COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE INVESTIGATION INTO THE FEASIBILITY AND ADVISABILITY OF KENTUCKY-AMERICAN WATER COMPANY'S PROPOSED SOLUTION TO ITS WATER SUPPLY DEFICIT

CASE NO. 2001-117

NOTICE OF FILING OF SOURCE OF SUPPLY REPORT

Pursuant to the Commission's September 23, 2004 Order, Kentucky-American Water Company hereby gives notice of the filing of the attached Source of Supply Report.

Respectfully submitted,

Lindsey W. Ingram, Jr.
STOLL, KEENON & PARK, LLP
300 W. Vine St.
Suite 2100
Lexington, Kentucky 40507
859-231-3000

By Lindsey W. Ingram Jr. w.p.b. HAI
Counsel for Kentucky-American Water Company

CERTIFICATION

In conformity with paragraph 10 of the Commission's Order dated May 15, 2001 herein, this is to certify that the electronic version of this pleading is a true and accurate copy of this pleading filed in paper medium; that Kentucky-American Water Company has notified the Commission, the Attorney General, N.O.P.E., Inc., the Bluegrass Water Supply Consortium, the Lexington-Fayette Urban County Government and Bluegrass FLOW, Inc. by electronic mail that the electronic version of this pleading has been transmitted to the Commission; that a copy has been served by mail upon David E. Spenard, Utility and Rate Intervention Division, 1024 Capital Center Drive, Suite 200, P.O. Box 2000, Frankfort, Kentucky, 40602-2000; David Barberie, Esq. and Theresa L. Homes, Esq., Lexington-Fayette Urban County Government, Department of Law, 200 East Main Street, Lexington, Kentucky 40507; Anthony G. Martin, Esq. P.O. Box 1812, Lexington, Kentucky 40588; Phillip J. Shepherd, Esq., 307 West Main Street, P.O. Box 782, Frankfort, Kentucky, 40602; Joe F. Childers, Esq. 201 W. Short Street, Suite 310, Lexington, Kentucky 40504; Damon R. Tally, Esq., P.O. Box 150, 112 North Lincoln Boulevard, Hodgenville, Kentucky 42748; Foster Ockerman, Jr., Esq., Martin, Ockerman & Brabant, 200 North Upper Street, Lexington, Kentucky 40507 and Gerald E. Wuetcher, Esq., Public Service Commission, 211 Sower Boulevard, Frankfort, Kentucky 40601, and that the original and three (3) copies have been filed with the Public Service Commission in paper medium, all on this 8th day of November, 2004.

Lindsey W. Ingram, Jr. w.p.b. [illegible]
Counsel for Kentucky-American
Water Company

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INTRODUCTION

This report provides detailed efforts of Kentucky American Water (KAW) and other relevant entities since March 19, 2001 to ensure adequate sources of supply to meet customer demand through 2020. This report will address KAW's current estimate of the size of its water supply deficit as of 2020, the proposed creation of a water source commission, KAW's planned involvement with the proposed water source commission, the proposed construction of facilities at Kentucky River Pool No. 3 and on the Ohio River, the establishment of a grid network of water pipelines, the feasibility and adequacy of the Bluegrass Water Supply Commission's proposed solution, and KAW's intentions regarding the plan set forth in the report dated March 19, 2001.

On March 21, 2001, KAW filed a report in response to a request from the Kentucky Public Service Commission (PSC). 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 March 2001 report was to include past and future projects by the Kentucky River Authority (KRA) to increase water flows, as well as any activities by other water suppliers in central Kentucky that may impact the yield from the Kentucky River, and include a time-line of KAW's future efforts. Since that time KAW has been following the action plan defined in the March 2001 report. The plan included a number of alternatives for action based on progress of activities of other parties, including the KRA.

During this time period KAW's primary activities have involved implementing short-term production capacity improvements and partnership with a regional group of utilities, the Bluegrass Water Supply Consortium, seeking to develop a regional solution.

The purpose of this report is to provide a detailed update on KAW's efforts since March 2001 to resolve its source of supply and treatment capacity deficits, and its involvement with the Bluegrass Water Supply Consortium/Commission (BWSC).

