professional services costs that have been incurred since
22 2004 for the development of a solution for the Source of Supply deficit. These
23 costs include KAW's contributions to the Bluegrass Water Supply Commission,
24 labor expenses for working with the BWSC and preliminary to the current
25 treatment plant development, and the cost for professional services for working
26 with the BWSC or presenting information to the Public Service Commission.
27 KAW has proposed to maintain this budget item throughout the construction to
28 segregate the expenses of a joint partnership, but these costs will ultimately be
29 transferred to the appropriate asset of the treatment plant and water main
30 facilities. \$230,990 has been proposed for 2008, with expenditures of \$64,200 in
31 2009 and \$46,044 in 2010 and a total project cost of \$2,000,000.

1 **IP 12020402/12020702 Major Highway Relocations** -- This project covers the
2 design and replacement of major water mains in conjunction with highway
3 improvements. Previously, KAW attempted to establish a separate business unit
4 each year but found that projects that were completed in phases were difficult to
5 track. KAW has since established this one business unit and tracks individual
6 projects each year by task orders under this business unit. Because this project
7 has grown so large, new projects begun in 2007 will be assigned to the new
8 business unit, 12020702. The current project in 12020402 is the completion of
9 Phase I of the Clays Mill Road relocation for \$268,377 in 2008 and no additional
10 expenditures. The new projects include the relocation of US 25 near Ironworks
11 Road and the relocation of facilities at the Liberty Road/Todds Road intersection.
12 The only project currently proposed for 2010 is the relocation in Lexington on
13 Leestown Road. 2008 additional expenditures are estimated at \$939,371, 2009
14 expenditures are proposed at \$1,137,500, and 2010 expenditures are estimated at
15 \$950,000. KAW estimates that \$650,000 will be reimbursed by the Kentucky
16 Transportation Cabinet (“KTC”) in 2009, and \$650,000 will be reimbursed in
17 2010.

18 **IP 12020505 Replace Trac-Vac System at Richmond Road Station (“RRS”) –**
19 This project covers the design and construction of a new sludge removal system
20 in the two sedimentation basins of the Richmond Road Station treatment plant.
21 The existing system was installed in 1988 and worked well initially. However,
22 the system was based on sludge consistency and volume at that time. Changes in
23 regulation have required two changes in coagulants to reduce disinfection by-
24 products. These changes have resulted in more sludge being produced, as well as
25 a different sludge consistency. Further, the sludge volume has also increased with
26 the greater use of Kentucky River raw water at the Richmond Road Station. The
27 sludge removal system simply cannot keep up with these changes. Modifications
28 to the system have made marginal impacts, but the basins must be removed from
29 service at least once per quarter for manual sludge removal. This manual cleaning
30 is extremely labor intensive and significantly limits the operations of the entire
31 system. Projected construction expenditures are to replace the vacuum units and

1 air hose system. The project began in 2005. An estimated \$137,648 is proposed
2 for 2008 for a total project cost of \$1,277,875.

3 **IP 12020506 Sludge Handling Improvements at Richmond Road Station** – This
4 project covers the design and construction of new facilities to process sludge at
5 the Richmond Road Station. The current sludge thickeners that receive sludge
6 from the Trac-Vac system are undersized for the volume generated by basin
7 maintenance. Resulting excess must be stored and treated in backwash
8 wastewater holding tanks. Because it requires significant oversight while
9 operating, ideally the sludge belt press should only operate eight to twelve hours
10 per day. However, the current sludge belt press is also undersized leading to
11 excessive overtime operations. This project was originally proposed for 2008,
12 but, during design of the Trac-Vac replacement system, it became apparent that a
13 design of the entire process would be more effective. The project began in late
14 2005. \$169,884 is proposed for 2008 with a total project cost of \$2,196,412.

