COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	)	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN WATER COMPANY FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY AUTHORIZING THE CONSTRUCTION OF KENTUCKY RIVER STATION II, ASSOCIATED FACILITIES AND TRANSMISSION MAIN	)	**CASE NO.** 2007-00134

APPLICATION OF KENTUCKY-AMERICAN WATER COMPANY

Comes Kentucky-American Water Company ("Kentucky American Water"), pursuant to KRS 278.020, and for its Application seeking a certificate of convenience and necessity authorizing the construction of Kentucky River Station II ("KRS II"), associated facilities and transmission main (collectively "Facilities"), states as follows:

1. Kentucky American Water is a corporation organized and existing under the laws of the Commonwealth of Kentucky with its principal office and place of business at 2300 Richmond Road, Lexington, Kentucky 40502.

2. Kentucky American Water is a wholly-owned subsidiary of American Water Works Company, Inc. ("American Water") and is engaged in the distribution and sale of water in its Central Division, consisting of Bourbon, Clark, Fayette, Harrison, Jessamine, Scott and Woodford Counties and its Northern Division consisting of Gallatin, Owen and Grant Counties. It currently owns, operates and maintains potable water production, treatment, storage, transmission and distribution systems for the purpose of furnishing potable water for residential, commercial, industrial and governmental users in its service territory.

3. Kentucky American Water also owns, operates and maintains collection, pumping and treatment systems for the purpose of furnishing wastewater service for residential, commercial, industrial and governmental users in its service territory.

4. A certified copy of the Articles of Incorporation of Kentucky American Water, together with all amendments, are incorporated by reference as authorized by 807 KAR 5:001, Section 8, (3), and were filed as Exhibit No. 4 in Case No. 95-554, *Notice of the Adjustment of the Rates of Kentucky-American Water Company effective on and after February 29, 1996.*

5. As of December 31, 2006, Kentucky American Water provided potable water service to 104,780 residential customers, 8,586 commercial customers, 23 industrial customers, 486 public authorities, 11 entities that resold water, 1,899 fire services, 35 bulk sales stations and service to 7,725 fire hydrants. It also provided wastewater service to 708 customers. Kentucky American Water serves approximately 326,000 individuals.

6. As a public utility in the Commonwealth of Kentucky and regulated by the Public Service Commission of the Commonwealth of Kentucky ("Commission"), Kentucky American Water must comply with the following regulations:

(1) 807 KAR 5:066, Section 3, (2), (c) – "In absence of comparable requirements of the Natural Resources Cabinet, water supplied by any utility shall be: (c) From a source reasonably adequate to provide a continuous supply of water."

(2) 807 KAR 5:066, Section 4, (1) – "Emergency interruptions. Each utility shall make all reasonable efforts to prevent interruptions of service and when such interruptions occur shall endeavor to reestablish service with the shortest possible delay consistent with the safety of its consumers and the general public."

(3) 807 KAR 5:066, Section 10, (4) – "Water supply requirements. The quantity of water delivered to the utility's distribution system from all source facilities shall be sufficient to supply adequately, dependably and safely the total reasonable requirements of its customers under maximum consumption."

7. At all relevant times Kentucky American Water owned and operated two facilities for the production of treated water for its Central Division. The Kentucky River Station I ("KRS I") is located adjacent to Pool 9 of the Kentucky River and utilizes raw water from Pool 9. It has a rated production capacity of 40 million gallons per day ("MGD") and is capable, under optimal conditions, of producing 50 MGD. The Richmond Road Station ("RRS") is located at 2300 Richmond Road, Lexington, Kentucky, and utilizes raw water either pumped from Pool 9 of the Kentucky River or Jacobson Reservoir. It has a rated production capacity of 25 MGD and is capable, under optimal conditions, of producing 30 MGD. Jacobson Reservoir has a capacity of 500,000,000 gallons of water, has a limited geographical watershed, and most of the water that refills the reservoir is pumped from Pool 9 of the Kentucky River; therefore, Pool 9 of the Kentucky River is essentially the only source of supply of raw water for Kentucky American Water. The Least Cost/Comprehensive Planning Study of Kentucky-American Water in 1986 articulated the need for a supplemental water supply by concluding ". . . a supplemental water source is needed to assure an uninterrupted water supply and to supply system growth."[1]

8. On November 19, 1993, the Commission initiated an investigation into the demand projections and sources of supply for Kentucky American Water. In an Order dated March 14, 1995, the Commission found ". . . that the range of the demand projections presented by Kentucky-American . . . is within the realm of reasonableness. Kentucky-American has used reputable sources for data and nationally accepted methodologies in developing its demand projections. Over the years Kentucky-American has made numerous revisions to its methodology for projecting water demand resulting in a state-of-the-art, dynamic process."[2] The

[1] 1986 Least Cost/Comprehensive Planning Study, p. 23.

[2] Case No. 93-434, *An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company*, Order dated March 14, 1995, pp. 4-5.

Commission also addressed the safe yield of Pool 9 of the Kentucky River by stating, "Using the drought of record, the safe yield from the Kentucky River and existing reservoirs is only 35 MGD."[3] Subsequent to that Order, and on April 24, 1995, the Commission ordered that Case No. 93-434 should remain open to await a new safe-yield analysis of the Kentucky River to be performed by The Kentucky Water Resources Research Institute ("KWRRI"). The KWRRI analysis showed a source of supply deficit for Kentucky American Water of 6.57 billion gallons of water, or 35.95 million gallons per day during the recurrence of the drought of record. Recognizing the inadequacy of the Kentucky River during a drought of record, by Order dated August 21, 1997, the Commission pointed out that additional steps should be taken and financial resources would have to be committed to develop an adequate and reliable source of supply for all citizens served by the Kentucky River. The Commission also pointed out that the proposed activities of the Kentucky River Authority[4] would be insufficient to adequately address the regional source of supply problem. The Order also directed Kentucky American Water to "take the necessary and appropriate measures to obtain sources of supply so that the quantity and quality of water delivered to its distribution system shall be sufficient to adequately, dependably and safely supply the total reasonable requirements of its customers under maximum consumption through the year 2020."[5]

9. As the end of the last century approached, Kentucky American Water planned to augment its water supply by purchasing finished water from Louisville Water Company and constructing a pipeline to transport the water to its service territory. In December of 1999,

[3] Case No. 93-434, *An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company*, Order dated March 14, 1995, p. 6.

[4] The Kentucky River Authority was established by the General Assembly in 1986 to, among other things, construct, reconstruct, provide for the major maintenance, or repair the locks and dams on the Kentucky River and all real and personal property pertaining thereto. KRS 151.700, et seq.

[5] Case No. 93-434, *An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company*, Order dated August 21, 1997, p. 6.

however, the Lexington-Fayette Urban County Government Council passed a resolution urging a Kentucky River solution to Kentucky American Water's source of supply, and Kentucky American Water concluded it was inappropriate to implement its plans to purchase water from Louisville Water Company. On May 15, 2001, the Commission instituted Case No. 2001-117, *An Investigation into the Feasibility and Advisability of Kentucky-American Water Company's Proposed Solution* to its Water Supply Deficit, in part to ascertain the cost and likelihood of the implementation of plans to meet Kentucky American Water's source of supply deficit.

10. If another drought of record recurs in 2020, Kentucky American Water projects that the average daily demand for treated water by its customers would be 60 MGD. During such a recurrence, the safe yield of Pool 9 of the Kentucky River, as confirmed by multiple studies and as recognized by the Public Service Commission, is 35 MGD of raw water. Kentucky American Water has a source of supply deficit and the rated capacities of its current treatment plants, KRS I and RRS, are inadequate to meet its future obligations.

11. Kentucky American Water has concluded that the most cost effective and feasible solution to the source of supply deficit is the construction of a raw water intake, raw water pumping station, and water treatment plant located adjacent to Pool 3 on the Kentucky River with an associated transmission main and required booster station and water storage tank.

12. A copy of the plans for the raw water intake, raw water pumping facilities and water treatment plant adjacent to Pool 3 of the Kentucky River is filed herewith and marked Exhibit A-Plans. A copy of the specifications for the raw water intake, raw water pumping facilities and water treatment plant adjacent to Pool 3 of the Kentucky River, including the Basis of Design Report and Addendum No. 1 thereto, is filed herewith and marked Exhibit A-Specifications. The intake, pumping station and water treatment plant will be located approximately two miles north of Swallowfield on the Kentucky River along the Owen and

Franklin County line. A copy of the plans for approximately 160,000 linear feet of the 42-inch diameter transmission main is filed herewith and marked Exhibit B-Plans. A copy of the specifications for approximately 160,000 linear feet of the 42-inch diameter transmission main is filed herewith and marked Exhibit B-Specifications. The transmission main will generally follow the established transportation corridors of US 127, KY 2919, KY 1707, KY 1262, US 460 and KY 1973 from the new plant site to Kentucky American Water's Central Division. A copy of the plans for the booster pump station and water storage tank hereto is filed herewith and marked Exhibit C-Plans. A copy of the specifications for the booster pump station and water storage tank is filed herewith and marked Exhibit C-Specifications. These Facilities are shown on a map, not exceeding the scale of two miles per inch, along with similar facilities owned by other utilities located in the map area (with ownership identification), that is attached and marked Exhibit D. Exhibits A through D are all signed and dated by an engineer registered to practice engineering in the Commonwealth of Kentucky. The estimated cost to construct the Facilities is $160,000,000.

13. The Bluegrass Water Supply Commission ("BWSC") has been created pursuant to KRS 74.420, et seq., and presently has as its members Frankfort Water and Electric Plant Board, Georgetown Municipal Water and Sewer Service, Paris, Cynthiana, Nicholasville, Mt. Sterling, Lancaster, Berea, Winchester Municipal Utilities and the Lexington-Fayette Urban County Government. It is a regional alliance of government agencies and water utilities that has been working cooperatively, with Kentucky American Water, to address the raw water source of supply deficit in Central Kentucky. In furtherance of the cooperative effort between Kentucky American Water and BWSC, BWSC has contracted with Kentucky American Water for the plans and specifications of the proposed water treatment plant to include an additional designed capacity of

5,000,000 gallons per day of potable water for the use by some members of the BWSC.[6] A copy of the contractual arrangement between Kentucky American Water and BWSC is attached as Exhibit E.

14. Kentucky American Water is required to obtain, prior to construction, permits as follows:

(1) KRS 224.10-110 authorizes the Environmental and Public Protection Cabinet ("EPPC") to promulgate rules and regulations for the purification of water for public and semi-public use. The EPPC has therefore promulgated 401 KAR 8:100, Section 1, (3), which requires approval of the preliminary plans for the raw water intake, raw water pumping station and water treatment plant. That approval has been obtained and is attached as Exhibit F.

(2) Under certain circumstances, KRS 151.140 prohibits the withdrawal of public water from the waters of the Commonwealth of Kentucky unless permitted by the EPPC as regulated by 401 KAR 4:010. The Division of Water has issued Water Withdrawal Permit 1572, which is attached and marked Exhibit G.

(3) As mentioned in subparagraph (1) above, 401 KAR 8:100 requires the approval, prior to construction, of the plans and specifications for the raw water intake, raw water pumping facilities and water treatment plant as described in the attached Exhibit A. Kentucky American Water submitted an application seeking the approval of the construction plans and specifications to the Division of Water on March 9, 2007.

(4) As mentioned in subparagraph (1) above, 401 KAR 8:100 requires the approval, prior to construction, of the plans and specifications for the transmission main as described in Exhibit B. That approval has been obtained and is marked Exhibit H.

[6] The 5 MGD has been allocated as follows: Winchester Municipal Utilities, 2 MGD and 1 MGD each for Frankfort, Georgetown and Nicholasville.

(5) As mentioned in subparagraph (1) above, 401 KAR 8:100 requires the approval, prior to construction, of the plans and specifications for the transmission main booster station and water storage tank shown in Exhibit C. Kentucky American Water submitted an application seeking the approval of the construction plans and specifications to the Division of Water on March 5, 2007.

(6) KRS 224.70-110 prohibits discharge into the waters of the Commonwealth of any substance in contravention of that not permitted by the EPPC. Pursuant to 401 KAR 5:055, Kentucky American Water is required to obtain a Kentucky Pollution Discharge Elimination System (KPDES) permit for the water distilled from the sludge dewatering process it intends to discharge into Pool 3 of the Kentucky River. Kentucky American Water applied for the KPDES permit on March 26, 2007.

(7) 33 USC 403 and 1344 require Kentucky American Water to acquire a permit from the Department of the Army, Corps of Engineers, for the construction and deposit of material into Pool 3 of the Kentucky River. Kentucky American Water applied for this permit, commonly known as a Corps 404 permit, on March 16, 2007.

(8) KRS 151.250 prohibits the construction of any obstruction in the floodway of any stream unless permitted by EPPC. An application for a permit to construct the Facilities described in Exhibits A, B and C within flood plains will be subsequently filed.

(9) KRS 177.047 prohibits the excavation of public rights-of-way under the jurisdiction of the Department of Highways unless permitted as an encroachment pursuant to 603 KAR 5:150. Kentucky American Water has applied for an encroachment permit for the facilities described in Exhibit B.

(10) KRS 177.106 prohibits encroaching on any part of a right-of-way of a state highway without having obtained a permit from the Department of Highways to do

so, pursuant to 603 KAR 5:120. Kentucky American Water is required to obtain an encroachment permit for the driveway encroaching upon a public right-of-way for the facilities described in Exhibit C and has received that encroachment permit, a copy of which is attached as Exhibit I. Additionally, Kentucky American Water is required to obtain a permit for the driveway encroachment onto a state regulated highway for the facilities described in Exhibit A attached. An application for that permit will be subsequently filed.

(11) KRS 224.50-760 exempts special wastes from the regulatory requirements covering other wastes. The sludge to be produced from the water treatment plant described in Exhibit A is specifically defined in KRS 224.50-760(1)(a) as a special waste. Pursuant to 401 KAR 45:070, Kentucky American Water will subsequently apply to the EPPC for a permit authorizing the beneficial reuse of the sludge from the facilities described in Exhibit A.

(12) Because of the time required to process this Application and the necessity for Kentucky American Water to begin construction of the Facilities, and pursuant to the authority contained in 807 KAR 5:001, Section 14, Kentucky American Water asks the Commission to deviate from any requirement that may be inferred from its regulations to file all permits with this Application. Kentucky American Water will file in this proceeding the permits it currently does not have as they are received.

15. As set forth in the testimony of Nick O. Rowe, President of Kentucky American Water, it is imperative that Kentucky American Water receive the requested approval of the Public Service Commission, as expeditiously as possible, as construction of the Facilities must begin in time for them to be operational in the summer of 2010. To achieve this construction time, Kentucky American Water will request bids for the construction of the Facilities in

sufficient time for the selected contractor to mobilize the necessary equipment prior to the end of 2007.

16. Kentucky American Water has the opportunity to secure the requisite financing for the Facilities through American Water Capital Corp., another wholly-owned subsidiary of American Water Works Company. As described in the attached testimony of Lou Walters, Assistant Treasurer of American Water, Kentucky American Water intends to finance the initial cost of construction of the Facilities through short-term debt and, when required by financial considerations, convert the short-term debt to an appropriate percentage of long-term debt and equity to be contributed by American Water Works Company.

17. Kentucky American Water anticipates that the approximate annual cost of operation of the Facilities will be $6,024,957; consisting of $523,182 for labor, $588,159 for power, $360,000 for general maintenance, $153,300 for chemicals, $300,000 for security, $2,943,666 for depreciation and $1,156,649 for taxes, all as discussed in the testimony of Linda C. Bridwell.

WHEREFORE, Kentucky American Water prays that the Commission approve its request for a deviation pursuant to 807 KAR 5:001, Section 14, as described in paragraph 14 (12), and that the Commission issue the requested Certificate of Convenience and Necessity Authorizing the Construction of the Facilities pursuant to KRS 278.020 in an expedited process that will allow for the bidding and construction to begin prior to 2008.

Respectfully submitted,

A. W. TURNER, JR.,GENERAL COUNSEL
KENTUCKY-AMERICAN WATER COMPANY
2300 Richmond Road
Lexington, Kentucky 40502

and

STOLL KEENON OGDEN PLLC
300 West Vine Street, Suite 2100
Lexington, Kentucky 40507-1801
Telephone: (859) 231-3000

BY: _____
Lindsey W. Ingram, Jr.
Lindsey W. Ingram III

Attorneys for Kentucky-American Water Company

LEX 010311/126698/3494504.4

Exhibit A – Plans

Filed Separately

Exhibit A – Specifications
Volume I

Filed Separately

Exhibit A – Specifications
Volume II

Filed Separately

Exhibit A – Specifications
Volume III

Filed Separately

Exhibit A – Specifications
Volume IV

Filed Separately

Exhibit B – Plans
Volume I

Filed Separately

Exhibit B – Plans
Volume II

Filed Separately

Exhibit B – Specifications

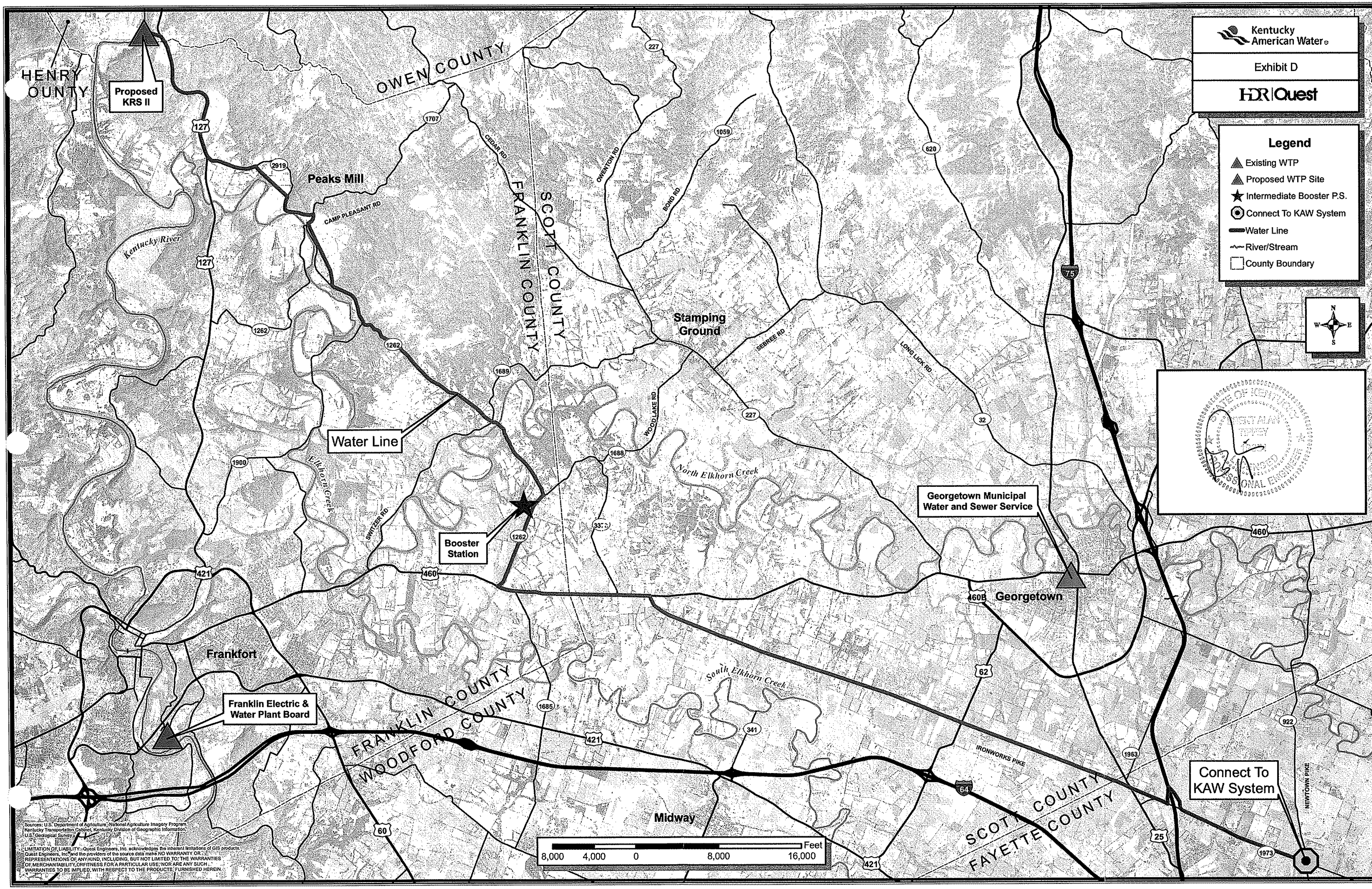
Filed Separately

Exhibit C – Plans

Filed Separately

Exhibit C – Specifications

Filed Separately



Kentucky American Water
Exhibit D
HDR | Quest
Legend
Existing WTP
Proposed WTP Site
Intermediate Booster P.S.
Connect To KAW System
Water Line
River/Stream
County Boundary
N
W
E
S
HENRY COUNTY
OWEN COUNTY
FRANKLIN COUNTY
SCOTT COUNTY
WOODFORD COUNTY
FAYETTE COUNTY
Proposed KRS II
Peaks Mill
Kentucky River
Stamping Ground
Water Line
Booster Station
North Elkhorn Creek
Elkhorn Creek
South Elkhorn Creek
Georgetown Municipal Water and Sewer Service
Georgetown
Frankfort
Franklin Electric & Water Plant Board
Midway
Connect To KAW System
CEDAR RD
OWENTON RD
BOND RD
CAMP PLEASANT RD
SEBREE RD
LONG LICK RD
WOOD LAKE RD
SWITZER RD
IRONWORKS PIKE
NEWTOWN PIKE
127
227
1707
1059
620
2919
1262
1689
1688
1900
32
75
460
421
460B
62
1685
341
64
60
25
922
1963
1973
Feet
8,000 4,000 0 8,000 16,000
Sources: U.S. Department of Agriculture, National Agriculture Imagery Program, Kentucky Transportation Cabinet, Kentucky Division of Geographic Information, U.S. Geological Survey
LIMITATION OF LIABILITY: Quest Engineers, Inc. acknowledges the inherent limitations of GIS products. Quest Engineers, Inc. and the providers of the source data make NO WARRANTY OR REPRESENTATIONS OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, NOR ARE ANY SUCH WARRANTIES TO BE IMPLIED, WITH RESPECT TO THE PRODUCTS FURNISHED HEREIN.

AGREEMENT FOR PAYMENT OF ENGINEERING EXPENSES

This Agreement is entered into this 27th day of February, 2007, by and between Kentucky-American Water Company, a Kentucky corporation, having its office at 2300 Richmond Road, Lexington, Kentucky 40502 ("KAW") and the Bluegrass Water Supply Commission, having its address at 699 Perimeter Drive, Lexington, Kentucky 40517 ("BWSC").

WHEREAS, KAW is in the process of preparing and designing plans for the construction of a 20 million gallons per day water treatment plant for the treatment of water withdrawn from Pool 3 on the Kentucky River;

WHEREAS, as part of the preparation and design process for the water treatment plant, KAW has incurred and is incurring costs and expenses related to the engineering design work that must be performed;

WHEREAS, BWSC has indicated its desire to participate with KAW in the water treatment plant project so that BWSC members will have an increased water supply; and

WHEREAS, BWSC has indicated its desire to increase its members' existing water supply by 5 million gallons per day, and, accordingly, has asked KAW to perform the incremental engineering design work necessary to increase the water treatment plant capacity from 20 million gallons per day to 25 millions gallons per day;

WHEREAS, BWSC has access to non-federal funds to defray the cost of this work;

NOW, THEREFORE, it is agreed as follows:

1. BWSC will deliver to KAW the sum of $171,000.00 (one hundred seventy-one thousand dollars), which is the proposed amount of the incremental engineering design work necessary to increase the water treatment plant capacity from 20 million gallons per day to 25 million gallons per day. Payment of $171,000.00 shall occur upon receipt of an invoice from KAW. BWSC covenants that none of its payment will be from federal funds.

2. Based upon the action taken by the Board of Commissioners of BWSC on January 22, 2007, KAW has already taken the necessary steps to cause the incremental engineering design work to commence.

3. BWSC and KAW recognize that the $171,000.00 payment is for the proposed cost of the incremental engineering design work and that if the actual cost of the work exceeds $171,000.00, BWSC will pay to KAW the amount by which the actual cost exceeds $171,000.00 within 30 (thirty) days after KAW notifies BWSC of an amount due. Likewise, if the actual cost of the incremental engineering design work is

less than $171,000.00, then KAW will return to BWSC the amount of any savings within 30 (thirty) days after those savings are realized. The parties agree that no incremental engineering design work which causes the actual cost of the work to exceed $171,000.00 will be performed without KAW first obtaining BWSC's consent.

4. Other than the payments contemplated in Paragraph 3 above to account for the actual cost of the incremental engineering design work relative to the $171,000.00 proposed cost, the parties agree that the payments made by BWSC pursuant to this Agreement are not refundable for any reason, including any reason relating to the actual results of the current efforts to participate in the water treatment plant contemplated in this Agreement.

5. Nothing contained in this Agreement shall be construed as creating an obligation for BWSC to participate with KAW in the construction or ownership of the water treatment plant.

6. This Agreement is effective retroactive to January 22, 2007.

Kentucky American Water

By: _____
Its: President
Date: 2-27-07

Bluegrass Water Supply Commission

By: James F. Calkins
Its: Chair
Date: 2-26-07

FEB - 6 2007

KCB

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

Ernie Fletcher
Governor

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-2150
FAX (502)564-4245
www.dep.ky.gov

Teresa J. Hill
Secretary

Cheryl A. Taylor
Commissioner

January 24, 2007

FEB - 6 2007

Richard C. Svindland, P.E., Engineering Manager
South East Region,
Kentucky American Water Company
2300 Richmond Road
Lexington, Kentucky 40502

RE: Fayette County
AI #: 1063
DW # 0340250-07-001
Preliminary Engineering Report
New Water treatment Plant on Pool 3 of Kentucky River Owen Co & Franklin Co.
Activity ID: APE 20070001

Dear Mr. Svindland:

We have received the Preliminary Engineering Report for the above referenced project. The report consisted of the following:

1. Construction of a new 20.0 MGD conventional water treatment plant in Owen County, expandable to 30.0 MGD.

2. Construction of a raw water intake structure on Kentucky River at Pool 3 in north Franklin County with air burst backwash system and Zebra Mussel control chemical feed capability.

3. Construction of a raw water pumping station consists of four pumps with initial reliable design capacity of 24 MGD and ultimate design capacity of 30 MGD.

4. Construction of a chemical storage and feed facility to treat water with potassium permanganate, powdered activated carbon, gas chlorine, caustic soda, polyaluminum chloride, ferric chloride, coagulant aid polymer, filter aid polymer, ammonia, fluoride and corrosion inhibitor. Also, main building will be consists of wet chemistry and microbiology labs.

5. Provisions for installation of ultraviolet (UV) disinfection facility to meet or exceed Long Term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTTR) requirements for pathogens (including Cryptosporidium) inactivation and removal.

6. Construction of one two stage rapid mixers, four three-stage flocculation basins, four settling tanks with plate settlers and vacuum sludge collection system.

7. Construction of five dual media rapid gravity filters with air scour and upflow backwash water system.

8. Construction of a two-cell baffled finished water storage clearwell.

9. Construction of finished water high service pump station consists of four pumps with initial reliable design capacity of 24 MGD and 30.0 MGD ultimate design capacity.

10. Construction of wastewater treatment system consists of two circular batch washwater clarifiers, one residual thickener with transfer pumps and residual dewatering facility with two belt filter presses.

11. Construction of on site sanitary disposal system with county requirements.

12. Installation of one stationary diesel powered standby 4160 volts electrical generator to operate the entire plant at 7 MGD, with provisions for a second mobile generator to operate 50% of total raw water pumping station and water treatment plant during power outage.

13. Installation of process control and instrumentation to operate the water treatment plant fully automatically with the ability to manually override the control system locally or remotely.

This is to advise that preliminary report and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of the date of this approval letter, with one stipulation:

This approval has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this approval does not relieve the applicant from the responsibility of obtaining any other approvals, permits or licenses required by this Cabinet and other state, federal and local agencies.

This letter shall not be construed as final approval; as detailed plans and specifications must be submitted for review and approval when they become available. If final plans and specifications are not submitted within one year from the date of preliminary approval, this approval shall expire.

If you have any questions concerning this project, please contact Solitha W. Dharman, P.E. at (502) 564-2225, extension 572.

Sincerely,

Donna S Marlin

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

DSM: SWD
Enclosures

C: Jeffrey L Raffensperger, Gannet Fleming, Inc.
Linda Bridwell, PE. Kentucky American Water Company
Michael D. Galavotti, PE, Kentucky American Water Company
Fayette County Health Department
Owen County Health Department
Franklin County Health Department
Public Service Commission
Water Management Branch, KDOW
KPDES Branch, KDOW
Water Resources Branch, KDOW
Water Quality Branch, KDOW
Technical Assistance Section, Drinking Water, KDOW
Frankfort Regional Office, KDOW
Florence Regional Office, KDOW

ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

TERESA J. HILL
SECRETARY

January 10, 2007

Dillard Griffin
Kentucky American Water Co
2300 Richmond Rd.
Lexington, KY 40502

Water Withdrawal Permit: #1572
Activity ID Number: APE20060038

Dear Mr. Griffin:

Thank you for your application for a revised water withdrawal permit. This letter accompanies permit #1572 which authorizes withdrawals from the Kentucky River at river mile 47.8 (pool 3) located in Franklin County with geographic coordinates of latitude 38° 21' 22.16" longitude 84° 52' 29.89".