BACKGROUND

The March 2001 report provided a summary of activities of KAW and other relevant agencies subsequent to the Kentucky Public Service Commission (PSC) Order of August 21, 1997 in Case No. 93-434 which directed KAW 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." Based on data available at that time, KAW had a source of supply deficit of 21 million gallons per day (mgd) during a severe drought, and a deficit in reliable production capacity of 11 mgd. Subsequent to the PSC's Order KAW's efforts to resolve these deficits focused on a project to deliver treated water from the Ohio River. However, on December 9, 1999 the Lexington-Fayette Urban County Government Council (LFUCG), the governmental body that represented 95% of KAW's customers at that time, passed a resolution calling for a Kentucky River solution to the region's water supply deficit. KAW recognized that community support was critical to the success of a large and controversial project that would potentially increase water bills by 20% or more. In light of the LFUCG's actions, KAW acquiesced to the LFUCG's proposed program for resolution of the deficit. In addition to describing recent and

proposed activities, the March 2001 report also raised a series of questions in need of answer to fully resolve the water supply deficits.

Case No. 93-434

KAW identified a water supply and treatment capacity deficit situation as early as 1986. The attempted resolution of the then-future problems began with a thorough investigation of alternatives.

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." This investigation came out of questions that arose about capital expenditures for the water supply solution in the KAW's general rate case, Case No. 920454. 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.

The case was eventually divided into two phases. The file is extensive and provided a thorough review of the source of supply and production capabilities and deficits, as well as an exhaustive review of the planning methodology and demand projections for KAW. The PSC issued an Order on March 14, 1995 which confirmed the reasonableness of KAW'S demand projections indicating that KAW used reputable sources of data and nationally accepted methodologies in developing its demand projections. This conclusion was significant in that it firmly established the magnitude of the supply and production capacities needed by KAW through 2020.

The PSC also addressed the source of supply, noting that KAW had had not had had sufficient capacity to meet its customers' unrestricted demand during a drought of record for at least eight years. During the course of the proceeding, the KR 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 KAW work cooperatively with the KRA to obtain a reliable safe yield analysis of the Kentucky River.

In late 1996 the KWRRI completed its analysis of the Kentucky River, which showed a source of supply deficit for KAW of 6.57 billion gallons which averaged 35.95 million gallons per day over the course of a drought of record, larger than had been presented earlier in Case No. 93-434. The KWRRI suggested that the basin deficit could be reduced 44% with the installation of six valves in upstream dams that would allow the transfer of water to downstream pools. This suggestion assumed that all of the additional water could be captured and would be utilized by the water withdrawers. With the valve installations and the proposed valve operating plan, KAW's deficit could be reduced by 54% over the duration of a severe drought.

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. In the Order in Case 93-434 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 KAW, 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.

The Order went on to state that the responsibility to develop an adequate source of water supply for KAW's customers is the direct obligation of KAW itself. The PSC ordered that KAW 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 KAW's customers under maximum consumption through the year 2020.

The Orders in Case 93-434 established that KAW was expected address the water supply needs of its customers. The investigation 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.

The Bluegrass Water Project

An Ohio River supply project had been selected by KAW in 1992 from more than 50 alternatives as the most feasible, cost effective solution for the water supply deficits. At that time KAW concluded that a solution to the supply deficit through the expansion of 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 several obstacles, including environmental concerns and funding shortfall. However, KAW implemented a "decision tree" approach to the resolution of the supply deficit that was outlined in its 1992 Least Cost/Comprehensive Planning Study. This meant that KAW supported efforts by the KRA to stabilize and enhance the Kentucky River supply, while concurrently undertaking preliminary activities independently on an Ohio River supply project to supplement the Kentucky River supply. A commitment to a decision on

either an Ohio River project or one that relied solely on the Kentucky River was to be made later as more information was known about the Kentucky River.

In 1993, KAW elected to pursue an Ohio River solution. Subsequently, questions arose among some stakeholders regarding the magnitude of the supply deficit and KAW's planned solution. These issues are well documented in previous Commission proceedings, particularly KAW General Rate Case No. 92-452. As promised in Case 92-452, KAW suspended work on the Ohio River supply project until the resolution of the issues in Case No. 93-434.

As a first order of business upon receipt of the Commission's Order in Case Number 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 had been undertaken to enhance the Kentucky River supply.