15 **IP 12020501 Ground Storage Tank – 3.0 MG** – This project is for the design and
16 construction of an additional 3.0 million gallon water storage tank in the Central
17 Division distribution system. This project was identified in the LC/CPS and the
18 1993, 2002 and 2005 Storage Analysis. Originally proposed for design in 2006
19 with potential construction in 2007-8, the project was deferred in mid-2006 with
20 the focus on KRS II and storage facilities related to that project. The proposed
21 construction expenditures include \$122,870 in 2009 and \$1,627,130 in 2010 for a
22 total project cost of \$1,750,000.

23 **IP 12020701 Incline Car Replacement at Kentucky River Station (“KRS I”)** –
24 This project is the replacement of the mechanical car that travels between the
25 Kentucky River intake and the treatment plant at the KRS I. The car covers a
26 380-foot vertical elevation change up a bluff and parallels a steep staircase. The
27 system was originally installed in 1957. The car has periodically been out of
28 service for mechanical repairs, which inhibits monitoring of the intake station.
29 Further, the existing car has a weight limit of 1250 pounds. With the installation
30 of significantly larger intake pumps in 1992 and subsequent required routine
31 regular work on them, this weight limit has the ability to maintain those pumps.

1 Parts in excess of the weight limit have to be barged, and the timing is dependent
2 on river flows. A replacement system will be designed for greater reliability and
3 higher weight limits. A proposed \$309,780 is scheduled for 2008, which included
4 emergency replacement work in early 2008, with an additional \$815,288 proposed
5 in 2009 for a total project cost of \$1,181,960. The project is expected to be
6 completed in 2009.

7 **IP 12020602 Yarnallton Road Main** – This project is for the design and
8 construction of additional facilities on North Yarnallton Road to tie into facilities
9 on Kearney Road. The proposed project will tie in a back feed from Georgetown
10 Road to the Leestown Road area, thus providing increased reliability for the
11 single feed that runs along Leestown Road. Design was completed in 2006, but
12 construction was deferred until the connections necessary for KRS II were fully
13 developed. A proposed \$300,000 is scheduled for 2008 to complete the project
14 for a total cost of \$329,610.

15 **IP 12020508 Reliability Improvements** – This project is for the design and
16 construction of improvements at the RRS and KRS I that which will effectively
17 increase reliability at both facilities. These improvements include the
18 replacement of existing raw water intake pumps, which were installed in 1992 and
19 whose efficiency has significantly eroded. It also includes the replacement of the
20 raw water transfer pumps at the KRS I to optimize operations of the raw water
21 transfer facilities, the installation of a diesel generator at the RRS, and the
22 installation of a second transformer at the KRS I, which is critical for the
23 expanded electrical load. The project was begun in 2005. A proposed \$1,400,365
24 is scheduled in 2008 to complete the project for a total cost of \$7,407,332.

25 **IP 12020607 KRS II, Transmission Main and Booster Station** – This project is the
26 design and construction of the new water treatment facility on Pool 3 of the
27 Kentucky River near Monterey on the Owen/Franklin County line. The project
28 includes a 42-inch treated water main to bring finished water into the Central
29 Division distribution system, along with one intermediate booster station and
30 storage facility. The overall project including all prior expenditures in IP
31 12020204 is currently estimated at \$162,300,000. A proposed \$31,600,000 is

1 scheduled for 2008, \$66,786,790 is scheduled for 2009, and \$57,044,731 is
2 scheduled for 2010.

3 **IP 1202-5 North Broadway Main Replacement** – This project is for the design and
4 construction of a replacement main from Short Street to Loudon Avenue. The
5 current main was installed in the late 1800s and is a 6-inch cast iron main. Fire
6 flows available in the area are very limited. When maintenance is required, we
7 are frequently unable to be completely shut the valves, thus making repairs very
8 difficult. The total project is to begin in 2008 and be completed in 2009. The
9 proposed expenditures are \$535,000 in 2008 and \$1,200,000 in 2009 for a total
10 project of \$1,735,000.