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

Jan. <=6.0 MGD (MA)	**April <=6.0 MGD (MA)**	**July <=20.0 MGD (MA)**	**Oct. <=6.0 MGD (MA)**
Feb. <=6.0 MGD (MA)	**May <=6.0 MGD (MA)**	**Aug. <=20.0 MGD (MA)**	**Nov. <=6.0 MGD (MA)**
March <=6.0 MGD (MA)	**June <=20.0 MGD (MA)**	**Sept. <=6.0 MGD (MA)**	**Dec. <=6.0 MGD (MA)**

Please refer to the enclosed permit which specifies all conditions associated with this withdrawal, including monitoring and compliance requirements.

The issuance of this permit does not release you from the obligation of obtaining any and all other permits that may be required by this Division or other regulatory agencies.

If you have any questions, please contact Chris Yeary or Rita Hockensmith at (502) 564-3410.

Issued this 10th day of January 2007.

By: _____
Peter T. Goodmann, Manager
Watershed Management Branch
Division of Water

PTG:cy
Enclosure
cc: Frankfort Regional Office

Permit to Withdraw Public Water
KY American Water Co
Facility Requirements
Permit Number:1572
Activity ID No.: APE20060038

Limitation Requirements:

Condition No.	Item ID	Parameter	Condition
L-1	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 6.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: January. Statistical basis: Daily maximum (MX).
L-2	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 6.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: February. Statistical basis: Daily maximum (MX).
L-3	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 6.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: March. Statistical basis: Daily maximum (MX).
L-4	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 6.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: April. Statistical basis: Daily maximum (MX).
L-5	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 6.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: May. Statistical basis: Daily maximum (MX).
L-6	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 20.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: June. Statistical basis: Daily maximum (MX).
L-7	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 20.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: July. Statistical basis: Daily maximum (MX).
L-8	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 20.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: August. Statistical basis: Daily maximum (MX).

Permit to Withdraw Public Water
KY American Water Co
Facility Requirements
Permit Number:1572
Activity ID No.: APE20060038

Limitation Requirements:

Condition No.	Item ID	Parameter	Condition
L-9	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 6.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: September. Statistical basis: Daily maximum (MX).
L-10	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 6.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: October. Statistical basis: Daily maximum (MX).
L-11	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 6.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: November. Statistical basis: Daily maximum (MX).
L-12	GACT200 (1572 Kentucky River)	Withdrawal	Withdrawal <= 6.0 MGD (MA) shall be allowed from the location specified in the Narrative Requirements below. [KRS 151.170] This requirement is applicable during the following months: December. Statistical basis: Daily maximum (MX).

Monitoring Requirements:

Condition No.	Item ID	Parameter	Condition
M-1	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: January. Statistical basis: Daily maximum (MX).
M-2	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: February. Statistical basis: Daily maximum (MX).

Monitoring Requirements:

Condition No.	Item ID	Parameter	Condition
M-3	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: March. Statistical basis: Daily maximum (MX).
M-4	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: April. Statistical basis: Daily maximum (MX).
M-5	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: May. Statistical basis: Daily maximum (MX).
M-6	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: June. Statistical basis: Daily maximum (MX).
M-7	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: July. Statistical basis: Daily maximum (MX).
M-8	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: August. Statistical basis: Daily maximum (MX).
M-9	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: September. Statistical basis: Daily maximum (MX).

Monitoring Requirements:

Condition No.	Item ID	Parameter	Condition
M-10	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: October. Statistical basis: Daily maximum (MX).
M-11	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: November. Statistical basis: Daily maximum (MX).
M-12	GACT200 (1572 Kentucky River)	Withdrawal	The permittee shall measure Withdrawal monitored by meter or other approved method daily as described in the Narrative Requirements below. [401 KAR 4:010 Section 3] This requirement is applicable during the following months: December. Statistical basis: Daily maximum (MX).

Record-Keeping Requirements:

Withdrawal:

Condition No.	Item ID	Condition
R-1	GACT200 (1572 Kentucky River)	The permittee shall perform Withdrawal recordkeeping by reporting water withdrawals daily on forms supplied by the Cabinet. [401 KAR 4:010 Section 2]

Submittal/Action Requirements:

Condition No.	Item ID	Condition
S-1	GACT200 (1572 Kentucky River)	The permittee shall submit water withdrawal reporting forms: Due monthly, by the 15th of the month. [401 KAR 4:010 Section 2]

Narrative Requirements:

Condition No.	Item ID	Condition
T-1	GACT200 (1572 Kentucky River)	The Environmental and Public Protection Cabinet authorizes the above named party to withdraw Public Water of the Commonwealth of Kentucky. This permit has been issued under provisions of KRS Chapter 151.125, 151.140, and 151.150 and regulations promulgated with respect to the withdrawal of public waters. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet, or other state, federal, or local agencies. Withdrawals are restricted to the stated quantities, times, and locations specified above. This permit represents a limited right of use and does not vest ownership nor absolute right to withdrawal or use of Public Water, nor does it guarantee that requested amounts will be available for use at all times. In times of drought or emergency, the Cabinet my temporarily alter the conditions of the permit. Any violation of the Water Resources Act of 1966 as amended is subject to penalties as set forth in KRS 151.990 and other applicable provisions of law. [KRS 151]
T-2	GACT200 (1572 Kentucky River)	Monitoring equipment shall be calibrated annually according to the manufacturer's recommendations and a record kept to include date of calibration, calculations for percent error, and adjustments made either to the equipment or to the use of the data obtained from the equipment. Records shall be maintained and updated annually and shall be made available upon request for review by the Cabinet. [401 KAR 4:010 Section 2]
T-3	GACT200 (1572 Kentucky River)	If average monthly withdrawal amounts begin to exceed permitted amounts, or if there is any change in the location of the withdrawal site, you must contact this office immediately and request a revision. [KRS 151.170]
T-4	GACT200 (1572 Kentucky River)	The location of the authorized withdrawal is from the Kentucky River at river mile 47.8 (pool 3) in Franklin County, with coordinates: latitude 38° 21' 22.16", longitude 84° 52' 29.89". [KRS 151.170]

Narrative Requirements:

Condition No.	Item ID	Condition
T-5	GACT200 (1572 Kentucky River)	Kentucky-American Water Company shall notify the Cabinet whenever a Drought Management Phase is declared, beginning with the Advisory phase. [401 KAR 4:010 Section 2]
T-6	GACT200 (1572 Kentucky River)	As approved, the permittee shall monitor water withdrawals by meter. [401 KAR 4:010 Section 2]
T-7	GACT200 (1572 Kentucky River)	The issue date for water withdrawal permit #1572 is January 2007. The effective date for water withdrawal permit #1572 will be June 2010. [401 KAR 4:010 Section 2]
T-8	GACT200 (1572 Kentucky River)	Quarterly progress reports shall be due thirty (30) days after the end of each calendar quarter following the issuance date of the permit. A project schedule may be amended and the permit's effective date extended up to one (1) year if the permittee demonstrates that circumstances beyond the control of the permittee have caused an unavoidable delay in the completion of the project. This water withdrawal permit shall expire and become void if the holder of the permit fails to: (a) Adhere to the project schedule as submitted at the time of permit issuance or as amended by request according to 401 KAR 4:010 Section 2 subsection 4; (b) Comply with the interim reporting requirements; or (c) Commence withdrawals within six (6) months after the permit effective date, including any extensions granted under 401 KAR 4:010 Section 2 subsection 4. [401 KAR 4:010 Section 2]

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

Ernie Fletcher
Governor

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-2150
FAX (502)564-4245
www.dep.ky.gov

Teresa J. Hill
Secretary

Cheryl A. Taylor
Commissioner

March 7, 2007

Mr. Brent A. Tippey, PE
KY American Water Co
2300 Richmond Rd
Lexington, KY 40502

RE: KY American Water Co, PWS--1063
DW #0340250-07-015
High Service Mains for WTP on Pool 3
Activity ID # APE20070015
Fayette County, KY

Dear Mr. Tippey :

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 160,000 feet of 42-inch DI water line. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the enclosed waterline extension construction permit.

If you have any questions regarding this decision, please contact Sarah Tucker at 502/564-2225, extension 482.

Sincerely,

for Donna Marlin, Branch Manager
Drinking Water Branch
Division of Water

DSM: SAT

C: Fayette County H.D.
Scott County H.D.
Franklin County H.D.
Owen County H.D.
Public Service Commission

Distribution-Major Construction

KY American Water Co

Subject Item Inventory

Activity ID No.: APE20070015

Subject Item Inventory:

ID	Designation	Description
AIOO1063		
PORT255	Water Line	160,000 feet of 42-inch DI high service main

Subject Item Groups:

ID	Description	Components
GACT253	160,000 feet of 42-inch DI high service main	PORT255 160,000 feet of 42-inch DI high service main

KEY

ACTV = Activity
AIOO = Agency Interest
AREA = Area
COMB = Combustion
EQPT = Equipment
MNPT = Monitoring Point
PERS = Personnel
PORT = Transport
STOR = Storage
STRC = Structure
TRMT = Treatment

GACT253 (HS Mains for WTP on Pool3) 160,000 feet of 42-inch DI high service main:

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1	Coliform	The presence or absence of total Coliform monitored by sampling and analysis as needed shall be determined for the new or relocated water line(s). Take samples at connection points to existing lines, at 1 mile intervals, and at dead ends without omitting any branch of the new or relocated water line. Sample bottles shall be clearly identified as "special" construction tests. [401 KAR 8:100 Section 1(7), 401 KAR 8:150 Section 4, Recommended Standards for Water Works 8.5.6] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.

Submittal/Action Requirements:

Coliform:

Condition No.	Condition
S-1	Coliform For new construction projects, the distribution system, using the most expedient method, shall submit Coliform test results to the Cabinet: Due immediately following disinfection and flushing. [401 KAR 8:150 Section 4(2)]

Condition No.	Condition
S-2	For proposed changes to the approved plan, submit information: Due prior to any modification to the Cabinet for approval. Changes to the approved plan shall not be implemented without the prior written approval of the Cabinet. [401 KAR 8:100 Section 1(8)]
S-3	The person who presented the plans shall submit the professional engineer's certification: Due when construction is complete to the Division of Water. The certification shall be signed by a registered professional engineer and state that the water project has been constructed and tested in accordance with the approved plans, specifications, and requirements. [401 KAR 8:100 Section 1(8)]

GACT253 (continued):

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-1	Additional Limitations: Chlorinated water resulting from disinfection of project components shall be disposed in a manner which will not violate 401 KAR 5:031. [401 KAR 8:020 Section 2(20)]

Condition No.	Condition
T-2	This project has been permitted under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the applicant from the responsibility of obtaining any other approvals, permits or licenses required by this Cabinet and other state, federal and local agencies. Further, this permit does not address the authority of the permittee to provide service to the area to be served. [401 KAR 8:100 Section 1(7)]
T-3	Unless construction of this project is begun within 1 year from the issuance date of this permit, the permit shall expire. If requested prior to the permit expiration, an official extension from the Division of Water may be granted. If this permit expires, the original plans and specifications may be resubmitted for a new comprehensive review. If you have any questions concerning this project, please contact the Drinking Water Branch at 502/564-3410. [401 KAR 8:100 Section 1(9)]
T-4	During construction, a set of approved plans and specification shall be available at the job site at all times. All work shall be performed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 1(7)(a)]

PORT255 (Water Line) 160,000 feet of 42-inch DI high service main:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Depth	A continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. Stones found in the trench shall be removed for a Depth >= 6 in below the bottom of the pipe. [Recommended Standards for Water Works 8.5.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-2	Depth	All water lines shall be covered to a Depth >= 30 in to prevent freezing. [Recommended Standards for Water Works 8.5.3, 401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-3	Diameter	All new and existing water lines serving fire hydrants or where fire protection is provided shall have Diameter >= 6 in. [Recommended Standards for Water Works 8.1.2] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-4	Distance	Water lines shall have a sufficient quantity of valves so that inconvenience and sanitary hazards will be minimized during repairs. A valve spacing Distance <= 800 feet should be utilized in non-commercial districts. Alternatively, non-commercial districts should utilize a valve spacing Distance <= 1 block. Commercial districts should utilize a valve spacing Distance < or = 500 ft. [Recommended Standards for Water Works 8.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-5	Distance	Hydrant drains shall not be connected to sanitary sewers or storm drains and shall be located a Distance > 10 ft from sanitary sewers and storm drains. [Recommended Standards for Water Works 8.3.4] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-6	Distance	Except when not practical, water lines shall be laid a horizontal Distance >= 10 ft from any existing or proposed sewer. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, water lines may be installed closer to a sewer provided that the water lines shall be laid in a separate trench or on an undisturbed shelf located on one side of the sewer at such an elevation that the bottom of the water line is at least 18 inches above the top of the sewer. [Recommended Standards for Water Works 8.6.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.

PORT255 (continued):

Limitation Requirements:

Condition No.	Parameter	Condition
L-7	Distance	When water lines and sewers cross, 1) water lines shall be laid such that either a) the the top of the water line is a vertical Distance >= 18 in below the bottom of the sewer line or b) the bottom of the water line is a vertical Distance >= 18 in above the top of the sewer line, 2) 1 full length of the water pipe shall be located so that both joints of the water pipe will be as far from the sewer as possible, and 3) special structural support for the water and sewer pipes may be required. [Recommended Standards for Water Works 8.6.3] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-8	Distance	The open end of an air relief pipe from automatic valves shall be extended a Distance >= 1.0 ft above grade and provided with a screened, downward-facing elbow. The pipe from a manually operated valve shall be extended to the top of the pit. Use of manual air relief valves is recommended wherever possible. [Recommended Standards for Water Works 8.4.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-9	Pressure	Pipes shall not be installed unless all points of the distribution system remain designed for ground level Pressure >= 20 psi under all conditions of flow. [Recommended Standards for Water Works 8.1.1] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-10	Pressure	Pressure >= 30 psi must be available on the discharge side of all meters. [401 KAR 8:100 Section 4(2)] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.
L-11	Residual Disinfection	New or relocated water lines shall be thoroughly disinfected (in accordance with AWWA Standard C651) upon completion of construction and before being placed into service. To disinfect the new or relocated lines use chlorine or chlorine compounds in such amounts as to produce an initial disinfectant concentration of at least 50 ppm and a Residual Disinfection >= 25 ppm at the end of 24 hours. Follow the line disinfection with thorough flushing and place the lines into service if, and only if, Coliform monitoring applicable to the line does not show the presence of Coliform. If Coliform is detected, repeat flushing of the line and Coliform monitoring. If Coliform is still detected, repeat disinfection and flushing as if the line has never been disinfected. Continue the described process until monitoring does not show the presence of Coliform. [401 KAR 8:150 Section 4(1), Recommended Standards for Water Works 8.5.6] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.

PORT255 (continued):

Limitation Requirements:

Condition No.	Parameter	Condition
L-12	Velocity	Each blow-off or fire hydrant shall be sized so that Velocity >= 2.5 ft/sec can be achieved in the water main served by the blow-off or hydrant during flushing. [Recommended Standards for Water Works 8.1.6.b, 401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1	leaks	The presence or absence of leaks monitored by physical testing as needed shall be determined in all types of installed pipe. Pressure testing and leakage testing shall be in accordance with the latest edition of AWWA Standard C600. [Recommended Standards for Water Works 8.5.5] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-1	Additional Limitations: Water line installation shall be in accordance with AWWA standards or manufacturer recommendations. [Recommended Standards for Water Works 8.5.1]
T-2	Additional Limitations: Pipes, fittings, valves and fire hydrants shall conform to the latest standards issued by the AWWA or NSF (if such standards exist). [Recommended Standards for Water Works 8.0.1]
T-3	Additional Limitations: At high points in water lines, where air can accumulate, provisions shall be made to remove the air by means of hydrants or air relief valves. Automatic air relief valves shall not be used in situations where manhole or chamber flooding may occur. [Recommended Standards for Water Works 8.4.1]

PORT255 (continued):

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-4	Additional Limitations: All tees, bends, plugs and hydrants shall be provided with reaction blocking, tie rods or joints designed to prevent movement. [Recommended Standards for Water Works 8.5.4]
T-5	Additional Limitations: For each fire hydrant, auxiliary valves shall be installed in the hydrant lead pipe. [Recommended Standards for Water Works 8.3.3]
T-6	Additional Limitations: No flushing device, blow-off, or air relief valve shall be directly connected to any sewer. Chambers, pits or manholes containing valves, blow-offs, meters, or other such appurtenances shall not be directly connected to any storm drain or sanitary sewer. Such chambers, pits or manholes shall be drained to absorptions pits underground or to the surface of the ground where they are not subject to flooding by surface water. [Recommended Standards for Water Works 8.1.6, Recommended Standards for Water Works 8.4.3]
T-7	Additional Limitations: If water lines are installed or replaced in areas of organic contamination or in areas within 200 ft of underground or petroleum storage tanks, ductile iron or other nonpermeable materials shall be used in all portions of the water line installation or replacement. [401 KAR 8:100 Section 1(5)(d)6, Recommended Standards for Water Works 8.0.2]
T-8	Additional Limitations: No water pipe shall pass through or come in contact with any part of a sewer manhole. [Recommended Standards for Water Works 8.6.6]
T-9	Additional Limitations: If a fire sprinkler system is to be installed, a double check detector assembly approved for backflow prevention shall be utilized. The double check detector assembly of the system shall be accessible for testing. [401 KAR 8:100 Section 1(7)]
T-10	Additional Limitations: If water lines cross a stream or wetland, the provisions in the attached Water Quality Certification shall apply. If you have any questions please contact the Water Quality Certification Supervisor of the Water Quality Branch at (502) 564-2225. [401 KAR 8:100 Section 1(7)]

PORT255 (continued):

Narrative Requirements:

Subfluvial Pipe Crossings:

Condition No.	Condition
T-11	Subfluvial Pipe Crossings: For subfluvial pipe crossings, a floodplain construction permit will not be required pursuant to KRS 151.250 if the following requirements of 401 KAR 4:050 Section 2 are met. 1) No material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc. during construction of pipe crossings. 2) Crossing trenches shall be backfilled as closely as possible to the original contour. 3) All excess material resulting from construction displacement in a crossing trench shall be disposed of outside the flood plain. 4) For erodible channels, there shall be at least 30 inches of backfill on top of all pipe or conduit points in the crossing. 5) For nonerodible channels, pipes or conduits in the crossing shall be encased on all sides by at least 6 inches of concrete with all pipe or conduit points in the crossing at least 6 inches below the original contour of the channel. [401 KAR 8:100 Section 1(7)]
T-12	Subfluvial Pipe Crossings: For subfluvial pipe crossings greater than 15 feet in width, 1) the pipe shall be of special construction, having flexible, restrained, or welded watertight joints, and 2) valves shall be provided at both ends of water crossings so that the section can be isolated for testing or repair. Valves shall a) be easily accessible, b) not be subject to flooding, and c) if closest to the supply source, be in a manhole with permanent taps made on each side of the valve to allow insertion of a small meter to determine leakage and for sampling purposes. [Recommended Standards for Water Works 8.7.2]

401 KAR 4:050. Construction exemptions.

RELATES TO: KRS 151.110, 151.250, 151.310

STATUTORY AUTHORITY: KRS 151.230, 151.250

NECESSITY, FUNCTION, AND CONFORMITY: In the course of regulating construction in or along streams pursuant to KRS 151.250, the Natural Resources and Environmental Protection Cabinet frequently encounters actions or proposed actions which are of such nature or location as to have little potential for damage or such that any damage which would occur is limited in extent to the immediate vicinity of the action. This administrative regulation exempts construction of this type from the provisions of KRS 151.250.

Section 1. A construction permit pursuant to KRS 151.250 shall not be required for construction in or along a stream whose watershed is less than one (1) square mile, except for the construction of dams as defined by KRS 151.100 or other water impounding structures or for any construction that does or may endanger life or cause severe damage to residential or commercial property.

Section 2. A construction permit pursuant to KRS 151.250 shall not be required for a subfluvial utility or pipeline crossing provided that the construction of the crossing meets the following criteria:

(1) During the construction of the crossing, no material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc., unless prior approval has been obtained from the cabinet.

(2) The trench shall be backfilled as closely as possible to the original contour. All excess material from construction of the trench shall be disposed of outside of the flood plain unless the applicant has received prior approval from the cabinet to fill within the flood plain.

(3) For subfluvial crossings of erodible channels, there shall be at least thirty (30) inches clear to the top of the pipe or conduit at all points.

(4) For subfluvial crossings of nonerodible channels, there shall be at least six (6) inches of clear cover above the top of the pipe or conduit at all points, and the pipe or conduit shall be encased on all sides by at least six (6) inches of concrete.

(5) The weight of a pipe and its contents during normal operating conditions at all points must exceed that of an equal volume of water, or the applicant must provide the division with sufficient information to show that the pipe and joints have sufficient strength. (7 Ky.R. 365; eff. 11-6-80.)

JAMES E. BICKFORD
SECRETARY

PAUL E. PATTON
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
14 REILLY RD
FRANKFORT KY 40601

General Certification--Nationwide Permit #12
Utility Line Backfill and Bedding

This General Certification is issued March 17, 2002, in conformity with the requirements of Section 401 of the Clean Water Act of 1977, as amended (33USC 1314), as well as Kentucky Statute KRS 224.16-070.

The Commonwealth of Kentucky hereby certifies under Section 401 of the Clean Water Act (CWA) that it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 5, established pursuant to Sections 301, 302, 304, 306 and 307 of the CWA, will not be violated for the activity covered under 33 CFR Part 330 Appendix A (B) (12), namely utility line backfill and bedding provided that the following conditions are met:

1. This general Water Quality Certification is limited to thecrossing of streams by utility lines. The length of a single utility stream crossing shall not exceed twice the width of the stream. This document does not authorize the installation of utility lines in a linear manner within the stream channel or below the top of the stream bank.

2. The provisions of 401 KAR 5:005 Section 8 are hereby incorporated into this General Water Quality Certification. Namely, "Sewer lines shall be located at least 50 feet away from a stream which appears as a blue line on a USGS 7 ½ minute topographic map except where the sewer alignment crosses the stream. The distance shall be measured from the top of the stream bank. The cabinet may allow construction within the 50' buffer if adequate methods are used to prevent soil from entering the stream.

   Gravity sewer lines and force mains that cross streams shall be constructed by methods that maintain normal stream flow and allow for a dry excavation. Water pumped from the excavation shall be contained and allowed to settle prior to re-entering the stream. Excavation equipment and vehicles shall operate outside of the flowing portion of the stream. Spoil material from the sewer line excavation shall not be allowed to enter the flowing portion of the stream." The provisions of this condition shall apply to all types of utility line stream crossings.

3. Removal of riparian vegetation in the utility line right-of-way shall be limited to that necessary for equipment access. Effective erosion and sedimentation control measures must be employed at all times during the project to prevent degradation of waters of the Commonwealth. Site regarding and reseeding will be accomplished within 14 days after disturbance.

4. Utility line construction projects through jurisdictional wetlands shall not result in conversion of the area to non-wetland status.

5. This General Certification shall not apply to those waters of the Commonwealth identified as Outstanding State Resource Waters, Exceptional Waters or Cold Water Aquatic Habitat Waters, as designated by the Division of Water. An individual Water Quality Certification will be required for projects in these waters.

Non-compliance with the conditions of this general certification or violation of Kentucky state water quality standards may result in civil penalties.

This general certification will expire on March 19, 2007, or sooner if the COE makes significant changes to this nationwide permit.

TRANSPORTATION CABINET

Ernie Fletcher
Governor

Department of Highways District 5 Office
977 Phillips Lane
P.O. Box 37090
Louisville, KY 40233
(502) 367-6411

Bill Nighbert
Secretary

Marc Williams
Commissioner of Highways

March 8, 2007

Kentucky-American Water Company
Michael Galavotti
2300 Richmond Road
Lexington KY 40502

MAR - 9 2007

Permit No. 05-0196-07 & 05-0197-07

Your application for an encroachment permit has been approved by the Department of Highways. We are returning two (2) copies of the approved permit. One copy of the permit is for your record and files, the other is to be on the work site at all times. Failure to have this permit at the site could result in a stop-work order by the Department of Highways.

The "Manual on Uniform Traffic Control Devices" (MUTCD) is the accepted national standard for all traffic control. All traffic control measures used must be in compliance with the MUTCD.--

Please contact this office prior to beginning the work and also when the work has been completed. Please see that the work is done in strict conformity with the permit and any other applicable conditions (see form TC99-21 and any other attached documents, conditions, or specifications). The permit will be released when the permitted work and any necessary restoration has been completed.

Please contact this office if you have any questions.

Sincerely,

Travis Thompson /dsm

District Permits

dsm

NOTICE OF COMPLETION OF ENCROACHMENT PERMIT WORK

Please return this form to the District Office when work is completed and ready for final inspection.

Applicant Identification	Project Identification
Name: KENTUCKY-AMERICAN WATER COMPANY	Permit Number: 05-0196-07
Contact Person:	County: Franklin
Address: 2300 RICHMOND ROAD - P.O. BOX	Route Number: 1262
City: LEXINGTON	Road Name:
State: KY Zip: 40502	Milepoint: 1.63
Telephone: 606-269-2386	

I wish to notify the Department of Highways that the above mentioned permit work and any necessary right of way restoration have been completed and are ready for final inspection.

Applicant

Please Return To: Department of Highways
District 5 Louisville
P.O. Box 37090
Louisville, Ky. 40233

Attention:

KENTUCKY TRANSPORTATION CABINET
Department of Highways
Permits Branch

TC 99-1E
Rev. 10/01

Released Date _____

ENCROACHMENT PERMIT

PERMIT NO. 05-0196-07

APPLICANT IDENTIFICATION:
NAME: Kentucky American Water
CONTACT PERSON: Michael D. Galavotti, PE
ADDRESS: 2300 Richmond Road
CITY: Lexington
STATE: KY ZIP CODE: 40502
PHONE: area code (859) 268-6352

PROJECT IDENTIFICATION:
ACCESS CONTROL: ☒ By Permit ☐ Partial ☐ Full
COUNTY: Franklin PRIORITY ROUTE NO: KY 1262
MILEPOINT: 1.63 ☒ Left ☐ Right ☐ X-ing
PROJECT STATUS: ☒ Maint. ☐ Const. ☐ Design
PROJECT # STATE: RS - 037 - 1262 - 1.625
PROJECT # FEDERAL: _____
ROAD/STREET NAME: _____

TYPE OF ENCROACHMENT:
☒ COMMERCIAL ENTRANCE - BUSINESS Water Pump Station
☐ PRIVATE ENTRANCE: ☐ Single Family ☐ Farm
☐ UTILITY: ☐ Overhead ☐ Underground
☐ GRADE: ☐ Fill ☐ Landscape on R/W
☐ AIRSPACE: ☐ Agreement ☐ Lease
☐ OTHER: (Specify)

ATTACHMENTS:
☐ Standard Drawings (List on TC 99-21 under Misc.)
☒ Applicant's Plans
☐ Highway Plan and Profile Sheets
☐ TC 99-3 (Ponding Encroachment Specs. and Conditions)
☐ TC 99-4 (Rest Area Usage Specs. and Conditions)
☐ TC 99-5 (Tree Cutting/Trimming Specs. and Conditions)
☐ TC 99-6 (Chemical Use of Specs. and Conditions)
☐ TC 99-10 (Typical Highway Boring Crossing Detail)
☐ TC 99-12 (Overhead Utility Encroachment Diagram)
☐ TC 99-13 (Surface Restoration Methods)
☒ TC 99-21 (Encroachment Permit General Notes and Specs.)
☐ TC 99-22 (Agreement for Services to be Performed)
☐ TC 99-23 (Mass Transit Shelter Specs. and Conditions)
☒ Other Attachments (Specify):
Typical Commercial Entrance

TYPE OF INDEMNITY: ☒ Bond ☐ Cash
☒ SELF-INSURED AMOUNT ENCUMBERED $ $5,000.00
☐ OTHER _____

NAME AND ADDRESS OF LOCAL INSURANCE AGENCY OR SELF-INSURED REPRESENTATIVE:

INDEMNITY: The applicant, in order to secure this obligation, has deposited with the Transportation Cabinet as a guarantee of conformance with the Department's Encroachment Permit requirements, an indemnity in the amount of $ _____ as determined by the Department. It shall be the responsibility of the applicant or permitee, his heirs and assignees to keep all indemnities in full force until construction or reconstruction has been completed and duly accepted by an authorized agent of the Transportation Cabinet, Department of Highways.

BRIEF DESCRIPTION OF WORK TO BE DONE.

Construct ashpalt entrance from KY1262 to KY american water tank and pump station facilities. The paved entrance shall have 50-ft raddi and a minimum width of 24 ft. The proposed entrance profile begins with a five foot width at the 4% shoulder slope down from the roadway edge of pavemetn. As shown in AASHTO's Geometric Design of Highways and Streets (2004) exhibit 9-56, an intersection sight distance of 1,010' (60mph design speed, combination truck) is provided for both directions along KY1262.

IMPORTANT (PLEASE READ): Applicant ☐ does ☒ does not intend to apply for excess R/W.

When the work is completed in accordance with the terms of this encroachment permit, your indemnity will be released. However, the permit is effective until revoked by the Transportation Cabinet and the terms on the permit accompanying permit documents and drawings remain in effect as long as the encroachment exists. **FUTURE MAINTENANCE OF THE ENCROACHMENT IS THE RESPONSIBILITY OF THE PERMITEE.** It is important that you understand the requirements of this encroachment permit application and accompanying documents. If you have not done so, it is suggested that you review these documents and place the permit package in a safe place for future reference.

A copy of this permit and all documents shall be given to your contractor and shall be readily available at the work site for the encroachment permit inspector to review at all times. Failure to meet this requirement may result in cancellation of this permit.