The KRA was established in 1986 to take over the operation of the Kentucky River Locks 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 source for funding and was able to hire a small staff. Starting in 1994, KAW began working closely with the KRA and monitoring all of its efforts as its activities were so important to KAW's source of supply decision. Prior to the conclusion of Case No. 93-434, the KRA transferred the ownership of Dam 10 from the Corps to the

Commonwealth of Kentucky. However, all other dams remained owned by the Corps through 2001. In 1997 the KRA did not have a strategic plan for ownership or stabilization of the dams, or for enhancements to increase the water supply. The condition of the foundations and cores of the 100-year old dams was unknown, and there was 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 enhancements; nor did it have 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. This became known as the Bluegrass Water Project (BWP).

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 the Louisville Water Company (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.

Lexington-Fayette Urban County Government

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.

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 LFUCG established a series of informational meetings to review the issues and to state its recommended solution to the water supply problem. Since the LFUCG Council represented 95% of KAW's customers at the time and because 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.

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.

On December 9, 1999 the LFUCG Council passed a resolution which 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 Appendix A. 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 design on 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 not 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.

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.

Regional Activities

On November 29, 1999 the LFUCG Council also heard about 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 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. It was determined that all entities had a production deficit within the 2020 planning horizon, totaling approximately 55 mgd. During the process the City of Paris withdrew from the Consortium and the City of Versailles joined the group. The BGADD made a presentation to the LFUCG on June 27, 2000 on the progress of the Consortium.

The BWSC 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 and dialogue has continued with the DOW since that time, achieving short term permit restriction relief.

Kentucky River Authority

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, a permanent increase in the height of the

dam rather than crest gates, and a rehabilitation of 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 remains uncompleted as of this date. 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.

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.

In October 2000 Congress authorized $2 million dollars for 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 occurred.

Water Supply Challenges

KAW's report to the Public Service Commission dated March 21, 2001 laid out the problem, that KAW faces two distinct but integrated challenges: A source of supply capacity deficit and a production (i.e., treatment plant) capacity deficit. These deficits will be discussed further in the report. Additionally, the report went on to identify a number of recommendations for action. They were:

- KAW would pursue hydraulic improvements at the Richmond Road Station to produce an additional 5 mgd.
- KAW would further explore an option to purchase finished water from the Frankfort Electric & Water Plant Board.

- KAW would continue to pursue modification of DOW permit restrictions which limit withdrawals from the Kentucky River under low flow conditions.
- The KRA would complete an updated model of the Kentucky River flows. If the model were to validate that the proposed improvements were adequate to resolve the supply deficit, KAW would continue with the process development in the time frame outlined in the LFUCG resolution.
- The KRA would complete the Environmental Impact Statement and design of raising Dam 10. If the dam could be feasibly raised and all of the water could be used for KAW's water supply deficit, then KAW would continue with the process development in the time frame outlined in the LFUCG resolution.
- KAW would encourage the KRA to determine if it would be feasible to raise the other dams prior to KAW initiating treatment plant construction in the process development timeframe.

Additionally, the report identified a number of questions that needed to be answered that were outside KAW's control or ability to resolve:

  - Will the KRA be able to develop a plan which fully resolves the supply deficit for all users of the Kentucky River?
  - Will it be technically feasible, financially practical and environmentally acceptable to raise Dam 10 by four feet on a timely basis? When will this be known? When will the project be completed?

- Will it be technically feasible, financially practical and environmentally acceptable to raise Dams 9, 10, 12 and 13 on a timely basis? When will this be known? When will the project be completed?
- How will the financing and schedule of needed stabilization of the dams be impacted by the Kentucky River supply enhancements?
- What portion of the additional supply gained by the raising of upstream dams will the DOW allow KAW to utilize? If and when those projects are completed, to what extent will KAW customers still be required to restrict usage during periods of low river flow?
- Is the KRA valve operating plan a valid assumption for modeling the availability of water supply during a drought? Can operation of the valves during a drought be guaranteed in accordance with the valve operating plan?
- Does the timetable outlined in the LFUCG Resolution provide the most reasonable schedule for solution to the problem? Can or should it be expedited? Are there conclusions that can be reached without delay? Are there activities which can and should be undertaken more quickly than outlined in the Resolution?

Status of Recommendations

In reviewing the recommendations from the March 2001 report, the current status briefly follows:

- KAW would pursue hydraulic improvements at the Richmond Road Station to produce an additional 5 mgd.

  Status: Project complete.

- KAW would further explore an option to purchase finished water from the Frankfort Electric & Water Plant Board.