11 **IP 1202-16 North Upper Main Replacement** -- This project is for the design and
12 construction of a replacement main from Main Street to Fourth Street. The
13 current main is a combination of 4-inch cast iron, 6-inch cast iron, 10-inch cast
14 iron, and 12-inch main installed between 1885 and 1910. Fire flows available in
15 the area are very limited. When maintenance is required, we are frequently
16 unable to completely shut the valves, thus making repairs very difficult. The total
17 project is to begin in 2010 and be completed in 2012. The proposed expenditures
18 of \$50,000 in 2010 are outside the forecasted test period, but they are included in
19 the capital expenditures plan.

20 **IP 1202-11 Install 19,000' of 12" along I-75** – This project is for the installation
21 along I-75 of a 12-inch main from Ironworks Road to Lemons Mill Road. This
22 new pipe should balance flows into Scott County and was identified as part of the
23 1992 LC/CPS prior to the development of the location of KRS II. The project
24 will also help distribute flows from the new 42-inch transmission main along
25 Ironworks Road. This project is scheduled to begin in 2010 and be completed in
26 2012. The proposed expenditures of \$30,000 in 2010 are outside the forecasted
27 test period, but they are included in the capital expenditures plan.

28 **IP 1202-12 Install 16,000' of 12" Russell Cave Road** – This project is part of the
29 enhancement work necessary to fully maximize the effectiveness of the Russell
30 Cave Road tank built in 2005. The installation of a 12-inch pipe along Russell
31 Cave Road will help better balance the flow into the northern area of the Central

1 Division distribution network, connecting main from Ironworks Road to
2 Greenwich Road. With the new 42-inch transmission main tying in at Newtown
3 Pike and Ironworks Road, this project will help distribute flows from the
4 transmission main into the northern part of the system. It is projected to begin in
5 2010 and be completed in 2012. The \$60,000 proposed in 2010 is outside the
6 forecasted test period, but it is included in the capital expenditures plan.

7 **IP 1202-13** Install 14,700' of 12" & 3,800' of 8" along Greenwich Road – This
8 project is the installation of a new main in Greenwich Road from Russell Cave
9 Road to Ferguson Road, with an additional 8-inch pipe on Greenwich Road north
10 from Ferguson. This project will provide an additional feed into the northern
11 sections of the Central Division distribution system, thus improving utilization of
12 storage in the area.

13 **IP 1202-6** Install 34,000' of 16" along Carrick Pike – This project is the installation
14 of a 16-inch pipe along Carrick Pike in the northeastern portion of the Central
15 Division service area to better distribute flows from the Russell Cave Road tank.
16 The tank was constructed to provide additional storage in the northern section and
17 was located on Russell Cave Road to allow the Muddy Ford tank in Scott County
18 to be removed from service for maintenance, if necessary. Although the tank
19 currently operates well, it cannot solely replace the Muddy Ford tank because of
20 constricted distribution system mains. The project is projected to have
21 \$1,000,000 spent in 2008, and \$1,700,000 in expenditures in 2009 for a total
22 project cost of \$2,700,000.

23 **IP 1232-1** Owenton – Post Acquisition Phase 2 – This project covers the design and
24 construction of facilities anticipated in the acquisition of Owenton Water assets.
25 Phase 1 was completed in 2007, and this phase is for the potential bulk storage
26 chemical feed improvements. The total project is estimated at \$796,525 with
27 \$767,402 proposed in 2008 and \$29,123 proposed in 2009.

28
29 **11. Q. HOW LONG HAVE YOU BEEN INVOLVED WITH THE WATER SUPPLY**
30 **AND TREATMENT CAPACITY DEFICIT ANALYSIS FOR KAW?**

1 A. I first started work on it in February 1990 when I was first promoted to Planning
2 Engineer, and I have been actively involved with it ever since.