IN THE EVENT THIS APPLICATION IS APPROVED, THIS DOCUMENT SHALL CONSTITUTE A PERMIT FOR THE APPLICANT TO USE THE RIGHT-OF-WAY, BUT ONLY IN THE MANNER AUTHORIZED BY THIS DOCUMENT AND REGULATIONS OF THE DEPARTMENT AND THE DRAWINGS, PLANS, ATTACHMENTS, AND OTHER PERTINENT DATA ATTACHED HERETO AND MADE A PART HEREOF.

Permit No. _____

The permittee agrees to the following terms and conditions:

1. The permittee shall comply with and is bound by the requirements of theDepartment's Permits Manual as revised to and in effect on the date of the issuance of this permit which is made a part hereof by reference.

2. *Permittee agrees that if the Department determines that vehicular capacity deficiencies or over capacity conditions develop as a result of the installation and use of this facility, the permittee shall adjust,* relocate, or reconstruct the facilities and/or provide and bear the expenses for signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department and as set forth in the Department's Permit Manual within a reasonable length of time after receipt of written notice regarding such adjustments, relocation, additions, modifications, and/or corrective measures, such time to be specified in the notice. In cases where traffic signals are permitted or required, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee and/or the Department in accordance with Department policy then in force as set forth in the Traffic Manual. Any modifications to the permitted entrance necessary for accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee at no expense to the Department. (This applies only to Entrance Permits.)

3. The said encroachment will in (fringe on the frontage rights of an abutting owner without written consent of the said owner as herein: "I(we) consent to the granting of attached permit." _____ Date _____ (This does not apply to utilities which serve the general public.)

4. Any permit granted hereunder shall be with the full understanding that it shall not interfere with any similar rights or permits heretofore granted to any other party except as otherwise provided by law.

5. A plan prepared by Strand Associates, Inc. and dated February 2007 is attached hereto and made a part hereof, which describes the *facilities to be constructed by the permittee for which facilities this permit is granted. The permittee agrees as a condition to the issuance of the permit to construct and maintain such facilities in accordance with* said plan, and the permittee shall not use the facilities authorized herein in any manner contrary to that prescribed by this permit and plan. Normal usage and routine maintenance only are authorized under this permit.

6. Permittee shall comply with the Manual on Uniform Traffic Control Devices as revised to and in effect on the date of the issuance of this permit which is made a part hereof by reference.

7. Permittee shall at all times from date when work is first commenced and until such time as all facilities are removed from the right-of-way premises, defend, protect, and save harmless the Department from all liability, claims, and demands arising out of work undertaken by the permittee pursuant to this permit, due to any negligent act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party or operate to reclaim any liability of the Department beyond that existing at common law or the right to indemnity do not exist.

8. Upon violation of any of the provisions of this permit, the Department may revoke the permit by giving notice to the permittee in writing to remove from the right-of-way any facilities placed thereon within a reasonable time as set forth in the notice, and in the event said facilities are not so removed, and the right-of-way restored the Department may cause same to be removed and the costs thereof shall be charge to the permittee.

9. The permittee, his successors and assigns shall use the encroachment premises in compliance with all Federal requirements imposed pursuant to the provisions of the Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000-1) and regulations of the U.S. Department of Transportation as set forth in Title 49 C.F.R., Part 21, and as said regulations may be amended.

10. Permittee agrees that in the event it should become necessary, as may be reasonably determined by the Department, for the facilities covered by this permit to be removed or relocated in connection with the reconstruction, relocation, or improvement of the abutting highway, the Department may revoke this permit and require removal or relocation by the permittee at his own expense according and pursuant to the procedures provided in Parargraph 8 above except in those cases where the Department is required by law to pay any or all the same.

11. The permittee understands and agrees that this permit is personal to the permittee and shall not inure to his successors and assigns without the written approval of the Department that he is bound by the provisions of this permit as long as the encroachment exists unless a written release has been obtained from the Department. (Does not apply to utilities serving the general public.)

12. If the work authorized by this permit is on a project in the construction phase, it shall be the responsibility of the permittee to make personal contact with _____ Resident Engineer on the project to coordinate the permitted work with the State's prime contractor on the project.

13. *This permit does not alleviate any requirements of any other Government Agency.*

14. Permittee agrees to keep the priority route in which this permit was issued clear of dirt, mud, and debris during construction and for the life of this permit.

THE UNDERSIGNED APPLICANT (being duly authorized representative/owner) DOES AGREE TO ALL TERMS AND CONDITIONS SET FORTH HEREIN.

☐ January 1st ☒ July 1st, 20 08 JAN 22 07

Completion Date Date Signature

RECOMMENDED FOR APPROVAL:

EIT II _____ _____ MAR 0 8 2007

Title Signature Chief District Engineer Date

PRIVATE ENTRANCE: TO BE COMPLETED BY PERSONNEL INSTALLING FACILITY

Installed By: _____ _____ _____

Title Signature Date

ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

Permit No. 05-0196-07

I. SAFETY

A. General Provisions

☒ All signs and control of traffic shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition, Part VI, and safety requirements shall comply with the Permits Manual.

☒ All work necessary in shoulder or ditch line areas of a state highway shall be scheduled to be promptly completed so that hazards adjacent to the traveled way are kept to an absolute minimum.

☒ No more than one (1) traveled-lane shall be blocked or obstructed during normal working hours. All signs and flaggers during lane closure shall conform to the Manual on Uniform Traffic Control Devices.

☒ When necessary to block one (1) traveled-lane of a state highway, the normal working hours shall be as directed by the Department. No lanes shall be blocked or obstructed during adverse weather conditions (rain, snow, fog, etc.) without specific permission from the Department. Working hours shall be between 9:00am and 3:00pm

☒ The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.

☒ No nonconstruction equipment or vehicles or office trailers shall be allowed on the right of way during working hours.

☒ The right of way shall be left free and clear of equipment, material, and vehicles during non-working hours.

B. Explosives

☒ No explosive devices or explosive material shall be used within state right of way without proper license and approval of the Kentucky Department of Mines and Minerals, Explosive Division.

C. Other Safety Requirements

☐

II. UTILITIES *Applies to Fully Controlled Access Highways ONLY

☐ *All work necessary within the right of way shall be performed behind a temporary fence erected prior to a boring operation.

☐ *The temporary woven wire fence shall be removed immediately upon completion of work on the right of way, and the control of access immediately restored to original condition, in accordance with applicable Kentucky Department of Highways Standard Drawings.

☐ *All vents, valves, manholes, etc., shall be located outside of the right-of-way.

☐ *Encasement pipe shall extend from right-of-way line to right-of-way line and shall be one continuous run of pipe. The encasement pipe shall be welded at all joints.

☐ The boring pit and tail ditch shall extend past the existing toe of slope or bottom of ditch line and shall be a minimum of 42 inches deep.

Permit No. 05-0196-07

II UTILITIES (Continued)

☐ Encasement pipe pipe shall conform to current standards for highway crossings in accordance with the Permits Manual.

☐ Parallel lines shall be constructed between back slope of ditch line and right-of-way line and shall have a minimum of 42-inch cover above top of pipe or conduit.

☐ All pavement cuts shall be restored per Kentucky Transportation Cabinet form TC 99-13.

☐ Aerial crossing of this utility line shall have a minimum clearance of _____ feet from the high point of the roadway to the low point of the line (calculated at the coefficient for expansion of 120 degrees Farenheit).

☐ The 30-foot clear zone requirement shall be met to the extent possible in accordance with the Permits Manual.

☐ Special requirements:

III GENERAL

A. OSHA

☒ Kentucky Occupational Safety and Health Standards for the construction industry, which has the effect of law, states in part: (Page 52, 1926.651, Specific Excavation Requirements) "Prior to opening an excavation, effort shall be made to determine whether underground installations, (sewer, telephone, water, fuel, electric lines, etc.) will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation."

B. Archaeological

☒ Whenever materials of an archaeological nature are discovered during the course of construction work or maintenance operations, contact shall be made immediately with the Division of Environmental Analysis, which maintains an archaeologist on staff, or with the Office of the State Archaeologist located at the University of Kentucky. Following this consultation, further action shall be decided on a case-by-case basis by the State Highway Engineer or the Transportation Planning Engineer or their designated representative.

C. Utilities in the Work Areas

☒ The permittee shall be responsible for any damage to existing utilities, and any utility modifications or relocations within state right of way necessary, as determined by the Department or by the owner of the utility, shall be at the expense of the permittee and subject to the approval of the Department.

☒ All existing manholes and valve boxes shall be adjusted to be flush with finished grade.

Permit No. 05-0196-07

IV. RIGHT OF WAY RESTORATION

☐ All disturbed portions of the right of way shall be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition). A satisfactory turf, as determined by the Department, shall be established by the permittee prior to release of indemnity. Sodding or seeding shall be as follows:

Lawn or High Maintenance Situation	70% Lawn Fescue (e.g., variety - Falcon) 30% Bluegrass **or** 70% Lawn Rye (e.g., variety - Derby) 30% Bluegrass
Right of Way Lawn Maintenance Situation	70% KY 31 Fescue 30% Perennial Rye Grass **or** 100% KY Fescue

☐ Two tons of clean straw mulch per acre of seeding.

☐ Prior to seeding, the ground shall be prepared in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

☐ Substitutes for sod such as artificial turf, rocked mulch, or paved areas may be acceptable if they are aesthetically pleasing.

☒ All ditch-flow lines and all ditch-side slopes shall be sodded.

☒ Existing concrete right of way markers shall not be disturbed, but if damaged in any way, they shall be entirely replaced by the permittee, with new concrete markers to match the original markers, in accordance with Kentucky Department of Highways Standard Drawings. Markers that are entirely removed shall be re-established in the proper locations by the permittee and to the satisfaction of the Department.

☒ Other right of way restoration requirements are as follows:

All disturbed portions of the right of way shall be sodded or mulched.

V. DRAINAGE

☐ All pipe shall be laid in a straight alignment, to proper grades, and with all materials and methods of installation including bedding and joint seating in accordance with Department Standard Specifications for Road and Bridge Construction (latest edition). Pipe shall not be covered until inspected by the Department and express permission obtained to make backfill.

☐ All gutter lines at the base of new curbs shall be on continuous grades, and pockets of water along with curbs or in entrance areas or other paved areas within the right of way shall not be acceptable.

☐ All drainage structures and appurtenances (manholes, catch basins, curbing, inlet basins, etc.) shall conform to Department specifications and shall be constructed in accordance with the Department Standard Drawings. Type required:

_____

_____

Permit No. 05-0196-07

VI. Paving

☒ No bituminous pavement shall be installed within the right of way between November 15 and April 1, nor when the temperature is below 40 degrees Farenheit, without the express consent of the Department. No bituminous pavement shall be installed when the underlying course is wet.

☒ Paving within the right of way shall be as follows:

☒ Base (Type) DGA (Thickness) 9 inches

☒ Surface Base (Type) Bituminous Base (Thickness) 4 inches

☒ Finished Surface (Type) Bituminous Surface (Thickness) 1.5 inches

☐ Existing pavement and shoulder material shall be removed to acommodate the above paving specifications.

☒ The finished surface of all new pavement within the right of way shall be true to the required slope and grade, uniform in density and texture, free of irregularities, and equivalent in riding qualities to the adjacent highway pavement or as determined by the Department of Highways.

☒ All materials and methods of construction, including base and subgrade preparation, shall be in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

☒ 24 hours notice to the Department is required prior to beginning paving operations.

Phone: 502-367-6411 Name: Travis Thompson

☒ To ensure proper surface drainage, the new pavement shall be flush with the edge of existing highway pavement and shall slope away from the existing edge of the pavement as specified in drawings.

☒ Existing edge of pavement shall be saw-cut to provide a straight and uniform joint for new pavement. An approved joint sealer, in accordance with Kentucky Department of Highways Standard Specifications (latest edition), shall be applied between new and existing pavements.

VII. SIDEWALKS SPECIFICATIONS *This dimension should be equal to the width of the sidewalk

A. New Sidewalks

☐ Sidewalks shall be constructed of Class A concrete (3,500 p.s.i. test), shall be *____ feet in width, 6 inches in thickness across the bituminous entrance, and 4 inches in thickness across the remaining sections.

☐ Sidewalks shall have tooled joints not less than 1 inch in depth at four foot intervals*, and 1/2 premolded expansion joints extending entirely through the sidewalk at intervals not to exceed 50 feet.

☐ All materials and methods of construction, including curing, shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

B. Existing Sidewalks

☐ **(Applicable if existing sidewalks are being relocated)** Use of the sidewalk shall not be blocked or obstructed, and a usable walkway shall be maintained across the construction area at all times.

☐ All damaged sections of the sidewalks shall be entirely replaced to match existing sections.

VIII. DENSE GRADED SHOULDERS

☐ Any existing dense-graded aggregate shoulders in the entire frontage within the construction area, which have been disturbed or damaged or on which dirt has been placed or mud has been deposited or tracked, shall be restored to original condition by removal of all contaminated material and replaced to proper grade with new dense-graded aggregate.

☐ All new aggregate shoulders as specified in the plan shall consist of 5 inches of compacted dense-graded aggregate, $2^{1/2}$ pounds per square yard of calcium chloride.

☐ All dense-graded aggregate shoulders shall slope away from the new edge of pavement at the rate of 3/4 inch per foot.

IX. CURBING

A. Bituminous Curbs

☐ Bituminous concrete curbs shall be given a paint coat of asphalt emulsion.

☐ The surface under the bituminous concrete curb shall be tacked with asphalt emulsion.

☐ All bituminous concrete curbs shall be constructed of a Class I bituminous concrete mixture as specified by official Department of Highways specifications.

☐ All bituminous curbs shall be rolled curb, with a minimum base width of 8 inches and a minimum height of _____ inches. The top of the curb shall be constructed in such a manner as to guarantee a uniform rolled effect throughout the entire run.

B. Concrete Curbs

☐ All curbs or curb and gutter shall be constructed of Class A concrete (3,500 p.s.i. test) and shall be uniform in height, width, and alignment, true to grade, and satisfactory in finish and appearance as determined by the Department. All materials and methods of construction, including curing, shall be in accordance with Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

☐ All concrete curbs shall be 6 inches in width, extend _____ inches above finished grade and 12 inches below finished grade, with all visible edge rounded to 1/2 inch radii.

☐ All concrete curbs shall have expansion joints constructed at intervals of not more than 30 feet, and 1/2 inch premolded expansion joint material (cut to conform to the curb or to the curb and gutter section) shall be used in each expansion joint.

☐ The last _____ feet of all concrete curbs are to be tapered down to finished grade.

Permit No. 05-0196-07

X. RIGHT-OF-WAY FENCE REPLACEMENT

☐ The replacement fence shall be a height of at least 48 inches and shall be of sufficient density to contain all animals (if applicable).

☐ The replacement fence shall be a minimum of 1 foot and a maximum of 2 feet outside the right-of-way line.

☐ The fence materials and design shall meet accepted industry standards and be treated as paintable.

☐ The permittee shall be required to maintain the fence in a high state of repair.

☐ The existing fence shall be removed by permittee and stored at the Department's maintenance storage yard for future reuse by the Department.

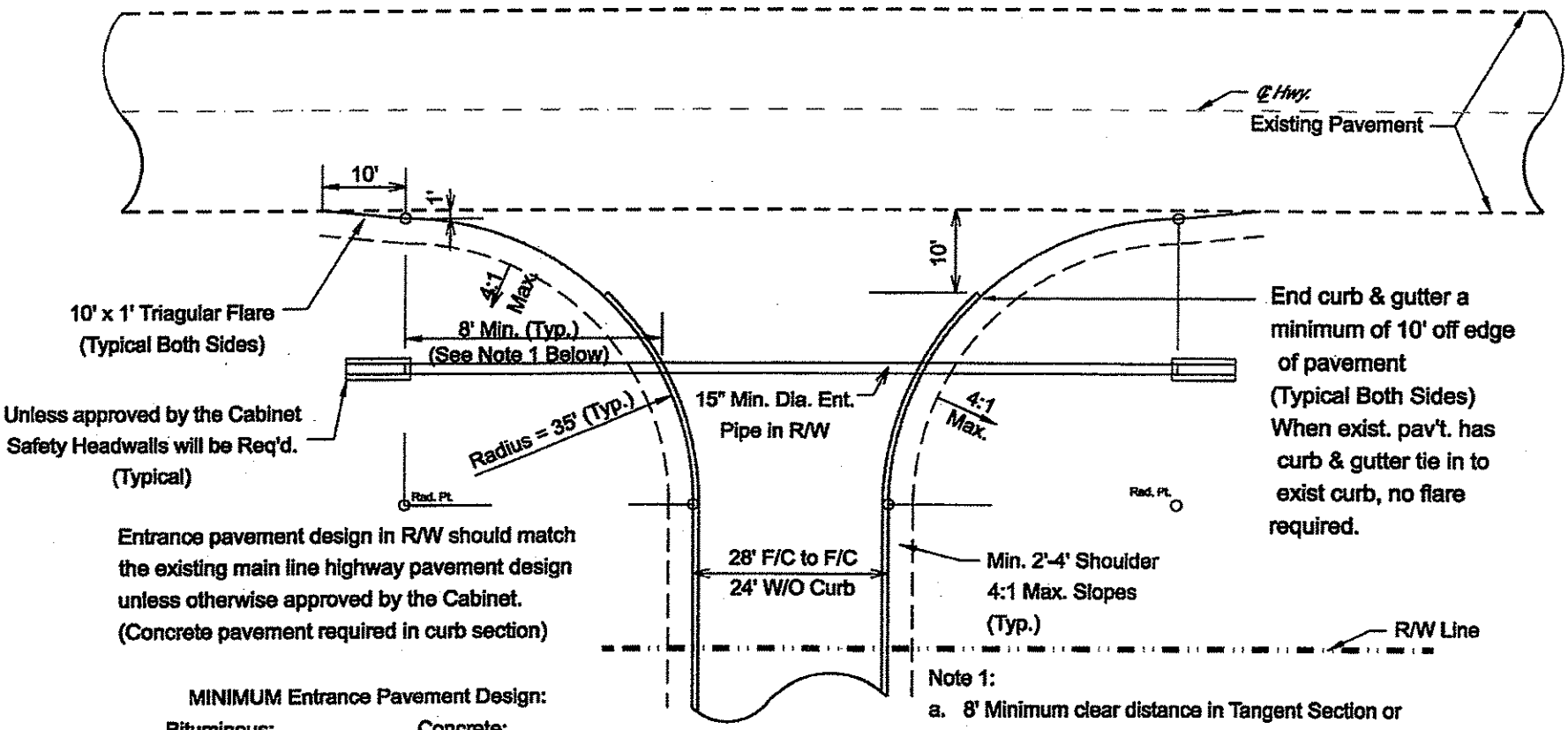
☐ The control of access shall not be diminished as a result of replacement of the fence.

☐ Miscellaneous:

NOTICE TO PERMITTEE

THE PERMITTEE AGREES THAT ALL WORK WITHIN THE EXISTING RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH THE PLANS AS APPROVED AND PERMITTED BY AN ENCROACHMENT PERMIT. ANY CHANGES OR VARIANCES MADE AT THE TIME OF CONSTRUCTION WITHOUT WRITTEN APPROVAL FROM THE DEPARTMENT OF HIGHWAYS SHALL BE REMOVED BY THE PERMITTEE AT NO EXPENSE TO THE DEPARTMENT OF HIGHWAYS AND SHALL BE REDONE BY THE PERMITTEE TO CONFORM WITH THE APPROVED PLANS.

TYPICAL COMMERCIAL ENTRANCE



Kentucky Transportation Cabinet
District 5 - Louisville Office
August 2005 - No Scale

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COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	)	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	)	
WATER COMPANY FOR A CERTIFICATE OF	)	**CASE NO.** 2007-00134
CONVENIENCE AND NECESSITY AUTHORIZING	)	
THE CONSTRUCTION OF KENTUCKY RIVER	)	
STATION II, ASSOCIATED FACILITIES AND	)	
TRANSMISSION MAIN	)	

DIRECT TESTIMONY OF LINDA C. BRIDWELL, P.E.

Professional Engineers (NSPE) and a State officer. Since 1991, I have served as an Adjunct Professor at the University of Kentucky in the Civil Engineering Department, teaching "Water Quality and Pollution Control" and the "Introduction to Environmental Engineering." I serve as a member of the Civil Engineering Industrial Advisory Committee at the University of Kentucky. I served as a Commissioner on the Kentucky Water Resources Development Commission established by Governor Patton and currently serve on the Board of Directors for the Kentucky Infrastructure Authority.

5. Q. WHAT ARE YOUR DUTIES AS MANAGER OF ENGINEERING?

A. My primary responsibilities encompass the coordination of the Engineering Departments in Kentucky and Tennessee, which includes the planning, development, and implementation of all aspects of construction projects. This includes working with all new main extensions and developers, water treatment plant upgrades, new construction, and network facilities improvements. I was involved in the development of the 1992 Least Cost/Comprehensive Planning Study (LC/CPS) for Kentucky American Water, including coordinating local input, regionalization and data collection. I supervise the implementation of the recommendations of the LC/CPS in both KAW's and Tennessee American Water's ("TAW") investment plan and construction schedule. I also coordinate the development and implementation of all of the investment plans and monitor the actual expenditures. I am responsible for updating the demand projections and monitoring the source of supply for KAW. I coordinate the provision of technical assistance to all other company departments as needed. Since 1997, I have been involved directly as the project manager for the Bluegrass Water Project and since December 1999 I have served as KAW's representative to the Bluegrass Water Supply Consortium/Commission ("BWSC"). This position is similar to my previous position as Director of Engineering for KAW with the increased oversight of TAW. I remain located in Kentucky and am heavily involved with the issues here.

6. Q. WHAT WILL YOUR TESTIMONY ADDRESS?

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	)	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	)	
WATER COMPANY FOR A CERTIFICATE OF	)	**CASE NO. _____**
CONVENIENCE AND NECESSITY AUTHORIZING	)	
THE CONSTRUCTION OF KENTUCKY RIVER	)	
STATION II, ASSOCIATED FACILITIES AND	)	
TRANSMISSION MAIN	)	

DIRECT TESTIMONY OF LINDA C. BRIDWELL, P.E.

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

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

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

A. I am employed by the Southeast Region of American Water Company as the Manager of Engineering for Kentucky and Tennessee.

3. Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THIS COMMISSION?

A. Yes.

4. Q. PLEASE STATE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

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

I have been employed by American Water Company since 1989. I worked as a distribution supervisor for Kentucky American Water (KAW) until 1990 and was promoted to Planning Engineer. In July 1995, I was promoted to Engineering Manager. In January 1998, I was promoted to Director of Engineering. In July 2004, I accepted the position of Project Delivery and Developer Services Manager for the Southeast Region of American Water, responsible for Kentucky, Tennessee, and West Virginia. In 2006 that title was changed to Manager – Engineering, and responsibility for West Virginia was shifted to someone in West Virginia. I am an active member of the American Water Works Association (AWWA), served as president of the local chapter of the American Society of Civil Engineering (ASCE), president of the State section, an officer in the local chapter of the National Society of

Professional Engineers (NSPE) and a State officer. Since 1991, I have served as an Adjunct Professor at the University of Kentucky in the Civil Engineering Department, teaching "Water Quality and Pollution Control" and the "Introduction to Environmental Engineering." I serve as a member of the Civil Engineering Industrial Advisory Committee at the University of Kentucky. I served as a Commissioner on the Kentucky Water Resources Development Commission established by Governor Patton and currently serve on the Board of Directors for the Kentucky Infrastructure Authority.

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6. Q. WHAT WILL YOUR TESTIMONY ADDRESS?

A. My testimony will address KAW's obligation to provide water to our customers and a history of the water supply problem, including both source of supply and treatment capacity deficits. My testimony will further discuss how the transmission main route was selected, KAW's efforts to communicate with the public, and the efforts to inform area land owners that may be affected by the pipeline. I will discuss the estimated cost of operation after construction is completed and provide information about relevant permits.

7. Q. WHAT IS KAW'S UNDERSTANDING OF ITS OBLIGATION TO PROVIDE ADEQUATE WATER SERVICE TO ITS CUSTOMERS?

A. The administrative regulations of the Public Protection and Regulation Cabinet require any utility furnishing water service for human consumption or domestic to use water from a source that is reasonably adequate to provide a continuous supply of water. (*807 KAW 5:066 Section 3(2)[c]*). Section 4 of that same regulation requires each utility to make all reasonable efforts to prevent interruptions of service, and when such interruptions occur, endeavor to reestablish service with the shortest possible delay consistent with the safety of its consumers and the general public. If an emergency interruption of service affects service to any public fire protection device, the utility must immediately notify the fire chief or other public official responsible for fire protection. (807 KAW 5:066 Section 4 [1]). Additionally, the quantity of water delivered to the utility's distribution system from all source facilities shall be sufficient to supply adequately, dependably and safely the total reasonable requirements of its customers under maximum consumption. (807 KAR 5:066 Section 10 [4]). The administrative regulations of the Natural Resources and Environmental Protection Cabinet incorporates by reference the "Recommended Standards for Water Works" from the Great Lakes Upper Mississippi River Board of State Public Health and Environmental Managers (Ten States Standards). Section 3.1.1 of those standards requires the quantity of water at the source to be adequate to meet the maximum projected water demand of the service area as shown by calculations based on the extreme drought of record.

KAW does not believe these regulations require a utility to be able to provide unlimited water demand to its customers during the worst drought of record. The regulations do, however, require that a utility have the capability to meet reasonable water demands during all conditions and have a quantity of water supply that ensures the economic vitality, health and safety of the community even during a drought of record.

8. Q. HAS KENTUCKY AMERICAN WATER IDENTIFIED A PROBLEM IN MEETING THE NEEDS OF ITS CUSTOMERS BASED ON ITS OBLIGATION?

A. Yes.

9. Q. CAN YOU DESCRIBE THE PROBLEM?

A. One of the difficult aspects of the problem is that there are actually two distinct but integrated issues facing KAW: a lack of an adequate quantity of raw water available in its current source of supply, and a capacity deficit in its water treatment facilities. KAW has two treatment plants that supply water to the Central Division network system that includes Fayette, Scott, Jessamine, Woodford, Bourbon, Harrison, and Clark Counties. The first is the Richmond Road Station ("RRS") that is supplied by water from Jacobson Reservoir. The second is the Kentucky River Station ("KRS") which is supplied by raw water from the Kentucky River at Pool 9. The intake at KRS can also transfer raw water from the Kentucky River to either Jacobson Reservoir or directly into the RRS. My testimony will further define the deficits later.

10. Q. HOW LONG HAS KAW KNOWN ABOUT ITS WATER SUPPLY PROBLEM?

A. The problem was identified over twenty years ago. At that time it was a problem with a future impact, but that future deficit has become a problem of the present.

In 1986, Kentucky American Water published its Least Cost/Comprehensive Planning Study. In the chapter titled Source of Supply, KAW identified a deficit in the available water in Pool 9 at its current raw water intake structure based on safe yield calculations of the Kentucky River. The study indicated that previous reviews of the Kentucky River identified a much larger quantity of water available from Pool 7 and below, based on the confluence of large tributaries beginning with the Dix River. The study also reviewed efforts to construct upstream reservoirs on the Kentucky River to supply additional raw water at Pool 9. Because of the controversy that had occurred with the potential reservoirs, the study recommended that a new water treatment plant be constructed on Pool 6 of the Kentucky River. This plant was proposed to be a 5 mgd plant to meet system demand until the late 1990s and was estimated to cost $10,000,000. Following that study KAW began work on designing a water treatment plant on Pool 6. Design was completed and easement acquisition work began in anticipation of filing a Certificate of Convenience and Necessity with the Kentucky Public Service Commission.

In 1988 Central Kentucky experienced a moderate drought that occurred early in the summer. Kentucky River flows in May and June of that year dropped sharply, similar to the 1930 drought of record flow pattern of the Kentucky River for the same months. KAW customer demands set an all-time maximum day of 63.91 million gallons, which exceeded the plant capacity at that time of 60 million gallons per day. KAW was forced to ask customers to voluntarily restrict their water use for 12 days, until rain fell and demands were reduced. That situation brought the water supply situation to the forefront of public attention for the first time since the mid-1950s.

On the heels of that drought the Kentucky Division of Water implemented passing flow restrictions on all new or revised water withdrawal permits on the Kentucky River. The restrictions eliminated the ability of the proposed new plant on Pool 6 of the Kentucky River to provide any supplemental water to KAW during even a moderate drought. KAW stopped all plans for new construction on the Kentucky

River to review alternatives. These included using Ohio River water, water from existing impoundments, and the potential for any new reservoirs or impoundments.

11. Q. WAS THERE ANY CONSIDERATION OF REGION WIDE SOLUTIONS?

A. In 1989, then-LFUCG Mayor Scotty Baesler formed the Kentucky River Basin Steering Committee ("KRBSC") to review options for raw water supply for the entire Kentucky River Basin. The focus of this group was for the entire region, but only addressing raw water capacity and not treated water needs. In 1991, the KRBSC published its report. The Committee had reviewed a wide number of alternatives, including groundwater and use of existing area lakes and reservoirs. The study focused on 27 alternatives that included components of: 1) rehabilitation or reconfiguration of the Kentucky River locks and dams; 2) small upstream reservoirs on Kentucky River tributaries; and 3) pipelines from the Ohio River. The study recommended an implementation of conservation programs and the development of 2 or 3 new dams on the Kentucky River that would replace either Dams 10, 11 or 12. The estimated costs were $57 million to $163 million. KAW was an active participant on the KRBSC and helped fund the study. At the conclusion the study was given to the newly empowered Kentucky River Authority with the hope that it could be implemented.