  Status: Additional negotiations were suspended as both were participants in the Bluegrass Water Supply Commission and it appears that supplemental supply from Frankfort would be addressed through the regional efforts.

- KAW would continue to pursue modification of Dow permit restrictions which limit withdrawals from the Kentucky River under low flow conditions.

  Status: Complete. KAW requests annually additional water withdrawals and they have been granted each year. However, the DOW has indicated it will not permanently alter the permit until supply enhancements are made.

- The KRA would complete an updated model of the River flows. If the model were to validate the proposed improvements were adequate to resolve the supply deficit, KAW would continue with the process development in the time frame outlined in the LFUCG resolution.

  Status: The model update was completed but never converted to the new software, thus it is not clear that proposed improvements are adequate to resolve the supply deficit.

- The KRA would complete the Environmental Impact Statement and design of raising Dam 10. If the dam can be feasibly raised and all of the water could be used for KAW's water supply deficit, then KAW would continue with the process development in the time frame outline din the LFUCG resolution.

  Status: The KRA has not completed the Environmental Impact Statement and design of raising Dam 10. The schedule continues to be adjusted and KAW does not know at this time when they are expected to be completed.

- KAW would encourage the KRA to determine if it is feasible to raise the other dams prior to KAW initiating treatment plant construction in the process development timeframe.

  Status: The completion and success of the improvements to Dam 10 will impact the feasibility of raising other dams.

Demand Projections

Source of Supply

KAW currently utilizes the Kentucky River for virtually all of its raw water needs. It uses Jacobson Reservoir (500 million gallon capacity) as a supplemental raw water source; however, virtually all of the water which refills Jacobson Reservoir during the summer months is pumped from the Kentucky River. The amount of water available from Pool 9 of the Kentucky River during a severe drought is a combination of river flow and released storage from the upstream river pools. The optimal use of the storage greatly influences the water available over the duration of the drought. KAW's "safe

yield" of the Kentucky River/Jacobson Reservoir system, the maximum single daily volume of water that can be sustained during a drought of record, was determined to be 35 mgd in a 1991 study by Harza Engineering Company. No additional studies have been completed to confirm or refute the safe yield amount; however, the volumetric deficit computed by the KWRRI divided by the duration of a drought of record produces a similar amount.

The Kentucky DOW has limited KAW to withdrawing as little as 30 mgd from the Kentucky River during the most severe drought conditions. The KAW volumetric deficit in 2000 was 0.968 billion gallons, and would increase to 3.038 billion gallons by 2020 based on customer growth projections. With all of the proposed low level release valves assumed in place, the total basin-wide deficit of 2020 was 3.35 billion gallons and would grow to 5.467 billion gallons by 2020. The actual volume of the deficits is dependent on DOW allocation and release policy, which is continuing to be developed.

The adequacy of the source of supply is determined by comparing the safe yield to the projected demands. KAW uses a "Drought Average Day" demand calculated from historical usage for planning purposes. The projections take into account the current on-going conservation programs such as public education on outdoor watering, the use of low-flow restrictors, and increased leak detection. The drought average day projections and deficits are summarized in Table 1 below:

Source of Supply
Table 1

Year	March 2001		2002		Current	
	Drought Average Day Demand [1] (MGD)	Source of supply Deficit [2] (MGD)	Drought Average Day Demand [1] (MGD)	Source of supply Deficit [2] (MGD)	Drought Average Day Demand [1] (MGD)	Source of supply Deficit [2] (MGD)
2001	56	21				
2005	57	22	56	21	55	20
2010	58	23	59	24	58	23
2020	60	25	64	29	63	28
2025			67	32	65	30

(1) The projections of the drought average day demand include a 5% reduction from voluntary odd/even watering during drought.

(2) The deficit is based on 35 mgd safe yield (e.g., 2001: 56 – 35 = 21 MGD)

Production Capacity

The "reliable" or rated capacity of a treatment plant is defined as the maximum permitted production capacity, with the largest single mechanical unit at the plant assumed to be out of service. The Kentucky River Station (KRS) has a rated capacity of 40 mgd. The Richmond Road Station (RRS) has a rated capacity of 25 mgd because of capital improvements made in 1992 that increased the rated capacity from 20 mgd. Therefore, the total combined rated long-term reliable production capacity of KAW is 65 mgd.