3
4 **12. Q. WHAT IS THE STATUS OF THE WATER SUPPLY AND TREATMENT**
5 **PROJECT?**

6 A. On April 25, 2008, the Kentucky Public Service Commission issued an Order in Case
7 No. 2007-00134 that granted a Certificate of Public Convenience and Necessity to
8 construct the facilities referred to in my testimony as KRS II. Those facilities include
9 a 20 million gallon per day treatment plant, a 3 million gallon storage tank and
10 booster station, and 30.5 miles of 42-inch transmission main.

11
12 KAW first identified a need for additional treatment capacity in 1986 and began work
13 on a second treatment plant on the Kentucky River at Pool 6. Following a moderate
14 drought in 1988 that exposed the vulnerability of the Locks and Dams on the
15 Kentucky River, KAW began working with the Louisville Water Company to
16 develop a pipeline to bring treated Ohio River water from Louisville to Lexington. In
17 1999, under significant public opposition and following a vote of the Lexington-
18 Fayette Urban County Government Council preferring a Kentucky River solution,
19 KAW began working with a regional group of utilities to develop a regional project
20 that maximized the use of the Kentucky River. The advent of the Kentucky River
21 Authority helped revitalize the opportunity to utilize the Kentucky River. The
22 concept for a plant at Pool 3 of the Kentucky River was identified as the best
23 alternative. However, a project that was first needed for future demands in the late
24 1980s had become a project to meet existing customer needs by 2002, as KAW
25 produced a maximum day demand of 71.82 million gallons per day (“mgd”) on
26 August 5, 2002, exceeding KAW’s rated capacity of 65 mgd. In 2006, regulatory and
27 customer concerns were emphasized to KAW, and KAW committed to have a plan in
28 front of the PSC by Spring 2007 while continuing to work with the regional group
29 (Bluegrass Water Supply Commission) to forge a regional partnership. KAW filed an
30 Application for a Certificate of Convenience and Necessity for KRS II in March
31 2007.

1 The Order in 2007-00134 was the conclusion to a case that lasted over a year and
2 incorporated the information provided in two previous PSC case related to KAW's
3 water supply and treatment capacity deficits. The case (including the previous cases)
4 provided an extremely thorough review of the needs of KAW to supply its customers,
5 alternative solutions to meet those needs, and costs associated with those alternatives.
6 The PSC provided an extensive review of the issue, including the historical
7 background covering two decades, in its 91-page Order. The Attorney General's
8 Office, which had been a party to the case and previous cases, agreed that there is a
9 clear need for a project and corresponding additional treatment capacity,
10 recommending the Certificate be granted with certain conditions.

11
12 Following issuance of the Order, KAW immediately began work on the project,
13 executing contracts for construction by the end of May, finalizing purchases of
14 property in June, and breaking ground. The timing to have facilities in-service in
15 2010 is critical, and the only way that could be accomplished was to begin work
16 immediately. This also locked in construction pricing at bid levels, thus minimizing
17 any further cost impact to ratepayers. Many property owners had declined to discuss
18 easements until the Certificate was granted and easement negotiations were begun in
19 earnest with many of the property owners.

20
21 Moderate weather through October has allowed the contractors at the treatment plant,
22 booster station, and along the pipeline route to move on schedule, in some cases even
23 slightly ahead of schedule. To date, KAW has already spent over \$25,000,000 on the
24 project. The treatment facility walls are being formed for concrete pours, the intake
25 facility has been excavated, the booster station and tank site have been excavated, and
26 nearly six miles of transmission main have been installed. Overall, the project is
27 approximately 16% complete.

28
29 KAW worked with a group of regional utilities on a public process to identify the best
30 project for central Kentucky. KAW worked closely with the design consultants to
31 identify the overall best location of all of the facilities involved including treatment

1 plant site, booster station site, and pipeline route. Factors considered included cost,
2 ease of constructability, environmental concerns, cultural resource concerns, impact
3 to local residents, and long-term operations. Further, KAW is working with local
4 property owners to balance the needs of its customers while minimizing the impact to
5 residents near the facilities.