In the interim KAW initiated projects to increase the capacity of the Richmond Road Station from 20 mgd to 25 mgd . To supply that additional capacity, KAW replaced the intake pumps at the Kentucky River and to transfer river water to the RRS. with larger, more energy efficient pumps. Finally, KAW replaced the 20-inch cast iron raw water main from the KRS to Jacobson Reservoir with a 30-inch ductile iron main. The old main had frequently been out of service due to failure, and the new main provided not only more capacity but greater reliability. Thus, KAW's treatment capacity went from 60 mgd (40 mgd at the KRS and 20 mgd at the RRS), to 65 mgd (40 mgd at the KRS and 25 mgd at the RRS).

At the same time KAW began exploring options outside the Kentucky River Basin by comparing the construction of a new water treatment plant on the Ohio River with purchasing water from Louisville Water Company ("LWC"). In 1992, KAW published an updated Least Cost/Comprehensive Planning Study. The study reviewed six different alternatives including groundwater, use of the Kentucky River at Pool 6, Purchasing water from LWC, constructing a new water treatment plant on the Ohio River at Warsaw, Kentucky, constructing a new water treatment plant on the Ohio River at Dover, Kentucky, and building a raw water intake on the Ohio River and bringing water to an expanded RRS.

KAW implemented a "decision tree" approach to the resolution of the supply deficit, supporting efforts to stabilize and enhance the Kentucky River supply while concurrently undertaking preliminary activities on an Ohio River supply project to supplement the Kentucky River supply. KAW's 1992 Least Cost/Comprehensive Planning Study summarizes this approach:

"Kentucky American Water should continue to be involved and actively support the regional activities, such as those of the Kentucky River Authority, to construct the proposed dams on the Kentucky River. However, Kentucky American Water should not wait an indefinite period of a regional solution to show progress. As the largest water purveyor in the area, Kentucky American Water should exercise a leadership role in implementing a source of supply project as necessary. The risk if Kentucky American Water takes no action to resolve its source of supply problem is severe, since a drought event would cause service to Kentucky American Water's customers to be severely compromised, and the public health and economic stability of the area would be jeopardized.

Kentucky American Water is not able to implement a Kentucky River source project on its own. The participation of the Kentucky River Authority to build new Kentucky River dams, and/or an agreement with Kentucky Utilities to guarantee the availability of Herrington Lake water is needed. At the present time, progress on new

Kentucky River dams and/or an agreement with Kentucky Utilities to facilitate an intake in Lock Pool 6 do not appear promising. Kentucky American Water should follow its decision tree and continue to proceed with preliminary steps toward implementation of the least-cost feasible project within its control. This project is the construction of a pipeline from the Louisville Water Company."[1]

The Ohio River supply project of purchasing treated water from LWC was selected by KAW from over 50 alternatives as the most feasible, cost effective solution for the water supply deficit. At that time, KAW concluded that a solution to the supply deficit through the expansion of the Kentucky River storage pools was unlikely to be achieved within a foreseeable time frame. The raising of the dams, although technically feasible, was likely to encounter severe obstacles, including environmental concerns and funding shortfall.

It became apparent that difficulty in acquiring the Kentucky River dams from the US Army Corps of Engineers as well as challenges in funding were going to eliminate the implementation of the recommended enhancements to the Kentucky River in a timely manner. So in 1993 KAW announced that it would pursue the purchase of treated water from LWC . The project was called the Bluegrass Water Project ("BWP").

12. Q. WERE THERE QUESTIONS ABOUT THE EXTENT OF THE PROBLEM?

A. Yes. Following that 1993 announcement, questions arose among certain stakeholders regarding the magnitude of the supply deficit and KAW's planned solution. On November 19, 1993 the Kentucky Public Service Commission (PSC) established Case Number 93-434. The purpose of this case was "an investigation into the sources of supply and future demand, including demand side management, of Kentucky-American Water Company"[2] At the time the investigation began, KAW committed that no work would be done on KAW's proposed Ohio River solution until the conclusion of the case.

[1] Kentucky-American Water Company Least Cost/Comprehensive Planning Study – 1992; pp. 3-25 and pp. 3-26.

[2] PSC Order, Case No. 93-434, November 19, 1993, p. 1.

The case was eventually divided into two phases. The case provided a thorough review of the source of supply and production capabilities and deficits, as well as a review of the planning methodology and demand projections for KAW. The PSC issued an Order on March 14, 1995, that confirmed the reasonableness of KAW's demand projections, stating: "Kentucky-American has used reputable sources for data and nationally accepted methodologies in developing its demand projections. Over the years, Kentucky-American has made numerous revisions to its methodology for projecting water demand resulting in a state of the art, dynamic process... [F]urther analysis of demand projections would be little more than an academic exercise."[3] This conclusion was significant in that it firmly established the supply and production capacity needed by KAW through 2020.

With regard to the source of supply, "the Commission notes that, for approximately the past eight years, Kentucky-American has not had sufficient capacity to meet its customers' unrestricted demand during a drought of record."[4] During the course of the proceeding, the Kentucky River Authority ("KRA") indicated that it had contracted with the Kentucky Water Resources Research Institute (KWRRI) to complete a new safe yield analysis of the Kentucky River. The PSC ordered that "Kentucky-American and the KRA should continue their cooperative efforts to obtain a reliable safe yield analysis of the Kentucky River for use in determining whether Kentucky-American needs an alternative source of supply."[5] In a subsequent Order dated April 24, 1995, the PSC granted KAW's petition that the investigation remain open to await a new safe yield analysis of the Kentucky River.[6]

In late 1996, the KWRRI completed its analysis of the Kentucky River, which showed an even larger source of supply deficit for KAW than had been presented

[3] PSC Order, Case No. 93-434, March 14, 1995, pp. 4-5.

[4] Ibid., p. 6.

[5] Ibid., p. 7.

[6] PSC Order, Case No. 93-434, April 24, 1995, p. 4.

earlier in Case No. 93-434. The study determined that there was a basin wide deficit of 9.727 billion gallons over the duration of a drought of record. Of this 6.579 billion gallons was in Pool 9, the pool from which KAW withdraws its water supply.

The KWRRI indicated that the basin deficit could be reduced from 9.727 billion gallons to 5.467 billion gallons with the installation of six valves in upstream dams that would allow the transfer of water to downstream pools. With the valve installation and the proposed valve operating plan, KAW's deficit could be reduced from 6.579 billion gallons to 3.308 billion gallons over the duration of the drought.[7]

13. Q. HOW DID THE PSC RESPOND?

A. Following the completion of that report, the PSC reopened Case No. 93-434. After extensive additional interrogatories and testimony, the PSC held a hearing on May 21, 1997. Prior to hearing any evidence, the PSC defined the issues: "The only issues before us now are the adequacy of Kentucky-American's sources of supply and the magnitude of any deficit."[8]

In an Order dated August 21, 1997, the PSC determined that "additional steps must be taken and financial resources will have to be committed to develop an adequate and reliable source of supply, not only for the customers of Kentucky-American but for all of the citizens served by the Kentucky River. The evidence further indicates that the net effect of the KRA's proposed activities, if implemented, will be insufficient."[9] The Order went on to state that "the responsibility to develop an adequate source of water supply for Kentucky-American's customer is the direct obligation of Kentucky-American itself."[10] The PSC ordered that "Kentucky-American shall take the necessary and appropriate measures to obtain sources of supply so that the quantity and quality of water delivered to its distribution system shall be sufficient to

[7] Task V Report – Development and Evaluation of Water Supply Alternatives, Kentucky Water Resources Research Institute, December 1996; Table B-13.

[8] May 21, 1997 Hearing at PCS Transcript, pp. 7-8.

[9] PSC Order, Case No. 93-434, August 21, 1997, p. 5.

[10] Ibid., p. 6.

adequately, dependably and safely supply the total reasonable requirements of its customers under maximum consumption through the year 2020."[11]

The Orders in that case established that KAW was expected to address the water supply needs of its customers. The investigation had clearly defined the magnitude of the problem by confirming the production capacity deficit and the source of supply deficit. KAW took its obligation very seriously and undertook the task of resolving the problem. As a first order of business upon receipt of the Commission's Order in Case No. 93-434 dated August 21, 1997, KAW re-assessed whether significant progress had been made in implementing a Kentucky River supply augmentation during the four years of the ongoing investigation. Unfortunately, significant progress had not been made. The KRA had been able to install valves in four (Dams 11 through 14) of the six dams recommended by the KWRRI study with the ability to transfer water through a fifth (Dam 10). However, no other physical work or engineering investigations to enhance the Kentucky River supply had been undertaken.

14. Q. WHAT IS THE KRA?

A. The KRA was established in 1986 to take over the operation of the Kentucky River Locks and Dams 5 through 14 from the United States Army Corps of Engineers. The KRA's mission was expanded in 1990' however, it was not until 1994 that the KRA was provided a means for funding and was able to hire a small staff. Prior to the conclusion of Case No. 93-434, the KRA was able to transfer the ownership of Dam 10 from the Corps to the Commonwealth of Kentucky. However, all other dams were then still owned by the Corps. In 1997, the KRA did not have a strategic plan for ownership or stabilization of the dams, nor enhancements to increase water supply. The condition of the foundations and cores of the 100+ -year old dams was unknown, with no accurate data to confirm the condition of their interior. The KRA had no funding in place to determine the condition of the dams, the extent of deterioration, the environmental impact of any potential enhancement; nor did it have

[11] Ibid., p. 7.

funding for the construction of enhancements. KAW came to the conclusion that, while the KRA had moved forward since 1993, there appeared to be no way that a solution utilizing only the Kentucky River could be completed within 20 years. Because of that conclusion, KAW reinitiated work on the Ohio River supply project.

15. Q. WAS THERE ANY OPPOSITION TO THIS PLAN?

A. By June 1998, the first objections to the project from some property owners became apparent. KAW representatives made presentations of the proposed project in Woodford County. Several Woodford County property owners were extremely vocal in their protests. The primary concerns were destruction of property due to construction and the project's potential impact on local growth. KAW attempted to pacify these concerns by responding publicly that these issues would be mitigated through appropriate construction techniques, local planning control, a prohibition on individual taps on the transmission line and the use of conservation easements. KAW looked for a pipeline route that might be less objectionable to property owners in Woodford County and a revised route was selected which paralleled and was largely adjacent to Interstate 64.

KAW twice pursued utilizing interstate right-of-way, but was informed by the Kentucky Transportation Cabinet that it was not possible. This route change caused rework in surveying and route layout, as well as additional costs.

In October 1998 KAW completed negotiations with LWC for the purchase of finished water. KAW asked LWC to begin design of its portion of the project to the metering point in Shelby County.

Design and surveying work on the project continued into early 1999. KAW initiated discussions with the Corps, the Division of Water (DOW), Fish and Wildlife officials at both state and federal levels, and the Kentucky Historic Preservation Office about various permits for the pipeline project.

By the spring of 1999 the opposition to the proposed pipeline intensified, despite the changed route. A citizens' group was formed to organize opposition to the project, focusing on a number of issues including preference for a Kentucky River solution, concerns about Ohio River water quality, and the impact on the region's growth. While discussions regarding the project escalated in 1999, the Kentucky River watershed was struck with a severe drought. The drought conditions that occurred in the summer of 1999 heightened public awareness of the source of supply deficit. During the 1999 drought, the LFUCG, in cooperation with KAW, imposed various levels of water use restrictions on KAW's Fayette County customers for four months.

The KRA had drafted a plan for operating the valves during a drought. When the drought occurred, the DOW had not agreed upon the final plan. Nevertheless, the KRA opened two valves upstream of KAW's intake to transfer water with the consensus of the DOW. This reduced the flow in Pool 11 until no water was going over the dam which caused some concern for residents in the vicinity of that dam.

The LFUCG established a series of informational meetings to review the issues and to state its recommended solution to the water supply problem. Because the LFUCG Council represented 95% of KAW's customers at the time and the public discussion was becoming extremely contentious, KAW announced that it would stop all work on the Ohio River supply project to cooperate with the LFUCG Council in its analysis. As a backdrop to the LFUCG process, the 1999 drought was one of the worst of the twentieth century, surpassing the 1953 drought in severity. Over 1000 citations were written for violations of water restrictions, and numerous businesses and residences were adversely impacted. Industrial customers demonstrated that they had already reduced water usage to a minimum. Discussions were also held to determine how to further reduce water usage should the drought continue.

The drought in 1999 also exposed the deterioration of Dam 9 as more extensive than previously thought. This dam is critical because it backs up the pool that provides KAW water. KAW was able to confirm the results of the 1991 Aquatic Study by

monitoring water quality in the Kentucky River during the low flows. The Aquatic Study had provided technical documentation that some downstream flow requirements could be relaxed during drought conditions with only minimal impact on raw water quality or aquatic habitat.

16. Q. HOW DID THE COUNCIL RESPOND?

A. The LFUCG Council began its efforts in September 1999 by initiating a Technical Advisory Group. The purpose of the group was to establish consensus on the technical aspects of the issue. This group included representatives from the DOW, the Kentucky Geological Survey, the Attorney General's Office, the Fayette County Water Supply Planning Council, the KRA, Neighbors Opposed to Pipeline Extravagance (a citizens group against the Bluegrass Water Project), the US Army Corps, the Department of Local Governments, the Water Resources Development Commission, the Bluegrass Area Development District, the Chamber of Commerce, LFUCG officials, and KAW. The meetings were facilitated by the KWRRI and were attended by other interested parties and the Sierra Club. The group quickly reached consensus on demand projections similar to projections from Case No. 93-434, and reached consensus on the magnitude of the deficit. A number of different combinations for Kentucky River enhancements were considered but no single one was considered as the best by the group. A representative of the Sierra Club indicated that the group would likely be opposed to permanently raising any of the Kentucky River dams, but that moveable crest gates on top of the dams might be more acceptable to them. The group began discussing costs of various alternatives, but cost information was less definite for projects other than the Ohio River supply project.

On October 11, 1999 the LFUCG Council met to hear the report from the technical advisory group. On October 26 the Council met to review project costs, including treatment plant costs. The Council continued in its fact-finding efforts by taking a tour of Kentucky River Dam 10 and of KAW's treatment facilities. On November 8 KAW made its presentation to the council on the Ohio River supply project. On

November 22 Steve Reeder, Executive Director of the KRA, made a presentation about then-current plans and status of potential projects on the Kentucky River. Mr. Reeder made it clear that regardless of whether or not the Kentucky River supply was enhanced, the dams would have to be stabilized to simply maintain the current supply. The KRA had recently initiated a geotechnical study to determine the condition of Dam 10, funded from contributions from KAW, the LFUCG and East Kentucky Power Company. This dam was selected for the first work because it has the largest pool behind it, it is the only dam that the KRA owned at the time, and was considered to be in the best condition.

On November 29 the Council held its last meeting and heard public comments, as well as a proposal from regional utilities for a shared treatment capacity solution. A proposed schedule for water supply enhancements was presented by the KWRRI to the LFUCG in 1999 to supply an additional 3.0 billion gallons of additional water supply to KAW. This included raising Dams 10, 9, 12, and 13. The KWRRI proposed several plans, including raising Dams 9 and 11 while further mining Pools 12 and 13. None of these specific plans have been adopted by the KRA, nor do any of them resolve the total basin deficit.

On December 9, 1999 the LFUCG Council passed a resolution that made a series of findings and recommendation in the public interest. The findings included a confirmation of the magnitude of the source of supply and production capacity deficit. A copy of the resolution is attached in Exhibit A of my testimony. The recommendations included:

1) Future water supply for Lexington-Fayette County should come from the Kentucky River because this solution would be cost effective, would support a regional supply effort, and would ensure the maintenance of the existing water infrastructure.

2) In the 2000-2002 time period, the KRA should complete acquisition of Dams 6, 7, 8, 9 and 11, complete the geotechnical study for Dam 10, and complete design for work on Dam 10. The KRA should also complete the environmental assessment of Dam 10, complete a general assessment of all dams to determine the next one for work, and study modifications of East Kentucky Power's intake in Pool 10. KAW should begin design plans for water treatment plant capacity upgrades to be completed with Dam 10 construction, investigate a regional solution to water supply through a joint effort with the LFUCG and surrounding communities, and develop a conservation and demand management plan. (KAW has a conservation and demand management plan that has been approved by the PSC and DOW, and was utilized in 1999 prior to the adoption of this resolution).

3) In the 2002-2004 time period, the KRA should complete construction work on Dam 10, complete the geotechnical study on Dam 9, complete the design for Dam 9, and complete the environmental assessment on Dam 9. KAW should implement conservation practices and consider demand management options, if necessary.

4) KAW should begin to design an increase production capacity of 15 mgd when the KRA could document existing or imminent increased water supply as a result of Kentucky River improvements and/or management. An additional 5 mgd of production capacity should be available by 2012 if needed.

The resolution also stated that the Council would make a reassessment in 2003 of all alternatives, including an Ohio River pipeline if sufficient progress on the Kentucky River improvements had not been made. To KAW's knowledge, this reassessment has never occurred. The Council was also to receive a progress report in June 2000, and in each November annually thereafter. The resolution also reaffirmed support of the KRA.

17. Q. WHAT WAS KAW'S REATION TO THE RESOLUTION?

A. KAW did not agree entirely with the course of action. Nor did KAW feel that the schedule was achievable based on problems on other dam projects and the fact that no funding was in place for the Kentucky River enhancement. However, KAW felt it was prudent to acquiesce to the resolution of the LFUCG because the publicity attendant to the government's process could accelerate the implementation of a solution to the serious water supply problem.

18. Q. HOW DID THE BLUEGRASS WATER SUPPLY CONSORTIUM BEGIN?

A. As mentioned previously, on November 29, 1999, the LFUCG Council also heard a new proposal from regional utilities for a shared treatment capacity solution. Following the Resolution of the LFUCG, KAW began meeting with other regional water utilities to discuss the potential for regional solutions to both raw water supply and treatment capacity deficits. This group was coordinated by the Bluegrass Area Development District ("BGADD") and used a KRA Board member as a facilitator. The group became known as the Bluegrass Water Supply Consortium (Consortium) and began working to find common ground on water issues.

The group initially included Winchester Municipal Utilities, Georgetown Municipal Water and Sewer Service, the City of Nicholasville, the Frankfort Electric and Water Plant Board, the City of Versailles, the LFUCG, and KAW. The group determined quickly that Frankfort was the only utility with any significant current excess treatment capacity. Reaching consensus was difficult at times, with a number of different priorities and concerns. The BGADD made a presentation to the LFUCG on June 27, 2000 on the progress of the Consortium.

The Consortium members quickly found common ground on the withdrawal permit restrictions issued by the DOW. All of the members except Nicholasville had withdrawal restrictions. The restrictions did not appear to be consistent among utilities or other withdrawers. On February 13, 2001, the members met with the

DOW and a subsequent meeting was held on March 8. These meetings were extremely productive, achieving short term water withdrawal permit restriction relief.

On June 21, 2000, the LFUCG heard an update from the KRA that it would take at least six years to complete construction on Dam 10 to enhance water supply. The cost for Dam 10 alone was estimated between $12 million and $24 million depending on how the lock structure was addressed.

On July 27-28, 2000, the KRA held its fourth strategic planning session. Included in this session was an update from its consultant, Fuller, Mossbarger, Scott and May ("FMSM") and the presentation of the geotechnical study on Dam 10. At that time the KRA voted to design stabilization of Dam 10 to permanently increase the height of the dam rather than use crest gates, and to rehabilitate the lock structure. An alternative design would also be undertaken that would remove the lock structure. The KRA also voted to select Dam 9 as the next dam for a geotechnical study and stabilization work, followed by Dam 8. A representative of the Corps indicated at the meeting that they were in a position to turn over the ownership of all dams, with conditions to continue ongoing work on Dams 13 and 14, by the end of 2000. The transfer had not been completed as of March 2001 and was not completed until 2006. The KRA decided not to select a dam for work beyond Dam 8, but developed criteria for selecting the next dam to be worked on based on data to be collected.

In October 2000 Congress authorized $2 million dollars for the design of rehabilitation of Dam 10. Another $22 million was authorized over the next five years for the rehabilitation of Dam 10 under the jurisdiction of the Corps. The KRA began negotiating a contract for design with FMSM; however, the KRA announced at its February 16, 2001 meeting that the Corps required a longer schedule for design than the KRA had originally projected to meet National Environmental Policy Act compliance. The Corps indicated that it would take 2.5 to 3.5 years before construction could be initiated. Further, the project cost estimate by the Corps, including their administrative costs, had grown to $37.5 million.

The KRA also initiated an effort to update the river flow computer model, because the Kentucky River did not behave in 1999 as the model predicted. Pool 8 dropped more than anticipated, while downstream pools appeared to have more water than anticipated. The updated model would have provided data on the safe yield of the river and the volume of the supply deficit. The designer of the model has indicated that there is now a new computer platform that will allow for easier future adjustments of the model. The KRA considered the conversion of the model along with the update, which would have taken 4-6 months. The new model was expected to be completed in late summer 2001, but has not been delivered.

On March 21, 2001, KAW filed a report in response to a request from the Public Service Commission. The request, dated February 19, 2001, asked for a detailed report on KAW's efforts to ensure adequate sources of supply to meet customer demand through 2020. The report included past and future projects by the KRA to increase water flows, as well as activities by other stakeholders, and included a timeline for KAW's future efforts.

The March 21, 2001 report recommended 3 short-term actions:

1) Pursue hydraulic improvements to the RRS that would enhance the operational capacity, if not the reliable capacity of the plant.

2) Pursue a purchase water contract with the Frankfort Electric and Water Plant Board for a supplemental supply.

3) Pursue modifications of KAW's withdrawal permit to relax the passing flow conditions.

The report also identified a series of long-term decisions that would build on each other and would change depending on the decision at each step.

19. Q. HOW DID THE PSC RESPOND?

A. Following the submittal of that report on May 15, 2001, the PSC established Case No. 2001-117. The purpose of the investigation was "fourfold: first, to identify the measures necessary to enable the Kentucky River to adequately supply the total requirements of Kentucky-American's customers in 2020; second, to ascertain their cost the and the likelihood of their implementation in sufficient time to meet 2020 customer demand; third, to compare the cost-effectiveness and feasibility of these measures with other alternatives; and fourth, to assess Kentucky-American's ability to meet its short-term deficit."[12] That case is still open.

After March 2001, KAW's activities focused on implementing short-term production capacity improvements and a partnership with the Consortium. KAW continued to be an active participant in the Consortium and indicated publicly repeatedly that it believes the best opportunity for implementing a timely solution to the water supply problem is through the regional effort.

The Consortium grew to 17 utilities, although the core group remained the same. The group received a congressional appropriation for $295,000 and received matching funds from the Kentucky Infrastructure Authority to complete a study to determine the best source of additional water supply for the region that could be brought on line within 3 to 5 years. The study was intended to optimize regional water supplies by using a grid network of water pipelines among communities, to develop a financial plan that was affordable and fairly apportioned costs, to implement a management approach that was fair and flexible, and to utilize a comprehensive public participation and outreach effort. Member utilities contributed equally $60,000 to the study efforts as well. The Consortium retained O'Brien and Gere Engineers to perform the study, with BGADD administering the funding. The study was developed with six public workshops. Each workshop was held in a different county, and each time the group went through decision-making in a public meeting. Over forty

[12] PSC Order, Case No. 2001-117, May 15, 2001, pp. 2-3.

alternatives were presented, and then the alternatives were divided considering short-term feasibility. The group agreed on criteria for evaluating the top alternatives, and then publicly ranked them. The group also held two public meetings in Fayette County over the course of the study to discuss progress. The group and O'Brien and Gere met repeatedly with DOW officials and the KRA to solicit input and update progress. The study concluded that through the year 2020 there is a 67 million gallon per day deficit of water. Nearly two-thirds of that exists today. KAW represents more than 50% of the deficit.

The study was finalized in February 2004. The list was separated for near-term and long-term results. The recommended solution was the construction of a 45 mgd treatment plant on the Kentucky River at pool 3 downstream of all current withdrawers. Only a 45 mgd treatment plant was recommended, as it was anticipated that 10 mgd additional raw water supply would be available long term from the KRA enhancements of Dam 10, and an additional 12 mgd would be available from the use of "water credits" from the DOW. The concept of "water credits" would allow the Kentucky River withdrawers in the BWSC to get credit for discharges from their own sewer plants that returned water to the Kentucky River, thus allowing more water available for withdrawal. A back-up raw water supply would be available from the Ohio River for periods when the DOW would not allow all of the necessary withdrawals from the Kentucky River. A grid pipeline was recommended to connect the 17 member utilities. The proposed regional solution would provide immediate and long-term benefits. These include:

1) Existing water treatment system maximization and attenuation
2) Optimization of existing raw water sources
3) Reliability through multiple sources
4) Phasing construction
5) Individual utility autonomy

The project was estimated to cost $265 million dollars. This was not the least cost solution, which was a pipeline to LWC. That project, including a purchase of treated water from LWC, was approximately $30 million less in total cost. However, the negative public perception about the BWP caused its overall weighted score to be less than the recommended solution. The detailed information about the cost estimates is contained in the full study, which was filed as a part of Case No. 2001-117 with the PSC.

The legal counsel for the Consortium looked at a number of different organizations for the regional group. Unfortunately, under current Kentucky statutes there is not a public agency that can be formed to receive the benefits of a public agency while allowing a private company to be a member. Although the group considered proposing a legislative change before trying to initiate a project, it recognized that this could delay efforts, thus prolonging an ultimate solution. It was agreed a Water Commission should be formed with all parties as members except KAW, which would be a **partner** with the Commission. All members of a Water Commission have one vote on the Board. Because KAW cannot currently be a legal member, the LFUCG was asked to be a member as a voting representative for Lexington citizens. With this arrangement, work could continue on implementing a solution.

Neither water commissions nor municipal utilities (with minor exceptions not relevant here) are subject to the jurisdiction of the PSC. However, legal counsel indicates that the BWSC's agreement with KAW would be subject to the PSC jurisdiction. It is clear that any contract between the BWSC and KAW would be under the purview of the PSC.

At the conclusion of the study all utilities were asked to make a non-binding commitment for necessary water volumes. Based on the demand projections at that time, KAW indicated a need for 22 mgd through 2020, with a total commitment of 31 mgd from all utilities. The project cost estimates have not been revised to account for the actual commitments being less than the projected deficits in the study.

Most importantly, KAW is located at the hub of the grid network, and the only cost effective way a regional effort will be feasible would be for KAW to be a part of the effort. In contrast to the public opposition during KAW's efforts to build the BWP, the regional effort to date received almost no criticism. Although more expensive, the project was preliminarily approved by the LFUCG, whose Council voted to be a part of the BWSC after the Consortium received its study from O'Brien and Gere. By utilizing the regional efforts KAW is closer to a solution than by continuing the efforts of the BWP with public opposition. O'Brien and Gere addressed the most heavily criticized area of the BWP by recommending to the Consortium a solution that maximizes the use of the Kentucky River yet provides a reliable back-up.

20. Q. HOW DID THE BWSC BEGIN?

A. KAW worked closely with the Consortium group at every step of the way. Each of the member utilities recognized the large role KAW has to play for the group to be successful. On August 24, 2004, the Bluegrass Water Supply Commission was officially created from the Consortium. Nine entities asked to form the BWSC. They are:

Cynthiana
Frankfort
Georgetown
Lancaster
Lexington-Fayette Urban County Government
Mt. Sterling
Nicholasville
Paris
Winchester

The Commissioners were appointed and an organizational meeting was held on October 25, 2004. Officers were elected at that time, a proposed meeting schedule was adopted, and draft by-laws were distributed for future adoption.

The O'Brien and Gere study for the Consortium proposed a grid network between the participating utilities, with a core transmission pipe from the treatment facilities to KAW's system.

With the reduction in participants, the grid network was reduced. The proposed network included:

97,300 feet of 30" pipe from Frankfort to Lexington
101,600 feet of 20" pipe from Frankfort to Lexington
59,100 feet of 24" pipe from Lexington to Winchester
79,700 feet of 10" pipe from Winchester to Mt. Sterling
39,700 feet of 24" pipe from Lexington to Nicholasville
126,800 feet of 12" pipe from Nicholasville to Lancaster
6,415 feet of 12" pipe from Lexington to Paris
76,500 feet of 12" pipe from Georgetown to Cynthiana

This grid network was proposed in concept only, no specific routes were proposed, and the ownership was not been determined. These facilities could be constructed, owned and operated by the BWSC or by the participating utilities.

In November 2004, KAW was asked to make a status report to the PSC. KAW stated clearly that the course of action that would most likely produce a solution to the water supply problem would be through regional activities. However, KAW expressed concern about the schedule of project implementation.

Over the course of 2005, the BWSC adopted By-laws, determined that a Phase I project to connect Frankfort and Lexington was the first priority and began to look for funding opportunities. It undertook a routing study for the Phase I project and obtained two loans, one for $150,000 from the Kentucky League of Cities, and one for $150,000 from the Kentucky Association of County Judge-Executives. In

September 2005, however, the Frankfort Electric and Water Plant Board told the BWSC that it had experienced a peak day of 15.8 mgd with a maximum plant capacity of 18 mgd, and was not able to provide the 5 mgd for the Phase I project as previously thought.

In November 2005, KAW received a draft agreement for the purchase of water from the BWSC, although a funding plan still had not been developed. KAW had repeatedly indicated that it objected to a rate structure that included a proportionate share of all fixed costs, including grid network costs to all communities, based on a proportionate share of the treatment capacity. However, that was the rate structure that was proposed in the draft agreement. KAW began reviewing that agreement in early 2006 in anticipation of preparing a response.