To establish the adequacy of treatment plant capacity the rated production capacity must be compared to the projected single day maximum demand. KAW continues to use the demand model that was discussed extensively in Case No. 93-434. The model is updated with actual demands and updated population projections as they

become available. These demand projections continue to include the impact of ongoing conservation programs such as public education on outdoor water usage, the use of low-flow restrictors, and increased leak detection.

Recognizing that the reliable rated capacity contains several conservative assumptions (e.g., a major equipment failure simultaneous with the worst feasible raw water quality), KAW and the Drinking Water Branch (DWB), DOW of the Kentucky Department of Environmental Protection engaged in a dialogue concerning the operational capabilities of KAW's production facilities. In November 2000, DWB granted an approval for the re-rating of KRS to a reliable capacity of 45 mgd during the summer months, provided that water quality standards are maintained. Furthermore, KAW has demonstrated the capability of producing up to 50 mgd from KRS and 30 mgd from RRS with the hydraulic improvements, while maintaining good finished water quality. In a letter dated February 26, 2001, the DWB stated that "in instances where a water system must exceed the reliable plant capacity on any given day, the DWB may allow a system to run at the higher rate provided that health standards are met and proper disinfection is maintained. This approval is considered temporary..." -- In summary, KAW can produce up to 80 mgd now from its production facilities during the summer when demands are high and raw water quality is typically good. Therefore, KAW will be able to adequately treat the maximum demand projected until 2010 See Table 2 below). The DWB emphasized that this practice is not a final solution for treatment capacity needs, and that KAW should continue pursuit of a permanent solution. Tables 2, 3 and 4 compare the 2001 Demand Projections, the 2002 Demand Projections that included updated population projections and were provided to the Bluegrass Water Supply

Consortium for its report, and the current demand projections with updated historical use data.

2001 Demand Projections and Production Capacity Deficits
Table 2

Year	Projected Peak Day (1) (MGD)	Short-Term Operational		Long –Term Reliable	
		Capacity (MGD)	Surplus/(Deficit) (MGD	Capacity (MGD)	Surplus/(Deficit) (MGD
2001	75.94	76	0.06	65	(10.94)
2005	77.75	80(2)	2.25	65	(12.75)
2010	80.77	80(2)	(0.77)	65	(15.77)
2020	83.66	80(2)	(3.66)	65	(18.66)

(1) 95% Confidence Interval projection based on Hot, Dry scenario

(2) Increase in capacity is based on completion of improvements at RRS.

2002 Demand Projections and Production Capacity Deficits
Table 3

Year	Projected Peak Day (1) (MGD)	Short-Term Operational		Long –Term Reliable	
		Capacity (MGD)	Surplus/(Deficit) (MGD	Capacity (MGD)	Surplus/(Deficit) (MGD
2000 (3)	66.37	76	9.63	65	(1.37)
2005	76.67	80(2)	3.33	65	(11.67)
2010	80.22	80(2)	(0.22)	65	(15.22)
2020	87.67	80(2)	(7.67)	65	(22.67)
2025	90.97	80(2)	(10.97)	65	(25.97)

(1) 95% Confidence Interval projection based on Hot, Dry scenario

(2) Increase in capacity is based on completion of improvements at RRS.

(3) Actual Peak Demand

Current Demand Projections and Production Capacity Deficits
Table 4

Year	Projected Peak Day (1) (MGD)	Short-Term Operational		Long –Term Reliable	
		Capacity (MGD)	Surplus/(Deficit) (MGD	Capacity (MGD)	Surplus/(Deficit) (MGD
2000 (3)	66.37	76	9.63	65	(1.37)
2002 (3)	71.82	76	4.18	65	(6.82)
2005	75.02	80(2)	4.98	65	(10.02)
2010	78.29	80(2)	1.71	65	(13.29)
2020	85.61	80(2)	(5.61)	65	(20.61)
2025	88.78	80(2)	(8.78)	65	(23.78)

(1) 95% Confidence Interval projection based on Hot, Dry scenario

(2) Increase in capacity is based on completion of improvements at RRS.

(3) Actual Peak Demand

Activities Subsequent to March 2001

Kentucky River Enhancements

Since March 2001 the KRA has been working to complete the enhancements of Dam 10 which include a stabilization of the dam and increased elevation of the dam by six feet. At this time the Environmental Impact Statement has not been completed and thus design has not been completed. Indications from the Corps in July 2004 are that a permanent elevation increase may have an unacceptable environmental impact and the KRA should pursue stabilization with crest gates. The KRA has been resistant to crest gates. The regional water purveyors including KAW have also expressed concern with crest gates because of potential maintenance needs and the absolute necessity of the ability to time raising and lowering the crest gates. An updated schedule for implementation of the construction is not available at this time.