6
7 The cost of these facilities is substantial, and is a significant portion of this rate case.
8 However, the success of this project will result in the continued economic viability of
9 Central Kentucky.

10
11 **13. Q. ARE YOU FAMILIAR WITH KAW'S CONSERVATION PROGRAM?**

12 **A.** Yes. In 1992 I was in charge of an extensive expansion of KAW's conservation
13 program, which included a number of customer programs and community education.
14 Over the years, it became clear that the most effective efforts were in community
15 education. In 2001, KAW filed a Conservation Initiative Plan with the PSC, and
16 initiated an evaluation of our conservation education programs to develop a
17 comprehensive approach to encourage water conservation. The evaluation led to
18 additional focus on community education in mixed delivery methods with a
19 recognizable slogan. KAW has continued using the slogan, "Water. It's Worth
20 Using Wisely." We have used other one-time promotions to keep the program fresh
21 while reinforcing television, radio and print messages. The program has been
22 continually reinforced with customer surveys and focus groups as well as partnerships
23 with other entities such as Bluegrass PRIDE and other organizations to promote wise
24 water use among all consumers.

25
26 The effectiveness of the program continues to be monitored through surveys and
27 adjusted accordingly. The success of the effort can be seen in the reduced per
28 customer average usage as discussed in Dr. Edward Spitznagel's direct testimony.
29 KAW continues to find the most effective component of conservation to be education
30 and has recently updated its community education materials. KAW plans to continue

1 its Conservation Initiatives and periodically evaluate them for potential changes in
2 future years.

3
4 In Case No. 2007-00134, the Attorney General's office recommended that KAW
5 review its conservation program, comparing it to best practices in the water industry.
6 KAW agreed with that recommendation in its testimony offered in the case. The PSC
7 then ordered KAW to "retain a qualified consultant(s) to assist in developing a water
8 conservation, leak-mitigation and demand management plan consistent with the best
9 practices of the water industry. This plan shall include a program (or programs) to
10 cost-effectively reduce non-revenue water."

11
12 KAW determined that it should seek two separate consultants, one to look at leak
13 mitigation and the reduction of non-revenue water, and one to review the
14 conservation program and demand management plan. In his testimony, Keith Cartier
15 discusses the scope of the leak mitigation consultant. I am currently coordinating the
16 efforts of the review of the conservation program and demand management plan.
17 KAW has retained Strand Associates to perform this work and anticipates the review
18 to be complete in May 2009. The proposal specifically requires the consultant to not
19 only review KAW's program for comparison with best practices of the industry, but
20 to include a cost evaluation and potential implementation schedule for any
21 recommended changes. The resources required for implementation will be identified
22 along with methods for tracking success.

23
24 The consultant will review existing reports that comprise the KAW Conservation
25 Program and review information on daily operating logs, usage data, meter route
26 information, and demand projections. Strand will then develop a memo outlining its
27 review of the program.

28
29 The consultant will then evaluate potential additional program components. This will
30 include not only the utilization of loss control efforts, but also other components used
31 in systems across the country. Strand will prepare a second memo identifying

1 potential additional components and meet with KAW to review the development and
2 implementation of tracking methods for potentially effective additions to the
3 program.

4
5 Finally, the consultant will prepare a detailed request for information for the
6 development of implementation and tracking methods. Strand will then develop a
7 final report of recommendations for changes and updates for the KAW Demand
8 Management Plan and Conservation Program. The recommendation will include a
9 cost evaluation for the recommended alternatives, potential implementation schedule,
10 and a rubric to measure and track success of the programs.

11
12 KAW held its kick-off meeting with Strand on October 16 and expects to complete
13 this work on schedule by the end of April, 2009.

14
15 **14. Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

16 **A.** Yes.