21. Q. HAVE ANY RECENT EVENTS AFFECTED THE PROBLEM?

A. Yes.

In December 2005, the World Equestrian Games announced that they would be held in Lexington at the Kentucky Horse Park in 2010. With potentially hundreds of thousands of visitors scheduled to descend on central Kentucky, KAW felt that the criticality that a project be put in place prior to the summer of 2010 was heightened.

In March 2006 at an informal conference at the PSC, regulatory and customer concerns were emphasized to KAW. KAW President Nick Rowe committed at that conference that it would bring a plan back to the PSC by the Spring 2007, while continuing to work with the BWSC to forge a regional partnership.

KAW had commissioned Gannett-Fleming Engineers ("GF") to prepare an independent review of the previous studies and recommended solutions. That report also updated previous cost estimates and reviewed the feasibility of the new water treatment plant.

Following the commitment to the PSC, KAW began work immediately on plans for new facilities. GF had been tasked with first identifying potential raw water and treatment plant sites as part of an effort to compare the reasonableness of the project, and potential transmission line routes. GF was then asked to provide a proposal for the treatment plant design. KAW began contacting property owners and negotiating the purchase of property. Once property was secured through options for purchase, GF was authorized to begin design of the intake and treatment facilities. In May 2006, KAW sent a letter to the BWSC proposing the wholesale water delivery from the new plant to the BWSC. In June, the BWSC indicated it was only interested in joint ownership of the facilities. Over the course of the summer, KAW discussed all aspects of joint ownership and the impact upon our customers. In September 2006, KAW made a presentation to the BWSC that proposed, along with other alternatives, joint ownership of all facilities. The presentation also provided a status update, and an estimated cost of construction. Also in 2006, the KRA received funding for work on the dams, and received ownership of all dams 5-14.

22. Q. HOW DID THE BWSC RESPOND?

A. In January 2007, the BWSC voted to share in the cost of the design of the facilities, agreeing to pay the incremental difference between the 20 mgd design KAW had undertaken, and 25 mgd. This agreement did not commit the BWSC to participation in construction of the facilities, but details for the partnership agreement are being discussed.

23. Q. YOU MENTIONED KAW DEMAND PROJECTIONS, WHICH WERE HEAVILY SCRUTINIZED IN CASE NO. 93-434. CAN YOU BRIEFLY DESCRIBE THE DEMAND PROJECTIONS?

A. Yes. KAW developed extremely detailed demand projections based on the population projections by the University of Louisville State Data Center. The projections incorporate ongoing conservation efforts as well as moderate restrictions during severe drought to come up with the drought average day demand, or the water supply that would be required during a drought of record. KAW demand projections

also identify a maximum day demand projection with a 95% confidence interval for any given year that incorporates ongoing conservation efforts. These demand projections show an immediate and significant deficit in both KAW's treatment capacity and raw water source of supply. These deficits will continue to grow with ongoing population growth in the Central Kentucky area. These deficits were confirmed with the restrictions required during the drought of 1999 and with the peak day demand of 2002.

24. Q. HOW HAVE THE PROJECTIONS CHANGED SINCE THE CONCLUSION OF CASE NO. 93-434?

A. The projections in Case No. 93-434 included two sets of projections using the same spreadsheet model which is still used today. New information including the results of the 2000 census, and updated population projections since that time have been included to provide updated projections from what was considered in Case No. 93-434. The methodology is still appropriate and reasonable. The University of Louisville State Data Center moved away from the 1995 dual population projections so the model has only incorporated one set of projections going forward. Additionally, there have been some changes to bulk water sales projections and outside county usage, including the addition of the former Boonesboro Water Association and sales to Harrison County Water Association. North Middletown, Midway, South Elkhorn have increased their purchased water amounts while Georgetown and Versailles have decreased theirs. Actual inflation rates, rate increases, non-revenue usage, and unaccounted-for amounts have been updated in the current projections as well. KAW also began estimating replacement rates for plumbing code fixtures only on customers prior to 1996 plumbing code changes. The demand projections are updated annually and the methodology is periodically reviewed for appropriateness.

25. Q. WHAT ARE THE CURRENT DEMAND PROJECTIONS?

A. The demand projections were updated in 2007 to incorporate 2006 actual use. The maximum day demand projection in 2010 is 75.33 mgd and grows to 81.79 mgd in

2020 and 86.60 mgd by 2030. The drought average day demand projection in 2010 is 55 mgd and grows to 60 mgd in 2020 and 63 mgd by 2030. A summary of the current demand projections are shown in Table 1.

26. Q. HOW DO THESE COMPARE TO THE PREVIOUS PROJECTIONS?

A. In 1986, KAW identified an average day demand of 39.4 mgd by 2000, a drought average day demand of 48 mgd by the year 2000, and a peak day demand of 65 mgd by the year 2000. In my testimony dated March 24, 1997 in Case No. 93-434, the demand projections were identified as 48.10 mgd of drought average day in 1998 and 58.09 mgd by 2020. The peak day demand projections were 69.86 mgd in 1998 and grew to 84.68 mgd by 2020.

27. Q. WHAT IS THE EFFECT OF KENTUCKY AMERICAN WATER'S EFFORTS TO ENCOURAGE CONSERVATION ON EXISTING AND PROJECTED DEMAND?

A. The effect of Kentucky American Water's present efforts to encourage conservation is not easily quantifiable. There was a decrease in per capita usage in general, as reflected in Exhibit B attached to my testimony. However, it is difficult to determine the extent of the trend and how much impact results each year from weather conditions during that given year. This issue is addressed by incorporating the trend automatically as it is picked up in the demand projections through the rolling average per capita usage forecast on residential demand.

28. Q. WHAT ADDITIONAL CONSERVATION MEASURES, IF ANY, CAN BE UNDERTAKEN BY KENTUCKY AMERICAN WATER TO REDUCE EXISTING AND PROJECTED CUSTOMER DEMAND?

A. Kentucky American Water is aware of areas of the country that have implemented other conservation measures. These have usually been much more stringent measures due to the water supply situation. They have ranged from bans on building, to subsidized replacement of plumbing fixtures and appliances. In most of these cases,

there was simply no alternative, or no reasonably cost effective solution. That is not the case for KAW's situation. Conservation measures will not eliminate the problem.

29. Q. WHAT IS THE POTENTIAL EFFECT OF THESE MEASURES ON EXISTING AND PROJECTED CUSTOMER DEMAND?

A. The measures could have an impact, if implemented. Mandatory replacement of toilets to 1.6-gallon flush models can reduce the per capita usage from 4 to 15 gallons depending on the number and type of toilets currently used. However, subsidizing two replacement toilets per customer at $150 would cost $30 million dollars and would reduce average day demands by only 1 million gallons per day at most. Moreover, as California cities learned, successful toilet replacement programs also lead to significant disposal problems, potential sewer problems, and resistance from the public.

A mandatory ban on all new customers would certainly eliminate any increase in projected customer demands over the terms of the ban. However, this measure would likely displace many of the 19,000 residents in Lexington who are employed by the construction industry, and it could not be implemented by KAW alone.

Mandatory odd/even outdoor water may help shave off some of the peak day demands, although Kentucky American Water is unaware of a process to reasonably estimate this amount as recent peak days have occurred on different days of the week and many customers have indicated a displeasure at following this pattern if it is not a period of immediate crisis. Again, this measure would have to be enacted and enforced by the local governments. KAW has determined that the most effective conservation efforts have come from an emphasis on customer education.

30. Q. HOW DOES KAW UTILIZE THE DEMAND PROJECTIONS IN WATER SUPPLY PLANNING?

A. As discussed, KAW demand projections include a peak day demand in million gallons per day, and drought average day demand in million gallons per day. For

planning purposes, the maximum day demand projection is compared to the rated treatment plant capacity, which is 65 mgd. As demonstrated in Table 2, there is treatment capacity deficit of 10.33 mgd projected in 2010 which grows to 21.6 mgd in 2030. Currently, the DOW has granted KAW a temporary re-rating of KRS-I to 45 mgd during summer months, but it is anticipated that new regulations may eliminate this re-rating by as early as 2010. Also as demonstrated in Table 2, there is a raw water supply deficit projected at 20 mgd in 2010, which grows to 28 mgd in 2030. This is based on the projected safe yield of 35 mgd, although KAW's withdrawals at Pool 9 could be reduced under its permit to 30 mgd, making the potential deficit even greater.

31. Q. WHY IS KAW ONLY PROPOSING A 20 MGD TREATMENT PLANT IF THE RAW WATER SUPPLY DEFICIT IS PROJECTED AS HIGH AS 28 MGD?

A. KAW believes that is not unreasonable to ask for moderate, voluntary restrictions on outdoor water usage during a drought of record, which generally reduces KAW customer demands by as much as 10% or more. Further, the proposed rehabilitation of Dam 10 on the Kentucky River still includes installation of crest gates to raise the pool by as much as six feet. This could enhance the water supply available to KAW at Pool 9 during severe drought conditions. Because of the significant expense of the Ohio River back-up, KAW is proposing to defer that construction until the final construction of efforts on the Kentucky River are known, as we expect some moderate demand management during a drought of record.

32. Q. SO YOU BELIEVE THAT THE PROPOSED FACILITIES ARE NECESSARY?

A. Absolutely. In 1999 KAW had to ask for demand restrictions from its customers for four months based on inadequate raw water supply. Many of our industrial customers indicated at that time that they could not reduce water consumption any further without shutting down production. Many of our business and residential customers

were adversely affected. Since that time we have added over 15,500 customers to the Central Division network system.

Further, in 2002 KAW recorded its all-time maximum day demand from its two water treatment plants of 71.82 mgd. This was achieved while still meeting EPA Partnership Water Quality Standards only through a tremendous effort by our production and maintenance personnel. Since 2002, KAW has added over 8,400 customers to the Central Division network system. This problem is no longer one for the future that we need to work towards, but an immediate problem that is dependent on the weather every single year.

KAW needs to make every effort to implement a long-term solution in the most deliberate, cost-effective manner possible. Mr. Nick Rowe, KAW President, committed to delivery of a plan for a solution in Spring 2007 for PSC approval.

33. Q. AFTER THE FACILITIES ARE CONSTRUCTED, WHAT WILL THE FACILITIES COST TO OPERATE?

A. KAW has estimated the annual cost of operations to be $6,024,957 including taxes and depreciation expenses.

34. Q. HOW DID YOU ARRIVE AT THOSE COSTS?

A. KAW first projected the number of employees required to staff the facility. The DOW has indicated very clearly that it strongly prefers a water treatment plant to have constant operations for water quality and reliability purposes and requires a certified operator on the premises at all times. Utilizing current staffing needs from our two existing facilities, as well as current labor rates, KAW developed an estimated annual personnel cost.

KAW then identified the projected production of water. Under most circumstances for the foreseeable future, this plant would be utilized as a supplemental supply and would therefore be producing on average a minimum amount. In comparing

alternatives, KAW used a base number of operation of 20% of maximum plant capacity for water quality purposes (4.4 mgd). However, with plant design complete it is apparent that the most efficient operations of pumps, chemical feed equipment, flocculators and filters will be most likely at a minimum of 6.0 mgd. Therefore, chemical costs and electric pumping costs were estimated based on the production of 6.0 mgd, although individual days may require additional production during any given year. Electric rates were also identified for the base load of administration including lighting and general operations. Residuals processing and reuse were calculated based on the production identified above and assumed that residuals handling would include beneficial reuse on adjacent KAW property as is currently done at both RRS and KRS. A property tax estimate was developed for each of the four counties, utilizing only the initial capital costs. A listing of the estimated annual costs of operations is shown in Table 3.

35. Q. HOW WILL THESE COSTS BE IMPACTED WITH THE PARTICIPATION OF THE BWSC?

A. Obviously, increased water production will have a slight increase in costs for chemicals and electric power. Initial cost comparisons by GF used a 4.4 mgd production rate. However, with design of the facilities complete, it appears that the most efficient minimum production of the plant will be 6.0 mgd based on pumping efficiencies. Because this is more than the estimated 20% minimum required for either the 20 mgd or 25 mgd capacity to maintain water quality, I do it is not anticipate that the minimum plant production will increase with the addition of the BWSC. The reason for this conclusion is due to the fact that this water supply will be a supplemental supply for all of the utilities involved. The result is that the overall annual costs to KAW's customers will be reduced to $4,819,955. A projection is shown in Table 4.

36. Q. MR. SVINDLAND DISCUSSES THE FACILITIES IN HIS TESTIMONY, AS WELL AS THE SITING OF THE TREATMENT PLANT. HOW WAS THE PIPELINE ROUTE SELECTED?

A. KAW identified the optimal point of connection to its system for the BWSC routing study undertaken in 2005. That point of connection did not change and is located at the intersection of Newtown Pike (KY 922) and Ironworks Road (KY 1973).

GF identified three primary pipeline routes connecting treatment plant facilities with the identified connection point, with slight variations on those routes. Once the raw water pump station and water treatment plant sites were identified, three main routes were identified for the pipeline route. Hydraulic grade lines were developed for these routes, along with estimated costs based solely on the distances of each. These routes were called the Southern, Middle and Northern routes as shown on the map in Exhibit C. As early as November 2006, the Southern Route was identified to be the shortest and least fluctuating in elevation. However, KAW recognized that there could be other factors that would determine a preferred route.

An environmental review was undertaken including stream crossings and potential wetland areas on all three routes. The Northern and Middle routes are much more heavily wooded for the first few miles, which could also potentially be habitat for more sensitive vegetation. An assessment of cultural resources potentially impacted along all three routes was made, with an emphasis given to any impact that could not be eliminated through construction methodology. Quest Engineers was retained to design the pipeline, and they initially looked at constructability on all three routes. They provided their recommendation based on construction challenges.

Finally, KAW contacted the property owners along all three routes. They were invited to attend any of four public meeting held in locations along the three routes to learn more about the project and to provide concerns or knowledge about specific environmental, historic, or cultural resources that may be impacted by the proposed construction that KAW may not have been aware of. These meetings were well attended and were extremely helpful. KAW learned that both the Northern and Middle routes also passed next to or through the Keebler Wildlife Management Area in Owen and Franklin Counties. The Northern and Middle routes passed through

Stamping Ground and would require construction through the downtown or a long cross country route around it. The Middle Route paralleled an electric transmission line and would have large stretches that would be cross country with more challenging access for maintenance including routine valve operation or flushing. All three routes had one crossing of the North Elkhorn Creek.

In February 2007, we selected the Southern Route as the preferred route for the water line. The route selected will have the least impact on environmental and cultural resources, will disturb the least amount of sensitive vegetation or wooded areas, is the best route from a hydraulic standpoint, has the least number of construction challenges, is the shortest, and is the estimated least cost. In fact, the only area where the Southern Route did not appear to be the best is in its proximity to the most cultural resources adjacent to the route. However, early on we determined that the project would have little or no impact during construction based on construction methodologies, and no impact during operation on those resources. We announced the route publicly and began to finalize the design.

37. Q. YOU MENTIONED THE PUBLIC MEETING IN DECEMBER. WHAT OTHER EFFORTS HAVE BEEN MADE TO COMMUNICATE WITH THE PROPERTY OWNERS OR LOCAL OFFICIALS?

A. KAW sent a letter to the property owners on all three potential routes in early December regarding four open houses to be held December 12 and 14. The property owners and addresses were identified from PVA information in the four counties. These open houses were held at the Monterey Fire House in Owen County, the old Peaks Mill Elementary in Franklin County, the White Sulphur Baptist Church in Scott county, and Stamping Ground Elementary in Scott County. The open houses lasted 2 hours each, and KAW had large maps of the proposed routes on display for discussion with numerous representatives to talk to people. KAW collected general surveys for the meetings and provided contact information for follow-up questions and concerns. KAW documented conversations, and began a log of all questions and concerns, along with responses. A property owner in Northern Franklin County

called with follow-up questions and asked if we could meet again at the old Peaks Mill Elementary at the end of January. KAW agreed, offering to host the meeting on January 23. This meeting included a short presentation by KAW and then questions from the approximately 40 attendees. KAW asked a facilitator to help manage the meeting and videotaped the meeting for recording purposes.

Once the route was selected, KAW sent letters to all property owners on all three routes identifying the route selected and indicating communications with individual property owners would begins shortly to discuss alignment. KAW has provided a toll free number for contacts, and is maintaining a log of all contact and KAW's response. KAW has also initiated a website specifically for this project at www.bluegrasswater.com.

On February 15, 2007 KAW gave a brief presentation to the Franklin Fiscal Court regarding the project. KAW is now trying to work out detailed alignment and plans to begin having conversations with individual property owners beginning in April.

38. Q. WHAT PERMITS ARE NEEDED FOR THIS PROJECT?

A. There are at least ten permits required for this project. First, KAW filed the Basis of Design and preliminary plans with the DOW on 12/21/06. On 1/19/07, KAW met with representatives of the DOW to discuss the preliminary plans. KAW received approval of the preliminary engineering report on 1/24/07.

Also, KAW received a Water Withdrawal Permit from the DOW at the point of intake. The application for the permit was submitted on 5/18/06 and approved on 1/10/07.

KAW will need approval of the plans for all facilities from the DOW. The plans technical plans for the transmission main, subject to alignment changes, were filed on March 5, 2007. Approval was received for these plans on March 14, 2007.

The plans for the booster station and intermediate storage facilities were filed with the DOW on March 5, 2007 as well. The approvals of those plans are pending. The DOW has 45 days to review the plans. At this time no questions have been raised regarding the plans.

The plans for the raw water intake structure and the treatment plant, without final electric and HVAC details were filed with the DOW on March 9, 2007. KAW is currently answering questions from the DOW reviewer.

The Kentucky Transportation Cabinet ("KTC") requires a permit for an entrance onto any state or federal road. The permit for the proposed booster station and intermediate storage facility was approved. In reviewing KTC documents, it appears that the current entrance for the water treatment plant site is not a permitted entrance and that permit application will be filed in May 2007 but KAW does not expect any problems with this permit.

The KTC also requires a permit for encroachment in their rights of way. These permit applications are filed with each District Office. This normally is filed just prior to construction; however, because of the unusual nature of this project and the potential need to be in the road right-of-way and roadway, KAW filed these encroachment permit applications between 3/14/07 and 3/16/07 with the individual districts.

The US Army Corps of Engineers requires a "404 Permit" for authorizing activities affecting the water of the United States. That permit application was filed March 16, 2007.

KAW is also required to file a 401 permit with the DOW which requires the signature of each county floodplain coordinator. The floodplain coordinators for Franklin, Owen, and Scott Counties have signed; KAW is still waiting on the Fayette County Coordinator to sign. KAW anticipates filing that permit by 4/06/07.

The railroad easements also require an encroachment. The requests for the crossing was filed 3/16/07.

KAW will need a Kentucky Pollution Discharge Elimination System Permit for the discharge of the effluent from the new plant back into the Kentucky River prior to operation of the plant. This permit was filed with the Division of Water on March 26, 2007.

KAW will also need building permits for Owen County and Franklin County for the treatment plant, raw water pump station, and booster station facilities. These are generally filed prior to construction and KAW does not anticipate a problem.

39. Q. DO YOU ANTICIPATE ANY PROBLEMS OBTAINING ANY OF THESE PERMITS?

A. No. Most of these permits are fairly straightforward and the requests have been made in accordance with the regulations and similar to other projects that have been granted permits. KAW will need to receive all of these permits prior to beginning construction, and anticipates doing so.

40. Q. DO YOU BELIEVE THAT THE PSC SHOULD APPROVE THIS PROJECT AS PROPOSED?

A. Yes. This project is critical to the economic vitality and continued economic development of the entire Central Kentucky region. KAW recognizes that adequate water service is a necessity for KAW's residential and business customers, and we have the sole obligation and responsibility to provide it. KAW serves over 115,000 customers including the University of Kentucky with over 20,000 students, Toyota Motor Manufacturing in Georgetown with over 7,000 team members and an estimated 35,000 jobs in part suppliers across Kentucky, and many other employers. KAW serves five hospitals in Lexington who have 64% of their patients from outside Fayette County. We have been ordered by the Public Service Commission to resolve

this issue. We have this project on a firm and deliberate schedule because the entire region cannot afford any more delays.

41. Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

LEX 010311/126698/3496023.3

RESOLUTION NO. 679-99

A RESOLUTION ENDORSING A WATER SUPPLY PLAN FOR LEXINGTON-FAYETTE COUNTY.

WHEREAS, the Urban County Council adopted Resolution 390-99 in July 1999 calling for the Urban County Council to gather information from experts and existing studies about water supply alternatives for Lexington-Fayette County and to endorse a plan for long-term supply; and

WHEREAS, this Council, sitting as a Committee of the Whole, reviewed studies, including the complete report of the Lexington-Fayette Water Supply Planning Council, Harza Report, Kentucky River Basin Water Supply Assessment Study done by the Kentucky Water Resources Research Institute, and others, and heard testimony from experts in the field including the U.S. Army Corps of Engineers, Kentucky Geological Survey, Kentucky Water Resources Research Institute, Kentucky American Water Company, Kentucky River Authority, Office of the Attorney General, interested parties and members of the public; and

WHEREAS, the Urban County Council recognizes the critical importance of an adequate and reliable water supply to guarantee the continued economic growth and health and safety of Fayette County; and

WHEREAS, the drought of 1999 in Lexington-Fayette County and the surrounding region required the imposition of water usage restrictions under a water shortage full alert thereby vividly underscoring the value of water as a precious resource to be protected, conserved and managed and the need to put a plan in place to provide a secure water supply for the future; and

WHEREAS, the Urban County Council recognizes the Kentucky-American Water Company for focusing the attention of the public

EXHIBIT A

on the significance of the water supply deficit and water treatment capacity deficit, and for being an active participant in this extensive fact-finding process; and

WHEREAS, the Urban County Council recognizes that any water supply alternative must ensure the highest water quality and least adverse impact to the Kentucky River basin and land environment; and

WHEREAS, efficient water management and sufficient water supply are vital not only to residents in their daily lives, but also to the industry, agriculture, business, horse and livestock farming, recreation and tourism of Lexington-Fayette County; and

WHEREAS, it has long been recognized that the Kentucky River is the most immediate source of water supply for Lexington-Fayette County; and

WHEREAS, the time has come to move ahead with measures to ensure an adequate and sufficient water supply management system, based upon demand projections and the best available assessment of available alternatives.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT:

Section 1 - That the Lexington-Fayette Urban County Council, based upon its hearings and study, does hereby make the following findings and recommendations in the public interest:

FINDINGS

1. The Council concludes that water supply projections estimate a current water supply deficit under drought of record conditions of approximately one (1) billion gallons in the Lexington-Central Kentucky area growing to potentially approximately three (3) billion gallons by the year 2020.

2. The Council concludes that to maintain unrestricted demand there is a present water treatment capacity deficit of approximately 9.36 million gallons daily (mgd) within the

service area of Kentucky-American Water Company, which is projected to rise to approximately 18-20 million gallons daily by 2020.

3. The Council concludes that a water conservation and demand management plan should be developed to educate the public on water conservation practices to reduce overall water consumption, especially on peak day demands.

4. The Council concludes that any alternative to provide additional water supply and water treatment capacity must be fairly and equitably financed.

RECOMMENDATIONS

1. The Council recommends that future water supply for Lexington-Fayette County should come from the Kentucky River based on its findings that:

a. This solution is cost effective because it can be financed in incremental phases with various funding sources and shared options; and

b. This recommendation supports a regional water supply effort and encourages regional cooperation; and

c. This recommendation supports potential recreation opportunities throughout the region; and

d. This recommendation ensures the maintenance of the existing water infrastructure.

2. The following schedule of improvements as presented by the Kentucky River Authority, Kentucky American Water Company and others should be met within the 2000-2002 time period:

a. Complete acquisition of lock and Dams 6, 7, 8, 9 & 11; and

b. Complete geo-technical study for lock and Dam # 10; and

c. Start and complete engineering design on Dam # 10; and

d. Start and complete environmental assessment of Dam # 10; and

e. Complete a general assessment of locks and dams 5-14 to determine which dam should follow Dam # 10 in rehabilitation effort; and

f. Study modifications to East Kentucky Power intakes; and

g. Begin design plans for water treatment plant capacity upgrades coincident with committed construction funding for Dam # 10; and

h. Investigate a regional solution to long-term water supply through a joint effort between and among the Urban County Government, Kentucky American Water (KAWC), Kentucky River Authority, and our surrounding counties, including information to be provided by June 1, 2000 to the Urban County Council by the regional Bluegrass Water Supply Consortium detailing their concept of a regional plan with a time schedule for implementation, cost implications, intergovernmental agreements among and between counties and water providers; and other pertinent facts; and

i. Develop a mutually agreeable water conservation and demand management plan involving Urban County Government, Kentucky American Water Company, Kentucky River Authority, the University of Kentucky Water Resources Research Institute and the Fayette County Agricultural Extension Office, for educating the public on practices and techniques to reduce water consumption.

3. The following schedule of improvements as presented by the Kentucky River Authority, Kentucky-American Water Company and others should be met within the 2002-2004 time period:

a. Start and complete construction work on Dam # 10; and

b. Start and complete geo-technical study for Dam #9 rehabilitation; and

c. Start and complete engineering design on Dam #9 rehabilitation; and

d. Start and complete environmental assessment on Dam #9 rehabilitation; and

e. Implement conservation practices; and

f. Consider demand management options, if necessary, to meet supply demands.

4. Kentucky American Water should start design to increase water treatment capacity for 15 mgd (million gallons daily) when Kentucky River Authority can document existing or imminent increased water supply as a result of Kentucky River improvements and/or management. An additional 5- mgd treatment capacity should be available by 2012 if needed.

Section 2 - The Urban County Council, in conjunction with the Kentucky River Authority, Kentucky American Water Company and the UK Water Resources Research Institute, will study the success of improving water supply on the Kentucky River, progress on water treatment plant expansion and conservation measures. If sufficient progress on the improvements is not made, a reassessment of all alternatives, including the Ohio River pipeline, and pipelines from regional counties, will be made in 2003. The Council will receive a progress report in June 2000, and in each November annually thereafter.

Section 3 - The Urban County Council recognizes the need for the Kentucky River Authority to act and thereby urges and supports the Authority in its efforts to proceed with all due speed to obtain the monies and/or means to fully undertake the required improvements to existing dams on the Kentucky River.

Section 4 - That the Clerk of the Urban County Council is directed to send a copy of this Resolution, duly adopted, to:

Kentucky Governor Paul Patton; Lexington's delegation to the Kentucky General Assembly; the Kentucky Natural Resources Cabinet - Division of Water; the Kentucky Public Service Commission; the Office of the Attorney General; the Kentucky River Authority; the Lexington-Fayette Water Supply Planning Council; the U.S. Army Corps of Engineers; the Kentucky American Water Company; East Kentucky Power Company; University of Kentucky Water Resources Research Institute; Fayette County Agricultural Extension Office; Winchester Municipal Utilities; Frankfort Plant Board; City of Nicholasville Utilities; City of Paris Utilities; Congressman Hal Rogers, Chair, House of Representatives, Subcommittee on Energy and Water Development, Congressman Ernest Fletcher; and U.S. Senators Mitch McConnell and Jim Bunning.