The KRA updated the river model based on 1999 actual events, but did not convert the model to the newer software that would allow for easier adjustments and real-time use as requested by the DOW.

The KRA has completed a geotechnical study of Dam 9, and has concluded that it is in a similarly bad condition as Dam 10. Stabilization of Dam 9 is slated next. Because of the efforts of the BWSC, the KRA has decided to undertake an evaluation of Dam 3 and move necessary stabilization of its forward in its master plan. Currently, funding sources are not in place for this work.

At this time the KRA has still only taken ownership of Dam 10. No updated schedule for ownership of the additional dams has been made available.

Bluegrass Water Supply Commission

Since March 2001 KAW has continued to be an active participant in the group of regional utilities that was originally called the Bluegrass Water Supply Consortium. KAW has 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 group grew to 17 utilities, although the core group remained the same. The Consortium 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, develop a financial plan that was affordable and fairly apportioned costs, implement a management approach that was fair

and flexible, and 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 of Landover, Maryland to perform the study, with the Bluegrass Area Development District 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 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.

Solution

The study was finalized in February 2004. The consultant identified 40 realistic alternatives based on the previous identification of more than 50 alternatives developed in other studies and some new analysis. 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 (DOW) will 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 continues to be pipeline to the LWC. The project including a purchase of treated water from the LWC was approximately $30 million less in total cost. However, the negative public perception about the Bluegrass Water Project 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 has been filed as a part of Case No. 2001-117 with the PSC.

KAW's Role

The legal counsel hired 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 total commitments less than the projected deficits in the study.

One significant note is that the study based the drought needs on the projected maximum day demand for each utility less the minimum withdrawal allowed in its permit. KAW insisted that O'Brien and Gere utilize its project "Drought Average Day Demand" rather than its projected maximum day demand. Under that scenario, KAW had a projected deficit of 29 mgd of the 67 mgd deficit identified. However, KAW indicated only a commitment for 22 mgd due to the size of its treatment capacity deficit, and presuming that some of the additional water available from water credits and the enhancements Dam 10 would be available to Kentucky American. It is unclear how those deficit reductions will be applied across the region but it is fair to assume that KAW will benefit in an individual deficit reduction based on some of the regional deficit reduction.

Most importantly, KAW is located at the hub of the grid network, and the only cost effective way a regional effort will be feasible is to 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 has received almost no criticism. Although more expensive, the project has been preliminarily approved by the LFUCG whose council voted to be a part of the Consortium. By utilizing the regional efforts KAW is arguably closer to a solution than by continuing the efforts of the BWP with public opposition. The consultant addressed the most heavily criticized area of the BWP by recommending a solution that maximizes the use of the Kentucky River yet provided a reliable back-up.

KAW has worked closely with the Consortium group at every step of the way. Each of the member utilities recognizes 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. 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 have all been 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.

At this time the BWSC is formalizing a phased construction plan for the grid network based on prioritized needs. The initial phase will probably include a connection between the Frankfort Electric and Water Plant Board and KAW. The O'Brien and Gere study developed cost estimates for the components, and so a funding plan can be developed once the phased construction plan is completed. At that point, funding can be sought for the appropriate detailed design and construction. Currently the BWSC does not have a defined funding mechanism or schedule.

KAW has a number of options available at this point for both funding and participation. It can certainly be a wholesale customer only, with the Consortium funding, owning and operating all facilities. Members of the Consortium have expressed concerns about full funding from KAW, but appear to be interested in other ways that KAW would partner. These include: 1) acting as an equity partner with capital payments included in KAW's rate base; 2) KAW using a build/operate contract; or 3) KAW using a design/build/operate contract. All alternatives must have appropriate Public Service Commission approval and attendant rate recovery. The Consortium group has also discussed the likelihood of an O & M contract for the treatment facilities. It would be helpful to the timely progress of the BWSC efforts to have input and guidance from the Kentucky PSC to determine acceptable rate treatment of any proposed funding alternatives for KAW. The BWSC is currently seeking federal and state assistance for upfront design funding until water sales are actually imminent. Additionally, the BWSC intends to seek public assistance on construction costs to minimize the impact to area residents. However, the BWSC recognizes that the current fiscal position of both state and federal agencies may prevent assistance at the present time and has begun exploring ways to finance continued efforts.

This opportunity, of cooperating with a group of which KAW is the largest user but not a member, potentially offers a timely solution to the problem with minimal opposition and with as much financial participation for KAW as may be appropriate. Further, with PSC oversight and the opportunity to craft a partnering agreement that offers as much input as a voting member of the Commission, KAW has chosen to

continue to work diligently with the regional effort to resolve the water supply problem. Without question, any efforts by KAW to not participate in the regional efforts as long as diligent progress is being made would be criticized publicly and not in the best interests of the region.

Pool 3 and Ohio River Withdrawals

At this time the proposed facilities at Pool 3 and the Ohio River are merely concepts. Based on extensive study and conversation with the DOW, the BWSC concluded as part of its report that it would need treatment facilities at Pool 3 with a raw water backup to the Ohio River around Carrollton. The specific site location of those facilities is not known at this time.

The study recommended a treatment facility of 45 mgd based on the needs of all 17 utilities participating. The final participants, including KAW, have indicated non-binding commitments of only 30 mgd. This clearly reduces the cost estimates, but the magnitude of that reduction has not been determined.

Additionally, there has not been a determination regarding the size of the Ohio River intake. The DOW has indicated that there may be as much as 20 mgd available for withdrawal from Pool 3 even during severe drought conditions because of return sewer flows. The BWSC will need to determine if it is necessary and cost effective to provide complete redundancy of the raw water supply or only a portion of the plant capacity, assuming a minimum amount of water would be available from the Kentucky River. Clearly the size of the Ohio River supply will impact the project estimates. In the study, the cost estimates provided for 45 mgd of raw water supply from the Kentucky River.

Grid Network

The O'Brien and Gere study 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 has been reduced. The proposed network includes:

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 is estimated in concept only, no specific routes have been proposed, and the ownership has not been determined. These facilities may be constructed, owned and operated by the BWSC or may be operated by the participating utilities.

KAW's Intentions regarding the Action Plan of the March 2001 Report

Since the March 2001 report, it has become clear that the course of action that will most likely produce a solution to the water supply problem is through the regional activities. Although the schedule may not be as aggressive as KAW would like, progress

is being made and the concept appears to have widespread stakeholder support. The proposed solution by the BWSC minimizes the dependence on the KRA which has not been able to achieve its proposed schedule. The proposed solution maximizes the use of the Kentucky River, thus providing a stable revenue stream for the KRA and achieving the proposed intentions of the LFUCG. KAW continues to support and partner with the BWSC, but is prepared to pursue its own solution if the regional effort flounders. The next few months will be critical for the BWSC, in development of by-laws, water sales agreements and a funding plan. The BWSC is prudently seeking professional assistance in developing those critical pieces.

Conclusion

In summary, KAW will continue to partner with the BWSC to aggressively pursue a feasible, cost effective solution to the water supply problem. KAW will continue to push to expedite the process. There are undoubtedly a number of large obstacles that need to be overcome to allow the BWSC efforts to succeed. These include working out with the DOW an appropriate regulation of water quality in the grid network from one system to another, equitable rate allocation by the BWSC to utilities for capital and operating expenses, development of BWSC By-laws and policies that address all participants' concerns fairly including future expansions, and a funding plan. KAW continues to support the KRA and its efforts to stabilize and enhance the Kentucky River system, but recognizes the challenges faced by the KRA.

The BWSC has made progress, and is now established as formal organization with a plan and a determination to implement a solution with widespread support. If at some future time, however, it is apparent that the BWSC efforts flounder, KAW will come to the PSC with an independent solution. It cannot be said at this time whether KAW would simply implement an independent version of the BWSC solution, resume the BWP, or take up some other alternative. Although KAW has made short-term improvements that allow it to meet its customer's unrestricted maximum demands, KAW realizes that those short-term improvements will only last through the 3-5 year time frame. If the BWSC does not have a funding plan in place in the next year, with proposed construction of a first phase to be completed within three years, KAW will have to re-evaluate our partnership with the BWSC as KAW recognizes that the responsibility to develop an adequate source of water supply for KAW's customers is the direct obligation of KAW itself.