PASSED URBAN COUNTY COUNCIL: December 9, 1999

/s/ Pam Miller
MAYOR

ATTEST:

/s/ Liz Damrell
CLERK OF URBAN COUNTY COUNCIL

PUBLISHED: December 15, 1999-1t

EWG/res017

KAW Estimated Per Capital Usage

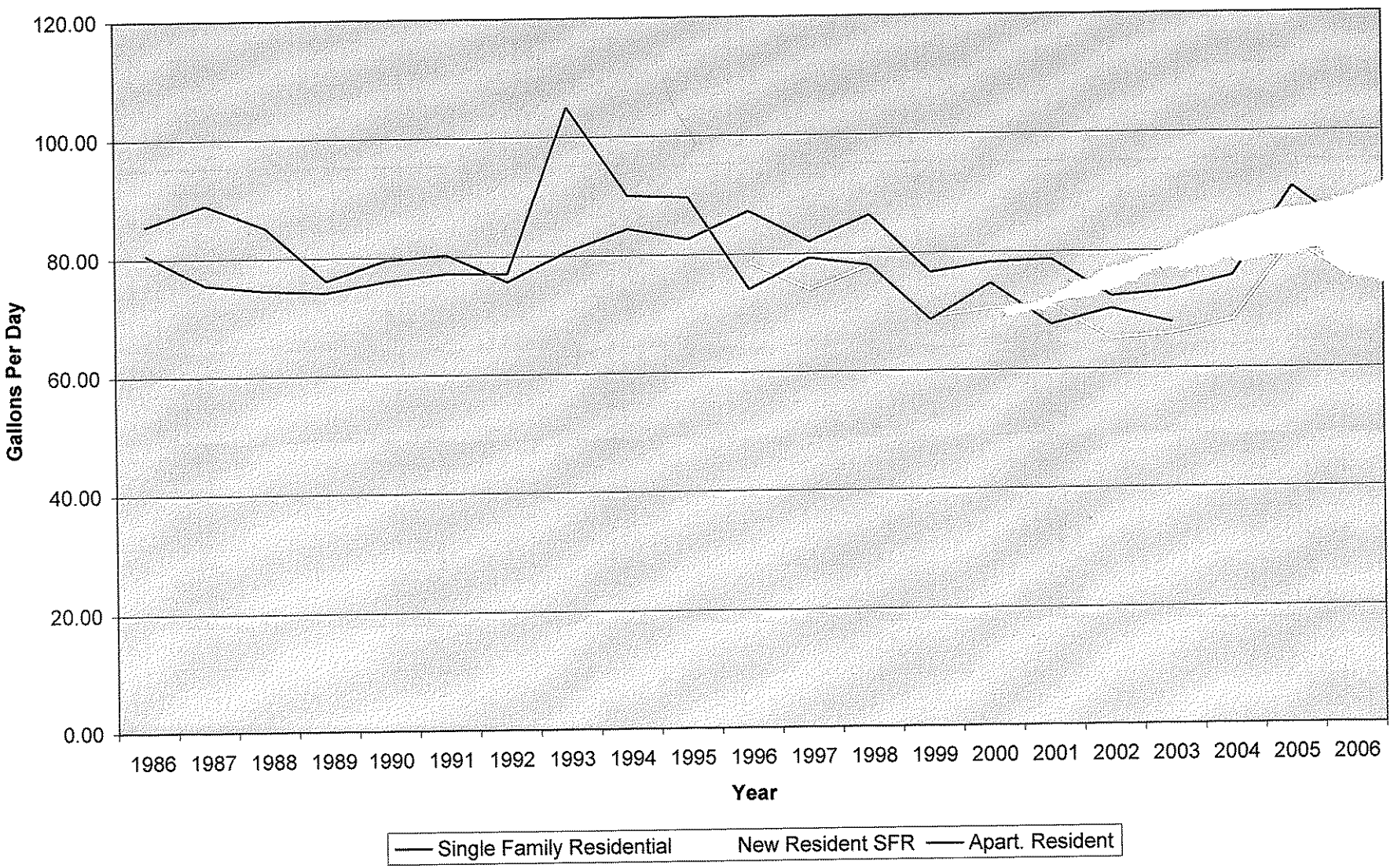

EXHIBIT B

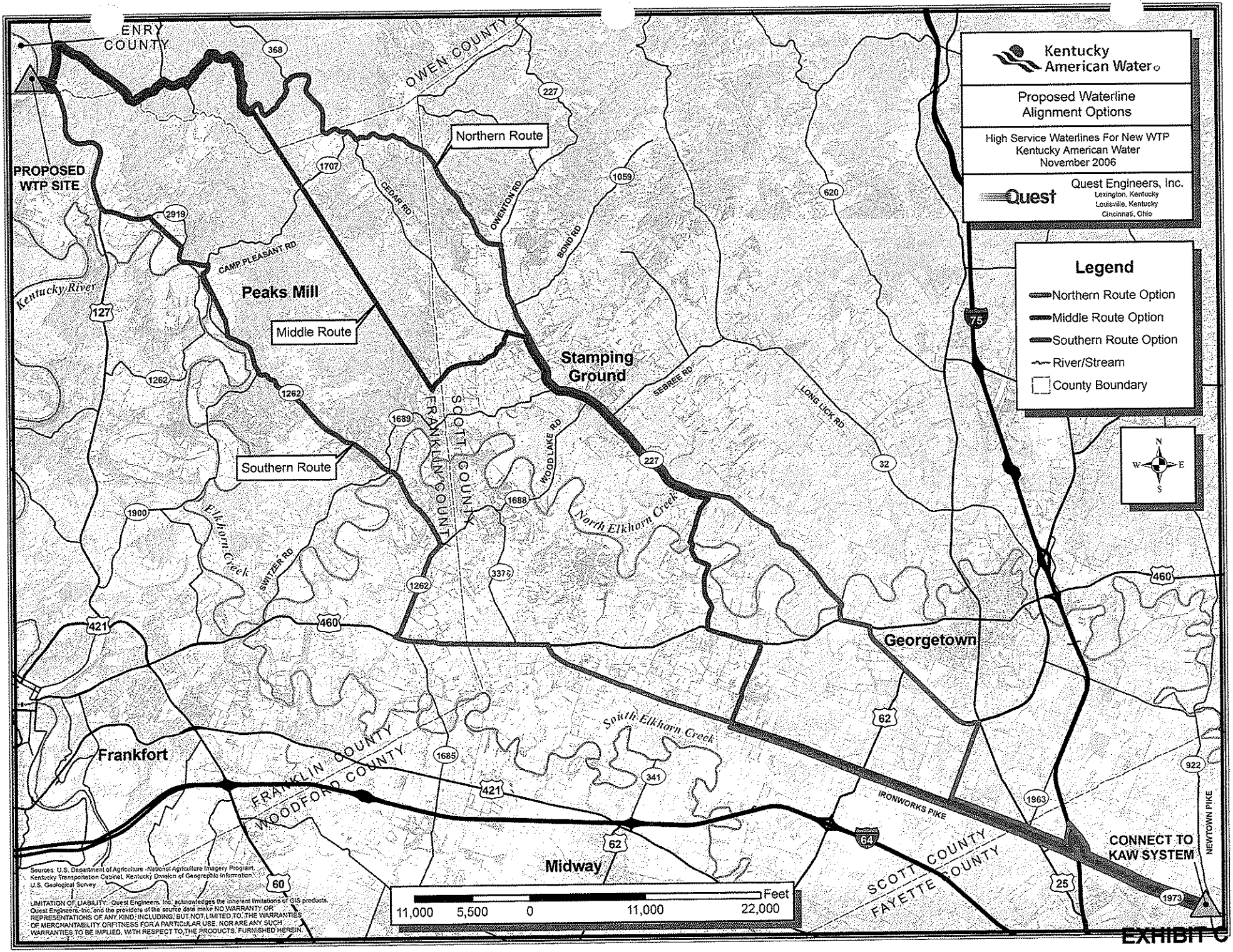
Kentucky American Water
Proposed Waterline Alignment Options
High Service Waterlines For New WTP
Kentucky American Water
November 2006
Quest
Quest Engineers, Inc.
Lexington, Kentucky
Louisville, Kentucky
Cincinnati, Ohio
Legend
Northern Route Option
Middle Route Option
Southern Route Option
River/Stream
County Boundary
PROPOSED WTP SITE
Northern Route
Middle Route
Southern Route
Peaks Mill
Stamping Ground
Georgetown
Frankfort
Midway
CONNECT TO KAW SYSTEM
OWEN COUNTY
FRANKLIN COUNTY
SCOTT COUNTY
WOODFORD COUNTY
FAYETTE COUNTY
Kentucky River
Elkhorn Creek
North Elkhorn Creek
South Elkhorn Creek
CAMP PLEASANT RD
CEDAR RD
OWENTON RD
BOND RD
SEBREE RD
LONG LICK RD
WOOD LAKE RD
SWITZER RD
IRONWORKS PIKE
NEWTOWN PIKE
11,000 5,500 0 11,000 22,000 Feet
Sources: U.S. Department of Agriculture -National Agriculture Imagery Program, Kentucky Transportation Cabinet, Kentucky Division of Geographic Information, U.S. Geological Survey
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EXHIBIT C

Table 1

:entucky American Water Demand Projections

2006 Demand Projections with 2004 Population Projections:

Normal Weather	2000 Actual	2006 Actual	2010	2015	2020	2025	2030
Residential	20.13	20.97	20.72	21.77	22.83	23.61	24.40
Commercial/Industrial	10.70	11.49	11.56	12.08	12.61	12.99	13.38
Public/Unaccounted for	7.20	10.06	7.37	7.66	7.94	8.16	8.37
Other	2.99	2.67	2.87	2.94	3.01	3.06	3.11
Average Day Demand	41.02	45.19	40.59	42.46	44.32	45.71	47.08
Total Maximum Day Demand	66.37	67.22	70.87	73.97	77.06	79.38	81.67
Hot, Dry Scenario							
Average Day Demand			43.15	45.13	47.11	48.59	50.06
Maximum Day Demand			75.33	78.56	81.79	84.21	86.60
Drought Average Day			55	57	60	61	63

Table 2
Kentucky American Water

Year	Scenario	Demand (MGD)	Estimated Safe Yield (MGD)	Supply Deficiency (MGD)	Treatment Capacity (MGD)	Treatment Capacity Deficiency
2010	Average Day Demand	43.15	76		65	
	Maximum Day Demand	75.33	61		65	10.33
	Drought Average Day Demand	55	35	20	65	
2015	Average Day Demand	45.13	76		65	
	Maximum Day Demand	78.56	61		65	13.56
	Drought Average Day Demand	57.22	35	22	65	
2020	Average Day Demand	47.11	76		65	
	Maximum Day Demand	81.79	61		65	16.79
	Drought Average Day Demand	59.57	35	25	65	
2030	Average Day Demand	50.06	76		65	
	Maximum Day Demand	86.60	61		65	21.60
	Drought Average Day Demand	63.07	35	28	65	

Notes:

Demands are from Table 1

Available supply is based on the estimated safe yield from previous studies although KAW's permit from Kentucky River can be reduced to 30 mgd

Treatment capacity assumes base rated capacities of the KRS (40 MGD) and RRS (25 MGD)

Table 3
Annual Operation and Maintenance Costs
New Water Treatment Plant - Pool 3 of Kentucky River
Kentucky American Water
March, 2007

Labor Costs

	Number	Cost/Year	Total
Supervisor - Salary	1	$55,000	$55,000
Benefits/Overhead/Taxes		$35,750	$35,750
Operators	4	$43,680	$174,720
Benefits/Overhead/Taxes		$28,392	$113,568
Maintenance/Relief Operator	2	$43,680	$87,360
Benefits/Overhead/Taxes		$28,392	$56,784
Water Quality Supervision			
Maintenance Supervision			
Administrative support/supervision			
Sub-Total			$523,182

Power Costs	Number	Cost/Month	Total
Treatment Plant/Raw Water Pump Station			
Monthly costs at 6 mgd	12	$39,898	$478,772
Monthly costs at 20 mgd	0	$69,138	$0
Booster Station			
Monthly costs at 6 mgd	12	$9,116	$109,388
Monthly costs at 20 mgd	0	$31,948	$0
Sub-Total			$588,159

General Maintenance			
Transmission Mains			
Valve Operations/Signs & Markers/Transportation			$60,000
Plant/Booster Station			
Repair Parts, Grounds and Maintenance, Sampling			$300,000
Sub-Total			$360,000

Chemical Costs	MGD	Cost/MGD	
	2190	70	$153,300
Sub-Total			$153,300

Security Monitoring	12	$25,000	$300,000

Depreciation	$2,943,666
Taxes	$1,156,649
otal Operations and Maintenance Expense	**$6,024,957**

Note: Residuals Costs are included in plant operations, no costs for disposal have been included as KAW intends to apply for beneficial re-use on adjacent KAW property similar to RRS and KRS operation.
Water Quality, Maintenance and Administrative support would come from current KAW operations and would not represent any increase to KAW's customers

Table 4
Annual Operation and Maintenance Costs
New Water Treatment Plant - Pool 3 of Kentucky River
Kentucky American Water
March, 2007

Labor Costs	Number	Cost/Year	Total	KAW	BWSC
Supervisor - Salary	1	$55,000	$55,000	$44,000	$11,000
Benefits/Overhead/Taxes		$35,750	$35,750	$28,600	$7,150
Operators	4	$43,680	$174,720	$139,776	$34,944
Benefits/Overhead/Taxes		$28,392	$113,568	$90,854	$22,714
Maintenance/Relief Operator	2	$43,680	$87,360	$69,888	$17,472
Benefits/Overhead/Taxes		$28,392	$56,784	$45,427	$11,357
Water Quality Supervision		$24,000	$24,000		$4,800
Maintenance Supervision		$24,000	$24,000		$4,800
Administrative support/supervision		$49,200	$49,200		$9,840
Sub-Total			$620,382	$418,546	$124,076
Power Costs	Number	Cost/Month	Total		
Treatment Plant/Raw Water Pump Station					
Monthly costs at 6 mgd	12	$39,898	$478,772	$383,017	$95,754
Monthly costs at 20 mgd	0	$69,138	$0	$0	$0
Booster Station					
Monthly costs at 6 mgd	12	$9,116	$109,388	$87,510	$21,878
Monthly costs at 20 mgd	0	$31,948	$0	$0	$0
Sub-Total			$588,159	$470,528	$117,632
General Maintenance					
Transmission Mains					
Valve Operations/Signs & Markers/Transportation			$60,000	$48,000	$12,000
Plant/Booster Station					
Repair Parts, Grounds and Maintenance, Sampling			$300,000	$240,000	$60,000
Sub-Total			$360,000	$288,000	$72,000
Chemical Costs	MGD	Cost/MGD			
	2190	70	$153,300	$122,640	$30,660
Sub-Total			$153,300	$122,640	$30,660
Security Monitoring	12	$25,000	$300,000	$240,000	$60,000
Depreciation			$2,943,666	$2,354,933	$588,733
Taxes			$1,156,649	$925,319	$0
otal Operations and Maintenance Expense			**$6,122,157**	**$4,819,965**	**$993,101**

Note: Residuals Costs are included in plant operations, no costs for disposal have been included as KAW intends to apply for beneficial re-use on adjacent KAW property similar to RRS and KRS operation.
Water Quality, Maintenance and Administrative support would come from current KAW operations and would not represent any increase to KAW's customers
Facilities Owned by BWSC would likely not be subject to taxes

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	)	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	)	
WATER COMPANY FOR A CERTIFICATE OF	)	**CASE NO.** 2007-00134
CONVENIENCE AND NECESSITY AUTHORIZING	)	
THE CONSTRUCTION OF KENTUCKY RIVER	)	
STATION II, ASSOCIATED FACILITIES AND	)	
TRANSMISSION MAIN	)	

DIRECT TESTIMONY OF NICK O. ROWE

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

A. My name is Nick O. Rowe, 2300 Richmond Road, Lexington, Kentucky 40502.

2. Q. WHAT IS YOUR POSITION WITH KENTUCKY-AMERICAN WATER COMPANY ("KENTUCKY AMERICAN WATER")?

A. I am President of Kentucky American Water and responsible for its operations in the Commonwealth of Kentucky.

3. Q. WHO ARE THE OFFICERS OF KENTUCKY AMERICAN WATER?

A.

President	Nick O. Rowe
Vice President, Corporate Counsel and Secretary	(vacant)
Treasurer and Comptroller	Michael A. Miller
Assistant Treasurer and Assistant Secretary	Sheila Valentine Miller
Assistant Secretary	Velma A. Redmond
Assistant Comptroller	Thomas R. Bailey
Assistant Comptroller and Assistant Secretary	Rachel S. Cole
Assistant Comptroller	Doneen S. Hobbs
Assistant Comptroller	Rod Nevirauskas
Assistant Comptroller	Robin Quinn
Assistant Comptroller	William J. Schiavi
Assistant Comptroller	Thomas C. Spitz
Assistant Comptroller	David A. Stewart

4. Q. WHAT ARE YOUR RESPONSIBILITIES AS PRESIDENT OF KENTUCKY AMERICAN WATER?

A. I am responsible for the development, management and operations of Kentucky American Water's system in the Commonwealth of Kentucky. I am responsible for establishing and maintaining the standards of service, directing the preparation of the investment, revenue, operations and maintenance budgets, establishing controls to assure the accomplishment of the approved budgets, assuring that necessary funding is available to carry out all plans, insuring the safety and integrity of the systems for the protection of the customers, employees and operations.

5. Q. PLEASE DESCRIBE YOUR PROFESSIONAL EDUCATION AND EXPERIENCE.

A. I joined the American Water system in 1987 as Management Assistant at West Virginia American Water. Subsequently I was promoted into various management positions with responsibility for the day-to-day operations of American Water facilities in several states, giving me experience in numerous fields of the water industry. My wide variety of involvement in several southeastern states, Virginia, West Virginia, Maryland, Pennsylvania, Kentucky, Tennessee, North Carolina, Georgia, and Florida, has created an array of expertise in small and large water systems. From the fall of 2003 until the summer of 2005 I served as Vice President Business Change and a member of American Water's executive management team. This role was designed to coordinate a set of major business initiatives that were implemented throughout American Water to deliver the vision and strategic objectives, re-engineer the business, and bring about cultural change. From July 2005 through July 2006 I served as the vice president of service delivery operations for the Southeast Region of American Water. My responsibilities included oversight of engineering, network, production, maintenance, risk management, customer relations, environmental management, and contract operations that spanned thirteen states. My educational background includes a B.S. Civil Engineering from Western Kentucky University and a Master of Business Administration from Lebanon Valley College. I am also an alumnus of Thames Water's Oxford Leadership Program (April, 2003) and the RWE International Leadership Program, Lausanne, Switzerland (May, 2004). A copy of my resume is attached as Exhibit A.

6. Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE STATE UTILITY REGULATORY BODIES?

A. Yes. I testified before the Kentucky Public Service Commission (Cases No. 2000-120 and 2006-00197) and the Pennsylvania Public Utility Commission.

7. Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. Kentucky American Water is ready, willing and able to solve the raw water source of supply problem that we have and is willing to cooperate with the Bluegrass Water Supply Commission ("BWSC") to solve the region's source of supply problem. The

existence of the source of supply problem has been well documented over time and is explained in the testimony of Linda C. Bridwell. Our solution to Kentucky American Water's source of supply problem, and our treatment capacity problem, is described in the testimony of Richard C. Svindland and is the construction of a water treatment plant on Pool 3 of the Kentucky River. A raw water intake and pumps to move raw water from the pool in the Kentucky River to the water treatment plant are necessary. We believe the least cost, feasible way to transport potable water from the water treatment plant to our distribution system is by the construction of approximately 160,000 feet of 42" diameter main. The length of the main requires a booster pump station and a water storage tank. The water treatment plant is designed to produce 20,000,000 gallons of water a day for Kentucky American Water's customers. As described in the Application, paragraph 13, BWSC has agreed to pay for the design of an additional 5,000,000 gallons of water per day. It is my firm conviction that Kentucky American Water's request contains the least cost, feasible solution to the problem and our obligations to our existing and future customers requires commission approval.

8. Q. IS KENTUCKY AMERICAN WATER FINANCIALLY CAPABLE OF UNDERTAKING THIS PROJECT?

A. Absolutely. Kentucky American Water will ultimately finance the costs of these improvements by an appropriate combination of long-term debt and equity. As described in the testimony of Louis M. Walters, Assistant Treasurer of American Water Works Company, Inc., we have the option of obtaining the necessary debt from American Water Works Capital Corp. Our owner, American Water Works Company, Inc., has committed to the necessary equity to keep our capitalization ratios reasonable.

9. Q. DO YOU ANTICIPATE THE CONTINUED PARTICIPATION OF BLUEGRASS WATER SUPPLY COMMISSION?

A. I certainly do because some of its members have recognized the seriousness of the supply problem and believe that the proposal we have made is the least cost, feasible

and expedient way of addressing the problem. Our Application shows that four members of the BWSC have expressed a desire for treated water, Winchester Municipal Utilities, 2 million gallons per day and 1 million gallons per day each for Frankfort, Georgetown and Nicholasville. Neither the BWSC nor any of these communities have secured capital for the construction of the 5 million gallons per day capacity that has been designed. We understand that raising significant capital for utility infrastructure in the public domain can be difficult and has emotional and political overtones. There will come a time, probably in the early spring of 2008, when we will be unable, during the initial construction phase, to construct capacity in the water treatment plant for the BWSC without a firm commitment from it and its participating members that eliminates any financial risk to Kentucky American Water and its customers. That commitment does not necessarily have to be for the capital required to build the facilities but could be in the form of an irrevocable agreement to purchase specified quantities of potable water at rates that would pay for the fully allocated cost thereto and as would be approved by the Public Service Commission.

10. Q. HAS KENTUCKY AMERICAN WATER ENCOUNTERED SOME OPPOSITION TO ITS PROPOSAL?

A. Yes. I understand that there is a small group of individuals in Franklin County who oppose this project. I fully understand that the construction of a transmission main in a public right-of-way contiguous to an individual's property or even on an individuals' property is disruptive. We will do everything reasonably possible to minimize construction disruption and are committed to restoring disturbed areas to their original condition. We fully intend to compensate private property owners for easements that we may have to acquire.

11. Q. WHAT KIND OF TIME DO YOU THINK WILL BE NECESSARY TO BRING THE FACILITIES INTO SERVICE?

A. We will certainly know more as this case progresses; however, I believe it is of paramount importance that these facilities be capable of producing potable water by late spring, 2010. Our engineers believe that is achievable if construction can begin

no later than early 2008. That would require Commission approval prior to the end of this year in sufficient time for the successful bidders to mobilize their personnel and equipment shortly thereafter.

Beginning in late September and through the middle of October, 2010, Central Kentucky expects 500,000 visitors to attend the Alltech FEI World Equestrian Games at the Kentucky Horse Park. Our goal is to have these facilities operational prior to that event. It is difficult for me to imagine the social and economic cost Central Kentucky that would occur if the equivalent of a drought of record recurs without these facilities being operational. We will be prepared to begin construction as soon as the Commission approves our Application.

12. Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, but I must emphasize the importance of proceeding with this Application on an expedited basis. Kentucky American Water has the legal and moral obligation to solve the supply problem for its customers and that solution needs to be implemented as soon as possible.

LEX 010311/126698/3496531.2

Nick O. Rowe
President, Kentucky American Water

PROFESSIONAL SUMMARY

Profession: Water Utility Management

Position in firm: President, Kentucky American Water

Nick Rowe joined the American Water system in 1987 as Management Assistant at West Virginia American Water. He was subsequently promoted into various management positions with responsibility for the day-to-day operations of American facilities in several states, giving him experience in numerous fields of the water industry. His wide variety of involvement in Virginia, West Virginia, Maryland, Pennsylvania, Kentucky, Tennessee, North Carolina, Georgia and Florida has created an array of expertise in water systems from small to large facilities. Mr. Rowe's involvement with various regulatory agencies, civic organizations and professional associations provide a broad overview of operations and the industry as a whole.

EMPLOYMENT HISTORY

2006- present **Kentucky American Water, Lexington, KY**
President

As president, Nick has direct responsibility for production and distribution operations of the company in addition to indirect oversight of other functional areas, including engineering, water quality, security and human resources. Directs the planning and delivery of the operating, maintenance and capital expenditure budgets for the company, and monitors financial performance to ensure that business plan goals are met. Takes the lead in establishing rapport with civic, political and key stakeholders in the community, interfacing with regulatory entities, and representing company positions at regulatory proceedings and hearings. Supports the business development function in the integration of water and wastewater business opportunities in both the regulated and non-regulated markets. Has oversight of business processes to ensure that American Water policies are followed, best practices are implemented, and internal/external reporting requirements are met.

2005 - 2006 **American Water, Southeast Region,**
Vice President, Service Delivery – Operations

As a member of the regional executive management team, Nick had responsibility of overall operations and growing the business in a region that spans 13 states and Puerto Rico. His responsibility included oversight of engineering and network, production and maintenance, risk management, customer relations, environmental management and compliance, and contract operations. During this time, Nick also served as interim president

of Kentucky American Water from August 2004 until being named president in August 2006.

2003 – 2005 **American Water, Voorhees, NJ**
Vice President Business Change

The Business Change Program played a key role in shaping American Water after its merger with RWE Thames Water in 2003. The Business Change Program designed a coordinated set of major business initiatives to be implemented throughout American Water to deliver the new vision and strategic objectives, re-engineer the business, and bring about cultural change. The Change Program was inclusive of organization redesign, process re-engineering, and initiative tracking while enabling delivery, all with the purpose of creating sustainable value to the business. In this role, Nick served as a member of RWE Thames Water's executive management team for North America.

Nick was named Diversity Officer for American Water in March 2005 and served in that capacity to advise the executive management team on strategies for implementing processes and practices to build a business culture that supports diversity and drives their effective implementation.

1998 – 2003 **Kentucky American Water, Lexington, KY**
Vice President Operations

Management responsibility for all operational functions of the company which served 325,000 people in ten counties. Oversight responsibility included production, distribution, water quality and engineering in addition to providing direction in the areas of finance, accounting and information systems, security and risk management.

1995 – 1997 **Pennsylvania American Water, Hershey, PA**
Manager, Eastern Operations

Managed the water operations of a 16-county area of eastern Pennsylvania. Responsible for providing reliable, safe and environmentally responsible water service for over 500,000 people. This service was provided by managing over 205 employees in 11 division offices, 11 water treatment plants, various well stations and over 1,700 miles of distribution system. Responsible for reporting the financial, accounting, safety, water quality and engineering aspects of the company to the company President and Vice President of Operations in order that we may provide an adequate and fair rate of return for our investors. Involved in managing the areas of labor and employee relations, and customer service areas.

1992 – 1995 **Pennsylvania American Water, Hershey, PA**
Director, Corporate Operations Services

Managed the day-to-day operations of Pennsylvania American Water with direct reporting to the Vice President of Operations. Responsible for managing over 150 million dollars in construction over three years. Oversaw and directed specific technical areas for more than 20 district offices within Pennsylvania. This included planning, budgeting, forecasting and work force management. Personal involvement with the implementation and development of new policies and procedures for human resources, loss control and operations. Also involvement in the financial review of income statements, balance sheets, and cash forecasting to ensure a solid rate of return for a five hundred million dollar private water utility. Oversaw the engineering, water quality, loss control/risk management, fleet and materials, regulatory studies, and the building management departments.

1988 - 1992 **Virginia American Water, Hopewell District, Richmond, VA**
Operations Manager

Upper level management position with responsibilities which included management of maintenance and capital investment budgets ranging from three million to five million dollars annually, respectively. Accountable for bottom line (profit/loss) margin. Oversaw and directed the five year and fifteen year planning forecast for major improvements at Virginia-American Water Company, Hopewell facility. Responsible for maintaining community, employee, Virginia Department of Health and State Corporation Commission relations. Assisted in labor negotiations of union contract. Promoted the development of service territory through acquisition proposals.

1987 – 1988 **West Virginia American Water, Huntington Division, Huntington, WV**
Management Assistant

Assisted in the day-to-day development, management, and operation of the plant and personnel of the company. Responsibilities included: planning, acquisition, or construction of new facilities; planning and preparing the company budget which ranged from five hundred thousand to one million dollars; controlling construction, operations and maintenance within established budget limitations; maintenance of community and customer relations; employee relations, including labor negotiations; assisted management in the attainment of financial and accounting objectives that related to direct business relations with existing and/or new customers.

1981 – 1987 **CSX Railroad Corporation, Huntington, WV**
Senior Resident Engineer

Responsible for design of mining/rail facilities for various major coal operations throughout West Virginia and Eastern Kentucky. Managed track and survey crews to oversee construction of facilities to serve expansion of various companies.

EDUCATION

Western Kentucky University - B.S., Civil Engineering, 1981
Lebanon Valley College, Annville, PA – Master of Business Administration, 1994

PROFESSIONAL AFFILIATIONS / CIVIC INVOLVEMENT

- Lexington Industrial Foundation – Board of Directors 2007–2009
- Commerce Lexington – Board of Directors 2007
- Commerce Lexington – Winners Circle Chairman 2007
- Central Bank Advisory Board – 2007-2009
- New Century Lexington – Board of Directors
- Greater Lexington Chamber of Commerce – Past Chair/Current Trustee
- American Water Works Association – Member
- National Association of Water Companies – Member
- U.S. Magistrate Judge Selection Panel – Fall 2005
- RWE International Leadership Program, Lausanne, Switzerland – May 2004
- Thames Water Oxford Leadership Program – April 2003
- Leadership Bluegrass – Class of 1998
- First Security Bank – Former Board Member
- United Way of the Bluegrass – Former Board Member
- Governor's Higher Education Nominating Committee – Former Chairman
- YMCA, Beaumont Branch – Former Board Member

PROFESSIONAL PRESENTATIONS

- Served as expert witness on various operational/finance issues before the Kentucky and Pennsylvania Public Service Commissions.
- Served on various AWWA (American Water Works Association) state committees and panels discussing water-related issues.
- Presented updates on "Water Supply" to numerous city councils and officials at weekly and monthly meetings.
- "Drought Management" – presented updates to various city council members, civic and large user groups, police and fire officials during the 1999 Central Kentucky drought.
- Liaison to Pennsylvania Governor's office on "Emergency Power Management" of Pennsylvania-American facilities during rolling blackout period (1996).

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	)	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	)	
WATER COMPANY FOR A CERTIFICATE OF	)	CASE NO. 2007-00134
CONVENIENCE AND NECESSITY AUTHORIZING	)	
THE CONSTRUCTION OF KENTUCKY RIVER	)	
STATION II, ASSOCIATED FACILITIES AND	)	
TRANSMISSION MAIN	)	

DIRECT TESTIMONY OF RICHARD C. SVINDLAND

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1. **Q. PLEASE STATE YOUR NAME.**

A. My name is Richard C. Svindland.

2. **Q. WHAT IS YOUR POSITION AND BUSINESS ADDRESS?**

A. On March 1, 2007, I joined the engineering firm Integrated Science & Engineering, Inc. (ISE) as a Senior Consultant. ISE's business address is 105 McIntosh Crossing, Fayetteville, GA 30214.

3. **Q. HOW ARE YOU INVOLVED WITH THIS PROJECT?**

A. My firm is currently under contract with Kentucky American Water to provide engineering consultant support services. Before I joined ISE, I was employed by American Water (AW) where, since March 2006, I was involved on a daily basis with every aspect of the project at issue in this case. That involvement has continued to date and will continue through the end of the project.

4. **Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND ARE YOU A LICENSED PROFESSIONAL ENGINEER?**

A. I received a Bachelor of Civil Engineering from the Georgia Institute of Technology in June of 1990. I received a Master of Science in Civil Engineering from the University of Kentucky in May 2005. I am a licensed Professional engineer in Georgia and Kentucky. Attached as Exhibit A is a copy of my most current resume.

5. **Q. WHAT WERE YOUR PREVIOUS POSITIONS WITH AMERICAN WATER AND KENTUCKY AMERICAN WATER?**

A. I started working for Kentucky American Water (KAW) in October 1999 as an Operations Engineer and was based in Lexington, KY. In July 2001, I was promoted to a Senior Operations Engineer with Kentucky American Water. In July 2004, I accepted the Engineering Manager – Technical Services position for the Southeast Region of American Water and remained in Lexington, KY until

May 2005, when I moved to Hershey, PA. I worked in this position until my last day with American Water (February 20, 2007).

6. Q. **HAVE YOU PROVIDED PREVIOUS TESTIMONY BEFORE THIS COMMISSION?**

A. I have not previously provided written testimony to the Kentucky Public Service Commission (PSC). During KAW's 2004 Rate Case (PSC Case 2004-00103), I provided responses to several data requests and was called to the witness stand to answer questions regarding KAW's security costs incurred post September 11, 2001.

7. Q. **WHAT WILL YOU BE ADDRESSING IN YOUR TESTIMONY?**

A. My testimony will cover three major areas and will provide general information as needed. First, my testimony will provide a timeline from the point at which KAW decided to design the subject facility until the present. Second, it will describe the process and criteria that KAW used in selecting an intake site, water treatment plant site and intermediate booster pump station site. Lastly, I will describe the final facility location, design, construction and the anticipated construction cost.

8. Q. **HOW MANY WATER TREATMENT PLANTS HAVE YOU PERSONALLY WORKED ON AS AN ENGINEER?**

A. I have provided engineering services on over 30 Water Treatment Plants (WTP) projects throughout my career. Attached as Exhibit B is an alphabetical listing of WTPs (and project description) in which I have been involved.

9. Q. **WHAT HAPPENED AFTER KAW COMMITTED TO SUBMITTING A CERTIFICATE OF CONVENIENCE AND NECESSITY APPLICATION BY SPRING 2007?**

A. After the March 2006 informal conference at the Kentucky PSC in which KAW committed to submitting a Certificate of Convenience and Necessity by Spring

2007, KAW, along with the its parent company AW, immediately began to assemble the team needed to deliver the project. Among the first items to take place were:

- Team selection;
- Preparation of a detailed schedule;
- Obtaining internal approval to expend design funds;
- Meeting with Kentucky Division of Water – Drinking Water Branch; and
- Identifying potential Intake and WTP sites and identify surveying needs.

Within a week of the March 2006 PSC informal conference, a design team including Nick O. Rowe, Linda C. Bridwell and me was assembled. Mr. Rowe, as President of KAW, would drive and lead the overall project. Ms. Bridwell, with her vast experience related to KAW Source of Supply issue, would continue to handle on-going discussions with the Bluegrass Water Supply Commission, would lead the public relations efforts, would coordinate the project schedule amongst different stakeholders, would lead other identified non-technical issues that arose and would lead final route selection on the water main. My role has been as a Technical Resource for AW and I became responsible for the more technical portions of the project, namely leading the design efforts related to the intake, water treatment plant, the pipeline and the intermediate pump station.

10. Q. WHY WAS THE SCHEDULE SO IMPORTANT?

A. Other than the team selected to deliver the project, the single most important item was the preparation of the project schedule. This schedule would serve as a road map for the steps needed to deliver this project. Within a week of the March 2006 PSC informal conference, a schedule was in place. That schedule has been revised as needed as milestones have been achieved, expanded, delayed, or changed, but the schedule has been and will continue to be critical for numerous reasons as explained in Mr. Rowe's testimony.

11. Q. WHY DID KAW MEET WITH KY DOW SO EARLY IN THE PROJECT?

A. KAW met with the Kentucky Division of Water, Drinking Water Branch (DOW) the last week of March 2006 to discuss what items were needed from a permitting standpoint, to clarify certain design elements, and request assistance on coordination of all DOW issues. KAW requested this meeting for the purpose of identifying items that may impact the schedule and to insure that the ultimate decision made by KAW would not present significant permitting problems. The major item that came out of the meeting was that DOW would not permit a new treatment plant without a pilot study of at least a year unless it considered the treatment process to be "conventional."

12. Q. WHY WAS SURVEYING SO IMPORTANT EARLY ON?

A. Based on the scheduling work previously discussed, surveying also became a very important activity. KAW and AW identified major project components that could be photographed aerially before spring foliage developed. Pre-foliage aerial photos can be utilized effectively by mapping software to create digital orthographic maps more cost effectively than conventional on the ground surveying. KAW entered into a contract with GRW Aerial Surveys, Inc. to fly and aerially photograph all major project components. By the middle of April 2006, the following areas and routes were flown:

- Water main routes between Northern Franklin / Southern Owen Counties and the intersection of Newtown Pike and Ironworks Road;
- For the intake and water treatment plant, an area bordered by the Kentucky River on the west, Monterey, Ky. on the north, Elkhorn Creek on the south and a line approximately 2000 feet east of US 127 on the east;
- A corridor along US 127 between the northern most treatment plant site and the southern most treatment plant site; and

- A route between Monterey, Ky. and the Ohio River following the Kentucky River.

The aerial photographs were taken to allow future digital mapping that would tie into the Kentucky State Plane Coordinate system. Each photo covered a corridor approximately 2000 feet wide.

13. Q. IN ADDITION TO AERIAL PHOTOS, WHAT ELSE WAS ACCOMPLISHED IN SPRING 2006?

A. At the same time that aerial photographs were being taken, property valuation maps from property valuation administrators' (PVA) offices were being obtained on behalf of KAW by Strand Associates, Inc. (SAI) for all of Southern Owen County and Northern Franklin County. The purpose of obtaining these maps was to determine approximate lot sizes, to determine property owner information and to obtain photos of potential intake and treatment plant sites. By the first week of April, KAW had aerial PVA maps for all of Southern Owen County and Northern Franklin County.

14. Q. HOW MANY WATER TREATMENT SITES WERE CONSIDERED AND WHEN DID PROPERTY NEGOTIATIONS START?

A. With the PVA maps, United States Geological Survey (USGS) maps and based on some preliminary hydraulic modeling completed by myself, six water treatment plant sites and five raw water intake sites were identified.

From April to August 2006, KAW (with the assistance of SAI) had discussions with property owners to determine if there were any willing sellers. An option for the intake property was obtained in June 2006, the option for the WTP site was obtained in August 2006 and an option for an intermediate booster station was obtained in October 2006.

15. Q. WHILE PROPERTY DISCUSSIONS WERE ON-GOING, WHAT ELSE WAS KAW WORKING ON?

A. During the time that KAW and SAI were trying to secure land, KAW was preparing three Requests for Proposal for engineering services needed to design the Intake and WTP as one project, the water mains as the second project, and the intermediate pump station as the third project. Also, during this time period, KAW entered into an agreement with Gannett Fleming, Inc. (GF) to perform tasks related to obtaining a United States Army Corps of Engineers permit and to finalize a conceptual design report for the intake and water treatment plant.

16. Q. AFTER LAND WAS SECURED, WHAT HAPPENED?

A. Upon execution of the land option for the WTP and the completion of the conceptual design report, KAW and AW decided to award the design of the intake and water treatment plant to GF based on project involvement to date, experience, expertise and price. GF has designed more new treatment plants for AW than any other firm in the United States and was uniquely qualified to deliver the design of this new plant by March 2007. The fees were negotiated with GF and compared to current and past projects. By early September 2006, GF was directed to proceed with detailed design. Subsequently, GF subcontracted with GRW Engineering (GRW) to design the dewatering and septic disposal facilities at the new treatment plant.

In August and September of 2006, KAW requested, received and evaluated three proposals from GRW, SAI & Quest Engineers, Inc. (QE) for the design of the water main between the optioned WTP site and KAW's Central Division and the intermediate booster pump station. SAI was awarded the design of the intermediate booster pump station and QE was awarded the design of the water mains. By the end of 2006, GF, QE and SAI were 50% complete with respective designs.

17. Q. WHAT ARE THE COMPONENTS NEEDED TO PRODUCE POTABLE WATER?

A. Attached as Exhibit C is a one page process diagram of a typical water treatment plant. As shown, raw water is drawn from either a reservoir or a river through intake screens, and then into a raw water pump station. At this point, the raw water pumps are used to lift the raw water to the treatment plant site. Pre-treatment chemicals such as potassium permanganate and powdered activated carbon are generally added to the main between the raw water pump station and the WTP to take advantage of the reaction time in the pipe. Once the raw water enters the WTP, it is metered and will enter a rapid mix tank where additional pre-chemicals such as poly aluminum chloride and a polymer are added. The rapid mix provides a very quick and agitated mix to insure a complete a thorough mixing of all chemicals and all flows. After the rapid mix, the water is referred to as treated water and it enters the flocculation tank where slow gentle mixing of varying degrees is provided to insure growth of the suspended particles. The larger the growth, the better the settling of said particles. After the flocculation tank, the water is termed "mixed water" and proceeds to the sedimentation basins where the particles that were mixed will settle out. From the diagram, the solids that are removed, commonly referred to as "sludge," will be sent for further processing. After sedimentation, the water is termed "settled water" and proceeds to the filter units. The filters are comprised of varying sized sand particles and are used to further remove suspended and colloidal particles. After the filters, the water is termed "filtered water" and proceeds to storage tanks called a "clearwell." Post-treatment chemicals (primarily chlorine) are added to the water before it enters the clearwell. Upon a achieving a required contact time with chlorine, the water is termed "finished" or "potable" and is considered safe for drinking. After the clearwell, additional chemicals such as fluoride (for dental tooth protection), zinc orthophosphate (for water main corrosion protection), and ammonia (for creation of chloramines) are added. After all treatment is complete, the water is

pumped via high service pumps into the distribution system where it ready to be consumed.

During the treatment process, two "side streams" are produced. One is the "sludge blow down" from the accumulated solids in the bottom of the sedimentation tank, and the other is the "backwash waste" generated when the filters are washed. Generally, the sludge blow down is a continuous stream of relatively low flow, while the filter backwash is a high flow low frequency side stream. The wastewater holding tank serves two purposes, one to equalize the high flow filter backwash and the other to settle out the filter backwash. Sludge generated from the wastewater tank is transferred to the sludge processing tank. The tank supernatant, or the clear water on the top of the wastewater holding tank, is discharged via a discharge permit back to the river or reservoir downstream of the intake. The sludge processing can be comprised of several process types, but generally involves thickening the sludge so it can be transported and discharged to a landfill or land application site.

18. Q. HOW WERE THE SITES SELECTED FOR THE INTAKE, WATER TREATMENT PLANT AND INTERMEDIATE BOOSTER PUMP STATION?

A. First, it is important to note that KAW currently owns, operates and maintains an existing intake and WTP on Pool 9 of the Kentucky River known as the Kentucky River Station (KRS). KAW has had intake operations at this Pool 9 location since the 1930's and water treatment plant operations at this site since the late 1950's. This is important because the physical land characteristics in and around Pool 3 of the Kentucky River are very similar to those at Pool 9.

Because of the existing operation at pool 9, KAW knows first hand the advantages and disadvantages of an intake and water treatment plant on the Kentucky River.

Using KRS as a base, there were several main criteria used to evaluate sites for the intake, water treatment plant site and intermediate booster pump station.

The following is a list of important criteria used in selecting sites.

- The intake must be located in an area that will not affect barge traffic on the river or future Kentucky River Dam rehabilitation projects;
- The intake must be located in a hydraulically (intake hydraulics) suitable area;
- The intake and/or raw water pump station must be accessible by road for construction and pump maintenance;
- The raw water pump station must be accessible to staff and light equipment during a 100 year flood event and if possible during the 500 year event;
- The water treatment plant should be located above elevation 750 to avoid the need for an additional booster pump station;
- The water treatment plant should be located off a road that can readily accommodate construction traffic and chemical tanker truck deliveries.
- The intermediate booster pump station should be located above elevation 900 to allow for one-time re-pumping;
- The property must be located within a reasonable distance from 3 phase power sufficient to handle project; and
- Land for solids reuse must be available.

19. Q. USING THESE CRITERIA, HOW WERE PROPERTIES IDENTIFIED?

A. Using the above criteria, USGS Quad maps and PVA maps for Owen and Franklin Counties, five (5) intake / raw water pump station sites and six (6) water treatment plant sites were identified. Because the intake and raw water pump station sites must be compatible with a water treatment plant site, pairs were

created between the two that made logical sense. Eventually, KAW began negotiations with property owners and, over the course of several months, KAW reached a deal with the two different adjoining property owners. The pair was identified as RWPS 4 – WTP 5.

20. Q. HOW WAS LAND SECURED AND WHAT DID IT COST?

A. KAW obtained an option to purchase land for the intake, raw water pump station and sludge disposal area from the Cartwright Trust. The value of the land purchase is $280,000 for 80 acres, with the final land acreage amount to be determined upon completion of design. This option was obtained in June 2006.

KAW obtained an option to purchase land for the water treatment plant from the Sandlins. The value of the land purchase is $405,000 for 30 acres, with the final land acreage amount to be determined upon completion of design. This option was obtained in late August 2006.

KAW also obtained an option to purchase land for an intermediate booster pump station and ground storage tank from the Muccis. The value of the land purchase is $85,000 for 4 acres. This option was obtained in December 2006.

21. Q. HOW WAS THE ABILITY TO OBTAIN OHIO RIVER WATER CONSIDERED FOR SITE SELECTION?

A. Each site selection was considered in terms of how Ohio River water could be supplemented to the site and KAW determined that none of the sites offered a distinct advantage in this regard because any site closer to the Ohio River is necessarily further from KAW's Central Division and vice versa.

22. Q. DESCRIBE THE FACILITIES.

A. The WTP proposed by AW and KAW is as described in the Basis of Design Report attached to KAW's Application in this case. The WTP is considered a

conventional treatment plant in that it utilizes rapid mix, flocculation, sedimentation, filtration and disinfection as treatment. In the Commonwealth of Kentucky, conventional plants do not require pilot testing. New technologies such as membrane filtration, or newer un-tested processes are subject to pilot testing and the attendant considerable expense.

23. Q. WERE NEWER TECHNOLOGIES CONSIDERED?

A. At the start of this project, KAW contemplated utilizing a newer technology, but chose to design a conventional treatment plant using best available conventional technologies to reduce the footprint and thus cost. The compelling facts for that decision were: (1) due to the river's flashy characteristics, a conventional treatment process would have likely been needed as a pretreatment unit in advance of a newer technology; (2) KAW has been treating Kentucky River water for over 70 years and KAW knows that conventional treatment will work while achieving all water quality objectives; and (3) a one-year long pilot program, needed to insure proper membrane selection and treatment results, could cause significant delays. Attached as Exhibit D is a summary of the process selection used by KAW and GF.

24. Q. WHAT IS THE PLANT CAPACITY AND CAN IT BE INCREASED?

A. The initial size of the facility is a reliable 20 MGD. The facility has been laid out to be expandable in 5 MGD increments. These 5 MGD increments can be for KAW or for the Bluegrass Water Supply Commission (BWSC). Currently, the design is moving forward as a 20 MGD base bid project with a cost adder for an additional 5 MGD. BWSC entered into an agreement with KAW to design an additional 5 MGD.

25. Q. WHO HAS BEEN INVOLVED IN THE DESIGN OF THE WTP?

A. The facility was primarily designed by KAW, AW, GF and GRW as a sub-consultant to GF. SAI has been involved with property selection and onsite

surveying, but has not been involved in the day to day design of the WTP. KAW, AW and GF all have had active roles in the design from preliminary planning to final design. AW and KAW take pride in the fact that they as active owners are involved in every step of the design process.

26. Q. WHO FROM KAW HAS BEEN INVOLVED?

A. The KAW staff involved with the WTP are Nick Rowe, Michael Galavotti, Dillard Griffin, Rick Buchanan, and Kevin Kruchinski. Nick Rowe, serving as President of KAW, has been involved in all major decisions and has helped to drive schedule, free up resources as needed, and provide general guidance as needed. Michael Galavotti, a Senior Engineering for KAW, has been involved with the WTP design coordinating survey and geotechnical work, reviewing draft plans and specifications, and has assisted me as needed on the many different tasks associated with this project. Dillard Griffin, Rich Buchanan and Kevin Kruchinski, represent the Production Department for KAW and have been involved since the beginning to make sure their needs as the future "Asset Owner" are being met.

27. Q. WHO FROM AW HAS BEEN INVOLVED?

A. The AW staff involved with the WTP are Linda Bridwell, Peter Keenan, and David Kaufman. Linda Bridwell, Project Delivery & Developer Services Manager for KY and TN, works for the Southeast Region of AW and has been involved with the WTP design as it relates to the overall source of supply project, demand projections, and review of reports and permits. Peter Keenan, an Engineering Manager for AW, has been involved with the project since the beginning and has been a tremendous asset in process verification, design input, plan and specification review. David Kaufman, the Director of Engineering for the Southeast Region of AW, has been involved from the beginning of the project as the direct supervisor for Linda Bridwell and me. Mr. Kaufman reviewed the process selection, the pairing of the site selections, the land options, the demand

projections, and the permits. Mr Kaufman has been a tremendous asset as he has led the design and construction of over 10 new water treatment plants for Pennsylvania American Water (PAW) and Pennsylvania Gas and Water (PGW).

28. Q. WAS RIVERBANK INFILTRATION CONSIDERED?

A. Riverbank infiltration is a proven treatment technique that uses sandy river soils to help "pre-filter" raw water and has been used successfully along the Ohio River by the Louisville Water Company. Riverbank infiltration was initially screened as a possible way to reduce turbidity and organic loading into this plant; however, because the riverbank soil of the Kentucky River does not have the necessary sand content, riverbank filtration is not feasible.

29 Q. WHAT PROVISIONS ARE BEING MADE FOR FUTURE WATER TREATMENT REQUIREMENTS?

A. Planning for future changes in water treatment requirements is prudent, but should be carefully done to avoid incurring unnecessary costs. Where it made sense and where practical, KAW has included provisions for future water treatment changes. For example, space was designed in the plant basement area where ultraviolet light (UV) could be added at a later date should regulations continue to push water utilities in that direction. Also, KAW has allowed for additional headloss through the plant in case another process component is needed and we have allowed for deeper media in the filters should granular activated carbon be needed in the future. Finally, we have allowed a space for a future chemical feed. KAW has not over-designed for the future, but has made reasonable accommodations for possible future requirements.

30. Q. HOW WILL PLANT SOLIDS BE HANDLED FROM THE SITE?

A. There are two ways in which plant solids or residuals will be handled from the new WTP. The first method will be that the dewatered solids will be hauled off site and disposed of in a landfill. The second and preferred method will be to

legally reuse the solids on land that KAW has optioned. This is the same process KAW utilizes at its other two plants. KAW will be seeking permits for this during the construction of the WTP.

31. Q. WHAT OTHER PLANT DISCHARGES ARE THERE?

A. Besides residuals, there are two other waste streams. One is the supernatant from the dewatering solids process. This will be discharged back to the Kentucky River approximately 1000 feet downstream of the intake with water quality parameters as determined by a KYDES discharge permit. KAW has applied for this permit. The other waste stream will be from on-site bathrooms. A septic tank system and leach field will be used to treat and dispose of this waste stream.

32. Q. HOW WILL THE FACILITY BE POWERED AND WHAT IS THE APPROXIMATE ELECTRICAL ANNUAL OPERATING COST?

A. The annual electric cost to operate the facility will be based on the tariff rate obtained from the electric utility. The WTP will likely operate at 6 MGD for the entire year with days several days around 20 MGD. Under this load the likely annual cost from Owen Electric Corporation (OEC) will be between $479,000 and $675,000 depending on rate classification. If Kentucky Utility (KU) provides the service the likely annual cost will be between $418,000 and $660,000 depending on rate classification.

In addition to electric power from KU or OEC, the WTP will have a diesel generator that will be capable of providing enough backup power to process 10 MGD. Provisions are also being made to allow the installation of a second generator that could provide backup power to process 17 MGD.

33. Q. WHAT ARE OTHER OPERATING COSTS?

A. In addition to the electrical costs, there will be costs for chemicals, personnel, and maintenance. Please refer to Linda C. Bridwell's testimony for a breakdown of these costs.

34. Q. WHAT ARE THE ESTIMATED MAINTENANCE COSTS?

A. New plants do not require a lot of maintenance, but there will be maintenance costs for cleaning, equipment repair, preventative maintenance and maintenance of the grounds. Please refer to Linda C. Bridwell's testimony for a breakdown of these costs.

35. Q. HOW WILL THE FACILITY BE SECURED?

A. The facility will be secured in a manner consistent with other KAW properties and other AW properties and will involve devices that will allow KAW to delay, detect, deploy and respond. The facility will be able to be monitored from KAW's Lexington headquarters.

36. Q. WHEN WILL CONSTRUCTION COMMENCE AND WHEN WILL IT BE COMPLETED?

A. Construction will commence as soon as all required approvals have been obtained. It is KAW's hope and desire to award a construction contract this fall with a Notice-To-Proceed by the end of this year. The time needed to substantially complete the WTP is 900 calendar days. Final completion is 1080 calendar days. KAW hopes to be substantially completed by April 2010.

37. Q. WHO WILL BE HIRED TO CONSTRUCT THE WTP?

A. KAW will use pre-qualified contractors to build this project. KAW has an active list of pre-qualified contractors, but also plans to advertise locally and nationally for firms to submit their qualifications. KAW would like to invite a dozen or so firms to bid on the project. The project will be bid in late May 2007 with a receipt of bids due sometime on late July 2007.

38. Q. WHAT IS THE COST OF CONSTRUCTION?

A. The estimated cost of construction for the entire 20 MGD water treatment plant facility using 2007 dollars is $58,300,000.

39. Q. WHEN WILL THESE COSTS HAVE TO BE PAID?

A. Contractors will bill KAW monthly for progress incurred on the construction. It will take a couple of months to reach a full construction pace, but for projects of this size, it is common to see monthly construction invoices between $1.0M and $2.0M.

40. Q. WOULD YOU RECOMMEND THAT THE COMMISSION APPROVE THIS CERTIFICATE?

A. Yes, based upon my involvement with the project to date, it is my opinion that KAW has designed a cost effective solution to its source of supply problem that will increase system reliability, solve its source of supply deficit until at least 2020, solve its treatment plant capacity deficit until at least 2030, accommodate future regulations, and allows for partnering with BWSC.

41. Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

LEX 010311/126698/3496218.2

RICHARD C. SVINDLAND, P.E.

Professional Engineer with 16 years of experience in the water and wastewater fields working as an engineering consultant to municipal systems and as a technical resource to an investor-owned utility. Currently work as a Senior Consultant for Integrated Science & Engineering, Inc. Areas of expertise include civil, sanitary, structural, mechanical and hydraulic design, preparation of contract documents, and construction management for all types of water and wastewater projects. Have worked for over 45 different municipal clients across the Southeastern United States and have knowledge of over 130 water and wastewater treatment facilities. ***Major projects and skills include:***

Wastewater Treatment Plants

Coatesville WWTP Expansion
Penn. American Water, *Coatesville, PA*
Technical Resource on a $25M plant expansion from 3.8 to 7 MGD. Project includes new headworks, aeration basin, final clarifiers, RAS/WAS pump station, effluent filtration, UV disinfection, effluent metering, reuse water system, SCADA, chemical feed, conversion of anaerobic digester to aerobic digester, solids handling and new Administration/Lab/ Maintenance Buildings.

Oconee River WPCP Expansion
City of Milledgeville, *Milledgeville, GA*
Design team leader responsible for $12M expansion to an existing 7 MGD Trickling Filter plant to a 10.5 MGD activated sludge / trickling filter plant. Expansion touched all process units from headworks to chlorine contact.

Jack's Creek WWTP Expansion
Monroe Utilities, *Monroe, GA*
Design team leader responsible for $2.2M expansion to an existing 3.4 MGD Trickling Filter plant. Expansion included new aeration basin, RAS/WAS pump station and chemical feed improvements.

Water Treatment Plants

New Pool 3 WTP on Kentucky River
Kentucky American Water, *Lexington, KY*
Served as Project Leader for new expandable 20 MGD WTP to serve Lexington, KY. This $150M project is currently under design and involves 30-miles of new 42-inch high service main in addition to the plant. Manage all aspects of project from property acquisition, to technical design.

Lake Oconee WTP
City of Madison, *Madison, GA*
Engineer of Record for new 2 MGD WTP. $5.5M project included raw water pump station and intake, transfer pump station, on-site raw water reservoir and dam, conventional surface water treatment plant, raw water and high service mains.

Richmond Road Station Hydraulic & Chemical Feed Improvements
Kentucky American Water, *Lexington, KY*
Project Manager for a $1.7M upgrade to allow 30 MGD to flow through an existing 25 MGD plant (unreliable) until source of supply solution is implemented. Project included Preliminary Engineering Report, meetings with regulators, PSC approval, inspection and facility shutdown coordination.

Education

Master of Science in Civil Engineering, University of Kentucky, Lexington, KY, 2005

Bachelor of Civil Engineering, Georgia Institute of Technology, Atlanta, GA, 1990

Professional Registrations

Professional Engineer in Georgia

Professional Engineer in Kentucky

Professional Associations

American Society of Civil Engineers (ASCE)

American Water Works Association (AWWA)

Water Environment Federation (WEF)

Water Distribution

Hydraulic Model Upgrade
Kentucky American Water, *Lexington, KY*
Responsible for new hydraulic model for the Lexington service area, which included 1,500 miles of main from 6-inch to 36-inch in size. Final work product was a 12,500 pipe extended period simulation model that predicted pressure to within 5 psi at all 8,000+ nodes.

Catawba Water Main
City of Ft. Mill, *Ft. Mill, SC*
Hydraulic and cathodic protection design of 15,600 LF of 20 & 24-inch DI and steel water main including 1000 LF utility bridge crossing of Catawba River.

Wastewater Collection

Southside Trunk Sewer
City of Cordele, *Cordele, GA*
Sole designer, Engineer of Record and construction manager for $2.2M - 27,800 LF 30-inch sanitary sewer with depths to 36 feet.

Poplar Road Pump Station
Newnan Utilities, *Newnan, GA*
Project Manager for $1.0M high head sewage lift station featuring surge vessel, 400 HP dry-pit submersible non-clog pumps and grinder.

Water Supply

Bear Creek Dam & Reservoir
Upper Oconee Basin Water Authority, *Watkinsville, GA*
Project Manger responsible for design of outlet tower, 72-inch prestressed concrete cylinder pipe and emergency spillway with design capacity of 20,000 cubic feet per second.

(Water Supply continued)

Sejerong Dam
Sejerong Island, *Indonesia*
US based Project Manager responsible for the structural design of an emergency overflow structure, 40-foot high retaining walls and a reservoir drainage structure in a high rain, earthquake prone area in Indonesia.

Skills

Skilled in use of surveying equipment such as levels, total station, GPS units and understand how these devices can be used in GIS systems.
Considerable experience with many software products such as: AutoCAD; Pipe2000; MS Word, Excel, Project & Powerpoint; Lotus Notes, JDEdwards, GTStrudl, SureTrak, VSAT, ARCGIS.
Able to develop rapport with utility operators and utility owners such that project outcomes are successful for all stakeholders.

Awards

Named 2003 Civil Engineer of the Year in Industry by the KY Section of ASCE.

Other Items of Interest

Habit a Genève, Suisse pour quatre ans. (Lived in Geneva, Switzerland 1979-82).
Active in Golf, snow skiing and softball.
Enjoy reading – professional journals and fiction.
Served as Chair of KY Section ASCE History & Heritage Committee – Assisted in the process of having McAlpine Lock & Dam Portland Canal in Louisville, KY become a Historic Civil Engineering Landmark.

Work Experience

Integrated Science & Engineering, Fayetteville, GA – Senior Consultant – 3/07 to Present

American Water Works Service Co., Hershey, PA – Engineering Manager Technical Services – Southeast Region 7/04 to 2/07.

Kentucky American Water, Lexington, KY – Senior Operations Engineer 7/01 to 7/04.

Kentucky American Water, Lexington, KY – Operations Engineer 10/99 to 7/01.

Wiedeman and Singleton, Inc., Atlanta, GA – Project Manager / Design Team Leader 2/97 to 9/99.

Keck and Wood, Inc., Atlanta, GA – Project Engineer 3/93 to 2/97.

Wiedeman and Singleton, Inc., Atlanta, GA – Associate Civil Engineer 6/90 to 3/93.

Professional Accomplishments

Signed & Sealed $10M in Water & Wastewater Projects since 1995.

Personally managed and installed over $75M in construction projects for AW since 1999.

Personally involved with over $350M in water and wastewater construction projects since 1990.

Part of American Water SER team that manages $175 – $200 M in water and wastewater CAPEX projects every year.

Six EITs who worked under my direction passed their PE examinations.

Exhibit B
WTP Design Experience for
Richard C. Svindland

No.	WTP	Design Element
1	Aiken, South Carolina	Chemical Feed & Solids Handling Improvements
2	Bremen, GA	HS Pump Evaluation
3	Carrollton, GA	Expansion from 8 to 12 MGD
4	Dalton, GA - Freeman Springs	Foundation Structural Design of new 2 MGD plant
5	Dalton, GA - Mill Creek	Hydrotreater Improvements, Plant Hydraulics
6	Dalton, GA - Parrott	Chemical Feed Improvements
7	Eatonton, GA	Misc. hydraulics
8	Greeneville, TN	Structural Design of a plant capacity upgrade
9	Haralson County Water Authority	Sedimentation Basin Improvements, hydraulics
10	Johnson City, TN	Conceptual Plant Upgrade
11	Johnson City, TN	Unicoi Springs Prelim. Engineering
12	KAW – KRS	Several projects from 1999 to 2007 including Rapid Mix repair, filter rehabs, hydrotreater repainting, chlorine system improvements, plant hydraulics, raw, intermediate and HS pumping hydraulics, CT calculations, SCADA upgrade
13	KAW - Pool 3 WTP	Design of new 20 MGD plant
14	KAW – RRS	Several projects from 1999 to 2007 including hydraulics improvements to allow 30 MGD, chemical feed improvements, SCADA improvements, solids handling improvements, temp. solids handling solution.
15	Kingsport, TN	Structural Design of capacity upgrade
16	Lafourche Parish, LA	Chemical Feed system design
17	Lanett, AL CVWSD	Chemical Feed, Filter Rehab & New RWPS
18	Laurens, South Carolina	Generator Building
19	Madison, GA - Lake Oconee	Design of new 2 MGD Conventional WTP with intake, RWPS, WTP, HS and Raw Water mains & reservoir.
20	Madison, GA - Town	New plant flow meters, and solids handling improvements
21	Milledgeville, GA	New Clearwell and Alum Storage
22	Newnan Utilities	Structural Design of rehab project.
23	Owenton, KY	Treatment Optimization, misc improvements, CT study, flow meter installation.
24	Palmetto, GA	Sedimentation Basin Improvements, CT study, Instrumentation addition, high rate pilot study.
25	PAW - Hays Mine WTP	Prelim. Design for chemical feed improvements and replacement of 75 MGD raw water pump station
26	PAW - Hershey, PA	Prelim. Design for plant expansion from 9.3 to 11 MGD
27	PAW - Silver Springs WTP	New Sludge Lagoons
28	PAW - West Shore RWTP	New 12 MGD WTP to replace YB No. 1 & 2.
29	Rock Hill, South Carolina	Structural design of plant expansion, hydraulics
30	TAW - Citico Plant	Prelim. Design for plant expansion
31	VAW - Hopewell, VA	Prelim. Design for plant expansion
32	Villa Rica, GA	raw water meter installation, sedimentation basin improvements
33	Williston, South Carolina	One new well, chemical feeds and pressure filtration and two well sites.

Exhibit C
Typical Water Treatment Plant Process Flow Diagram

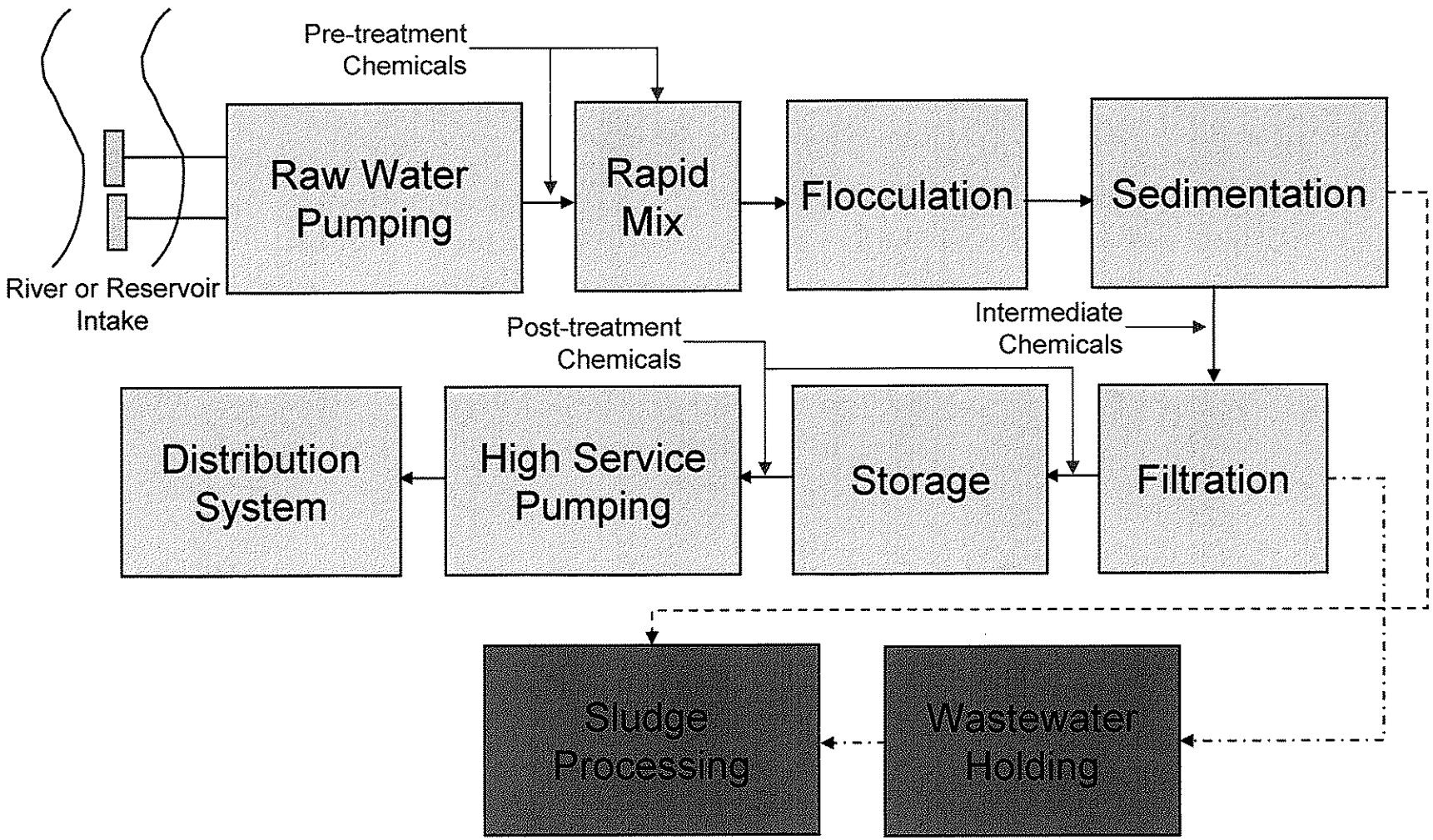

Exhibit D

Kentucky American Water
Lexington, Kentucky

Kentucky River Pool 3 Water Treatment Plant

Process Selection Summary Memorandum

March 8, 2007

GANNETT FLEMING
Harrisburg, Pennsylvania

Exhibit D

Kentucky American Water
Lexington, Kentucky

Kentucky River Pool 3 Water Treatment Plant

Process Selection Summary memorandum

March 8, 2007

GF Project No. 45260

Gannett Fleming, Inc.
Harrisburg, Pennsylvania

BASIS OF DESIGN REPORT

CONTENTS

1.0 KAW KENTUCKY RIVER POOL 3 WTP PROCESS SELECTION

1.1 Introduction

The proposed new Kentucky River water treatment plant (WTP) for Kentucky American Water (KAW) is being designed to provide treatment of surface water withdrawn from Pool 3 of the Kentucky River. The facility shall be designed to provide treatment techniques capable of consistently producing drinking water exceeding current and foreseeable Commonwealth of Kentucky and United States Environmental Protection Agency (USEPA) water quality requirements.

Appropriate process alternatives for consideration were selected based on a combination of river water quality, Commonwealth design requirements, ease of operations and operator familiarity, level of proprietary equipment required, and capital and annual cost.

The key facility elements comprising the treatment process include:

- Chemical treatment for adsorption, oxidation, coagulation, disinfection, corrosion control and fluoridation.
- Clarification
- Filtration
- Disinfection contact time
- Process wastewater facilities

This report describes the treatment selection process and primarily focuses on the clarification and filtration processes, with the understanding that the other elements listed are generally common to all treatment trains and do not include significant alternates.

1.2 Kentucky River Water Quality and Treatment Requirements

Kentucky River Station (KRS) Pool 9 raw water quality was evaluated as the basis for this study due to the abundance of available data. Pool 9 water quality was assumed to be similar in nature to that of Pool 3. Monthly USGS water quality data from Lock 2, was also reviewed. In addition, KAW has initiated a water quality sampling program to verify Pool 3 water quality assumptions. A summary of expected water quality is provided below.

- Kentucky River Pool 9 turbidity is moderately high. Average turbidity during the period reviewed was 26 nephelometric turbidity units (NTU). Maximum turbidity was 565 NTU. Pool 2 data appeared to be similar. This water quality dictates the need for a clarification process, to remove suspended solids prior to any filtration process. A clarification process can reasonably be expected to lower turbidity levels to less than 2 NTU, to provide efficient filtration operations.
- Pool 9 pH is basic with an average value of 7.8 standard units and a maximum value of 8.5. Pool 2 USGS data indicated periods with pH as low as 6.1 standard units in association with low stream flow and elevated algal activity and carbon dioxide concentration. Experience at the Kentucky River Station (KRS) indicates that poly aluminum chloride is effective for coagulation of this rather high pH. Further, this experience indicates that a secondary alternative ferric chloride coagulant is valuable for coagulation of total organic carbon.
- Pool 9 alkalinity is moderately high with average and maximum values of 84 and 150 milligrams per liter (mg/L), respectively. Pool 2 data appeared to be similar. This range of alkalinity will be adequate to support the coagulation process, although a form of alkalinity addition should be provided to restore alkalinity and pH for corrosion control.
- Iron concentration is high with average and maximum values of 0.77 and 1.67 mg/L, respectively.
- Pool 2 manganese concentration is moderate with levels routinely exceeding the secondary maximum contaminant level (0.05 mg/L). It is expected, based on widespread treatment experience, that oxidation with potassium permanganate will effectively oxidize dissolved iron and manganese for subsequent removal through clarification and filtration.
- Pool 2 arsenic concentration normally is below the detection limit, but was on occasion 4 micrograms per liter (ug/L). This value is less than 50% below the maximum contaminant level. Coagulation and filtration will further reduce this value.
- Pool 2 ammonia concentration (as Nitrogen) is normally below 0.1 mg/L, with a maximum of 0.24 mg/L.
- Pool 9 hardness ranges between 64 and 138 mg/L as $CaCO_3$. These values are moderate, and softening which could be provided with reverse osmosis or nanofiltration, is not required.

- Pool 9 chloride which ranges between 7.0 and 17.1 mg/L is low to moderate and does not require removal.
- Pool 9 total organic carbon (TOC) concentration is moderate with average and maximum values of 2.7 and 4.8 mg/L, respectively. Experience at the KRS indicates that the coagulation process will be effective in reducing TOC in accordance with treatment technique requirements.
- Pool 9 *Cryptosporidium* and *Giardia* have been monitored monthly since 2003. To date *Cryptosporidium* has not been detected. *Giardia* has been detected on six (6) occasions with a maximum concentration of 0.6 cysts per liter. *Giardia* disinfection, in accordance with Commonwealth requirements, will be provided with post-filtration disinfection CT. Enhanced disinfection of *Cryptosporidium*, which is resistant to chlorination, does not appear to be required based on this data. However, provisions for future treatment with ultraviolet light (UV) is prudent in any new facility because source water monitoring is required on a six year cycle, and future testing could reveal *Cryptosporidium*
- Zebra mussels are reported by KAW to be present in the Kentucky River. Hence, provisions for application of potassium permanganate at the intake are warranted.

1.3 Water Treatment Process

To effectively treat this variably turbid river source, a process including clarification and filtration is required, to assure efficient filter production. The clarification process should include coagulation, rapid mixing and conventional or high rate clarifiers. Filtration can be provided using granular media filters or low pressure Membrane Filtration (MF). Disinfection can be provided with post-filtration chlorine contact. Additional chemical treatment should include: oxidation with potassium permanganate for iron and manganese control; carbon adsorption of taste and odor with application of powdered activated carbon or via filter adsorbers with GAC; pH control and alkalinity addition; fluoridation and corrosion control.

KAW met with the Kentucky Department of water (DOW) early in this project to obtain general guidance for the process selection. DOW provided the following input:

- The Commonwealth uses the 2003 Edition of the Recommended Standards for Water Works for design guidelines.
- Inline static mixers should not be used for rapid mixing of coagulant chemical if there is a significant flow variation.

- The flocculation – plate settler clarification process is considered conventional and will not require pilot testing to validate its use.
- The Actiflo® high rate ballasted flocculation process is considered conventional and will not require pilot testing to validate its use as long as the surface loading rate is not greater than 16 gpm/sf and an additional 60 minutes of contact time is provided to buffer water quality changes through the process.
- The solids blanket clarification process referred to as Superpulsator has not been approved in the Commonwealth for 8 years and is not appropriate for high turbidity supply or a process that may be started and stopped.
- No Hydrotreators or Claricones will be allowed for clarification.
- Dual media filtration with surface loading rates no greater than 5 gpm/sf with one filter out of service will be allowed.
- Provisions for future UV should be provided.
- Post-filtration disinfection CT meeting 1 log *Giardia* inactivation is required. Baffling shall be provided, but a baffling factor no greater than 0.7 shall be allowed.
- Redundant units shall be provided for all processes.

As a result of this initial assessment, two (2) alternative treatment processes, both in accordance with KAW requirements and judged to be capable of meeting regulatory requirements, were evaluated for this project. Provisions for future UV disinfection are included in each alternative to provide a process capable of the highest level of disinfection that could be necessary based on future source water sampling for *Cryptosporidium.*

The processes considered were:

- Alternative 1: Flocculation - Plate Settler Clarification - Filtration, Chlorine disinfection
- Alternative 2: Contact basin - ACTIFLO® - Filtration, Chlorine disinfection

Alternative 2 proved to be the higher capital cost alternative, largely due to the requirement to include a contact basin upstream of the clarifiers. The alternatives were similar in cost without the contact basins. Alternative 2 also included the following disadvantages:

- Higher operating cost attributable to high power cost associated with energy requirement for mixing and chemical cost for polymer feed.

- Higher wastewater production associated with low sludge solids concentration.
- Single supplier proprietary equipment with no potential for competitive bidding of clarification process.
- Lack of operating experience by current KAW management and operations staff.

Alternate 1 does not require a significant polymer dose to perform effectively and power cost is moderate. The process is similar to the conventional sedimentation process currently used and is proven effective on the river supply. This process can also be bid competitively since there are multiple manufacturers that provide flocculators and plate settlers.

Membrane filtration (MF) was also considered as an alternative to the more conventional granular media filtration. This technology, that utilizes a porous polymeric hollow fiber to filter suspended solids, was not considered appropriate in association with Actiflo®. The Actiflo process relies both on micro-sand and polymers that could hinder the membrane process and potentially damage the fibers. MF could, however, follow plate settler clarification.

A decision was made not to utilize MF for this project because there were not compelling cost, operations or process reasons for its use in this application. Reasons for this decision are summarized in the list below:

- To justify use of MF in the Commonwealth and to determine appropriate design criteria, a pilot test would need to be performed. Testing covering four seasons would be recommended. Following testing, DOW review would be required and likely the proprietary membrane equipment would be pre-purchased following acceptable review of the pilot test report and its recommendations. Pre-purchasing the equipment would be necessary to form the basis for a final design, because different manufacturers systems vary significantly. This process could take 15 to 18 months. This delay would escalate project costs equivalent to the inflation rate over that period of time times the estimated project cost.
- Although capital costs for granular media filtration and MF are becoming competitive as membrane system costs come down, the additional power, chemical and membrane replacement costs associated with the MF system are significant and result in higher life cycle costs compared to granular media filtration.
- Both granular media filtration and MF are capable of meeting and exceeding Bin 1 classified source water treatment requirements.

- Use of MF precludes use of GAC adsorption in the original filter process, if necessary for future taste and odor control. If MF were used and GAC was necessary an additional process would be required.

1.4 Recommended Process facilities

Recommended process facilities are listed below. A unified building concept will be utilized, with a single structure for all process components, with the exception of the wastewater facilities. All facilities will be cast-in-place concrete construction.

- Rapid mixer basin
  - Vertical turbine mixer
  - Ten (10) second detention time at maximum flow
  - No superstructure
- Flocculation basins
  - Three-stage mixing with horizontal reels
  - Thirty (30) minute detention time at maximum flow
  - Four (4) basins, each designed for one third of the maximum flow
  - No superstructure
- Sedimentation basins with plate settlers
  - Effective surface loading rate of 0.45 gallons per minute per square foot (gpm/sf) of plate area
  - Hoseless vacuum-type sludge removal equipment
  - Four (4) basins, each designed for one third of the maximum flow
  - No superstructure
- Filters
  - 4 gpm/sf surface loading rate with all filters in service at maximum flow and 5 gpm/sf with one filter out of service
  - Sand and anthracite media
  - Extra depth provided for possible future conversion to deep bed or filter adsorber with GAC
  - Five (5) filters
  - Superstructure

- Clearwells
  - 1.0-log inactivation value for *Giardia* with chlorine disinfection
  - 0.7 baffle factor
  - Two (2) clearwells so that either can be taken out of service for cleaning or maintenance while leaving the other in service
  - Covered with pre-cast concrete planks and membrane

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	)	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	)	
WATER COMPANY FOR A CERTIFICATE OF	)	**CASE NO.** 2007-00134
CONVENIENCE AND NECESSITY AUTHORIZING	)	
THE CONSTRUCTION OF KENTUCKY RIVER	)	
STATION II, ASSOCIATED FACILITIES AND	)	
TRANSMISSION MAIN	)	

DIRECT TESTIMONY OF LOUIS M. WALTERS

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1. Q. WHAT IS YOUR NAME, POSITION AND BUSINESS ADDRESS?

A. My name is Louis M. Walters. I am Assistant Treasurer of American Water Works Company, Inc. ("American Water" or the "Company"). My business address is 1025 Laurel Oak Road, Voorhees, New Jersey 08043

2. Q. WHAT IS YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND?

A. I graduated from Rider University, Lawrenceville, New Jersey, in 1974 with a Bachelor of Science Degree in Economics. In 1976, I graduated from Murray State University, Murray, Kentucky, with an MBA and a concentration in accounting. In 1987, I graduated with a Master of Science Degree in Taxation from Drexel University, Philadelphia, Pennsylvania.

I am a Certified Public Accountant in the State of New Jersey and a member of the American Institute of Certified Public Accountants.

3. Q. WHAT IS YOUR EMPLOYMENT EXPERIENCE?

A. I was employed by the accounting firm of Deloitte & Touche from 1976 to 1978. From 1978 to 1998, I was employed by Atlantic City Electric Company. During that twenty year period I held several positions including supervisor of general ledger, manager of taxes, general manager-treasury and finance and in 1993 was promoted to the position of vice president-treasurer and assistant secretary. I was also treasurer of Atlantic Energy, the parent holding company of Atlantic City Electric Company.

In 1998, I joined Conectiv, the merged entity of Atlantic City Electric Company and Delmarva Power & Light, as treasurer and assistant secretary. Conectiv was a public utility providing generation, transmission and distribution of electric power and natural gas to portions of Maryland, Virginia, Delaware and southern New Jersey. Conectiv is now part of Pepco Holdings Inc.

From 2000 through early 2006, I was employed by Covanta Energy Corporation as vice president and treasurer. Covanta Energy is a developer, owner and operator of

waste-to-energy and independent power project and a wholly-owned subsidiary of Covanta Holding Corporation. In March 2006, I retired from Covanta.

In June 2006, I joined American Water as assistant treasurer. My employment experience over the last 15 years has been heavily involved in capital markets activities. Since joining American Water, I have participated in the following capital markets efforts: the re-establishment of the American Water Capital Corp ("AWCC") commercial paper program, the AWCC $800 million Credit Facility and the AWCC $1.1 billion long-term private placement offering. AWCC is a wholly-owned subsidiary of American Water and serves as its finance company by issuing debt in the public and private markets for use by the Company's regulated operating subsidiaries.

My responsibilities as assistant treasurer include efforts to provide the most effective cost of capital to the regulated subsidiaries of American Water.

4. Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY PUBLIC UTILITY BOARD OR COMMISSION?

A. Yes. I presented direct and rebuttal testimony in Atlantic City Electric Company's ("ACE") 1990 Phase II base rate case before the New Jersey Board of Public Utilities ("BPU"), BPU Docket No. ER90091090J. I also presented direct testimony in BPU Docket No. ER94020033 of ACE's Energy Adjustment and Hotel Casino Adjustment Filing and in BPU Docket No. ER95040166 of ACE's Energy Adjustment Filing. I presented direct testimony on behalf of ACE in BPU Docket No. EX93060255, the BPU's Generic Proceeding Regarding Recovery of Capacity Costs Associated with Electric Utility Power Purchases from Co generators and Small Power Producers. In addition, I presented testimony in BPU Docket No. ES96030158 of the BPU's Investigation into the Continuing Outage of the Salem Nuclear Generating Station. Lastly, I provided direct testimony in BPU Docket No. EM97020103, Petition of Atlantic City Electric Company and Conectiv, Inc. for Approval under N.J.S.A.48:2-51.1 and N.J.S.A 48:3-10 of a Change in Ownership and Control.

5. Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to describe how Kentucky American Water ("KAW") plans to finance its Kentucky River Station II, Associated Facilities and Transmission Main ("KRS II"). My testimony will include a review of the various options for financing KRS II.

6. Q. WHAT ARE THE TOTAL ESTIMATED CAPITAL COSTS AND THE ESTIMATED TIMELINE FOR COMPLETING KRS II AND PLACING IT IN SERVICE?

A. The total estimated capital cost of KRS II at a rated MGD capacity of 20 MGD is $160 million. If the capacity were increased to 25 MGD to handle additional regional needs, the total capital cost of KRS II is estimated to be approximately $170 million. Irrespective of the rated capacity decided on, KAW expects that upon the start of construction, KRS II would be completed within a three-year period.

7. Q. IN YOUR OPINION, DOES KAW HAVE THE ABILITY TO FINANCE THE CONSTRUCTION OF KRS II, AND, IF SO, HOW?

A. Yes, KAW has the ability to do so and will use an appropriate mix of debt and equity. As for debt, KAW and other American Water subsidiaries have access to debt capital markets through borrowing agreements with AWCC. The borrowing agreements between KAW and AWCC have been reviewed and approved by the Kentucky Public Service Commission ("KYPSC"). Regarding common equity, American Water will continue to invest common equity in its regulated subsidiaries to meet their utility obligations and maintain a proper debt to equity ratio.

8. Q. HAS KAW CONSIDERED OTHER ALTERNATIVES FOR FINANCING THE CONSTRUCTION COSTS OF KRS II?

A. The Bluegrass Water Supply Commission may elect to participate in the construction costs, but regardless of that decision, alternatives for financing the cost of constructing KRS II include the use of various combinations of taxable and tax-

exempt debt, non-refundable contributions, long-term take-or-pay contracts and agreements for reimbursement of costs KAW will incur to operate the facility.

9. Q. SETTING ASIDE THE POSSIBILITY OF COST SHARING, EXPLAIN GENERALLY HOW KAW WILL FINANCE ITS PORTION OF KRS II?

A. Overall, KAW expects to permanently finance its portion of KRS II, be it some or all, with 60% long-term debt and 40% common equity which would be recovered through rates authorized by the KYPSC.

Initially, KAW will utilize its short-term borrowing capacity through AWCC to meet the periodic needs for construction capital. KAW has short-term borrowing capacity at AWCC of $12 million. AWCC provides this short-term funding to KAW through its access to the commercial paper markets. Currently rated A2/P2 by Standard & Poor's and Moody's respectively, AWCC provides this short-term borrowing to KAW at the identical rates it receives. Because AWCC provides short-term borrowings for the entire American Water consolidated group of subsidiaries, the overall cost of the commercial paper program is lower than if undertaken at the individual subsidiary level.

As KAW approaches its approved short-term debt limit, a long-term debt financing will be planned. The "terming-out" of the short-term debt facility frees up KAW's capacity to finance the construction costs associated with the next phase of KRS II. It is possible that KAW will utilize both tax-exempt and taxable long-term debt financing, if the cost of tax-exempt debt proves cost-effective. Accordingly, KAW will review and apply for tax-exempt debt though the Kentucky Tax-Exempt Financing Authority. Given the overall size of KRS II, KAW will pursue tax-exempt financing if it is likely to result in a debt financing of at least $5 million. Obtaining tax-exempt financing entails significant added internal and external costs which offset the tax savings when the financing is less than $5 million. The balance of the long-term financing will be done through AWCC. AWCC will aggregate the needs of KAW with those of other American Water subsidiaries and enter the debt capital

markets either through a public or private offering. As in the case with short-term debt, AWCC can spread the cost of issuance over a larger long-term offering. In addition, AWCC debt offerings are attractive opportunities for investors because their source of repayment is from portfolio of American Water subsidiaries rather than one entity.

In addition, American Water will periodically contribute common equity to KAW for KRS II, so that KAW's overall debt is maintained within a reasonable level.

10. Q. WITH THE ABOVE UNDERSTANDING OF KAW'S FINANCING PLANS, CAN YOU PROVIDE MORE SPECIFICS CONCERNING THE VARIOUS FINANCING ALTERNATIVES UNDER DISCUSSION?

A. Yes. While a number of competing alternatives are possible and other alternatives may develop, alternatives that could potentially be used can be summarized as follows:

1) KAW finances all construction costs, owns all KRS II facilities and contracts for the bulk sale of water under tariff rates authorized by the KYPSC.

2) KAW finances and owns all land for KRS II, finances and owns the finished water pipeline; partially finances and co-owns the intake and water treatment facilities and only non-owners make bulk water purchases under tariff rates.

3) KAW finances and co-owns all new KRS II facilities, contracts with the co-owners to share operating and future capital costs as conditions for the bulk sale of water under negotiated terms of take-or-pay contracts and only non-owners make bulk purchases under tariff rates.

11. Q. WHAT IS YOUR RECOMMENDATION TO THE KYPSC?

A. I recommend that the KYPSC approve KAW's application for the design and construction of KRS II and its associated facilities. Hopefully the region's water

supply can be addressed, but if not, KAW is fully prepared and capable of financing KRS II on a stand-alone basis and will utilize to most cost effective financing available to it. Accordingly the Commission should approve KAW's request to construct this most needed KRS II.

12. Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

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Louis M. Walters
32 Wesley Ave
Ocean City, NJ 08226
(W) 856-346-8310 (H) 609-814-1129
Email louis.walters@amwater.com

PROFILE

Senior Financial Executive with extensive management experience in regulated and non-regulated energy businesses. Directed financial operations and recognized for creative and leadership role in reducing debt and structuring stock offerings. Expertise in:

Capital Markets	Energy Risk Management	Budgeting
Shareholder Services	Tax	M/A Strategies
Pension Asset Management	Investor Relations	Cash Management

EXPERIENCE

Assistant Treasurer
AMERICAN WATER WORKS COMPANY, INC, Voorhees, NJ 2006-Present
The majority of American Water's activities are centered in regionally-managed utility subsidiaries that are regulated by the state in which each one operates. The regulated business accounts for approximately 85% of American Water's revenues. Key areas of responsibility include debt compliance, cash management and debt and equity financings.

Vice President-Treasurer
COVANTA ENERGY CORPORATION, Fairfield, NJ 2000-2006
Covanta Energy Corporation is a developer, owner and operator of waste-to-energy and independent power production projects. Covanta Energy is a wholly-owned subsidiary of Covanta Holding Corporation (ticker CVA), a New York Stock Exchange listed company. Covanta Energy acquired American Ref-Fuel on June 24, 2005. With the acquisition of American Ref-Fuel, Covanta Energy represents over 95% of the total revenue of CVA. Key areas of responsibility include investor relations, cash management and debt compliance. Participated in debt restructurings, rating agency presentations and Sarbanes-Oxley compliance requirements for accelerated filers as well as the acquisition of American Ref-Fuel. Member of management committee responsible for pension and 401(k) plans administration. Covanta is located in Fairfield, NJ.

CONECTIV, Wilmington, DE
Conectiv is public utility that was established in 1998 resulting from the merger of Atlantic Energy and Delmarva Power & Light. Conectiv, a public utility holding company, provides generation, transmission and distribution of electric power and natural gas.

Treasurer and Assistant Secretary 1998-1999
Established Conectiv Treasury functions for new public utility holding company. Confirmed credit ratings for both Delmarva and Atlantic Electric after the formation of Conectiv. Established credit rating for Conectiv.

Established Conectiv's initial long-term debt financing program. Placed $250 million of long-term debt in May 1999 to support stock buy back program.
Participated in combining Delmarva and Atlantic Energy pension plans, which resulted in significant cash savings to the consolidated company.

ATLANTIC ENERGY/ATLANTIC ELECTRIC, Pleasantville, NJ
Vice President - Treasurer and Assistant Secretary 1993-1998
Provided leadership in three $150 million debt offerings (medium term note programs) reducing overall embedded cost of debt over 100 basis points (bps).
Initiated tax advantaged preferred stock offerings in 1996 for $70 million and again in 1998 for $25 million. Proceeds utilized in the tender of outstanding, higher coupon preferred stock.

Directed two preferred stock tender offerings. Reduced embedded cost of preferred stock by over 50 bps in 1996. In 1998 eliminated the short-term debt restriction in Atlantic Electric's Charter. Designed and led corporate refinancing of over $70 million in tax exempt long-term debt. Developed strategies in the successful completion of common stock buy-back of over 3 million shares of Atlantic Energy common stock.
Led cost savings synergy study for combined merger team as a principal member of Atlantic Energy. Study resulted in the determination that the merger of Atlantic Energy and Delmarva Power would yield savings of $500 million over a 10-year period.

ATLANTIC ELECTRIC, Pleasantville, NJ

General Manager Treasury and Finance	1991-1993
Manager of Treasury Services	1989-1991
Manager of Tax	1984-1989
Supervisor of Tax	1981-1984
Supervisor of General Ledger	1979-1981
Internal Auditor	1978-1979

ADJUNCT INSTRUCTOR 1978-1980
Rowan University (Glassboro State College)
Auditing, Cost Accounting, Introduction to Finance

DELOITTE & TOUCHE (Haskins & Sells), Cherry Hill, NJ 1976-1978
Staff Senior Accountant
Professional Certification: CPA NJ 1978

EDUCATION

DREXEL UNIVERSITY		MS Taxation	1987
MURRAY STATE UNIVERSITY		MBA Accounting	1976
RIDER UNIVERSITY	CumLaude	BS Economics	1974